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SULFUR AND ASH REDUCTION POTENTIAL, AND
SELECTED CHEMICAL AND PHYSICAL PROPERTIES OF UNITED STATES COALS

Volume I -- Eastern Region

by

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Sulfur and Ash Reduction Potential, and
Selected Chemical and Physical Properties
of United States Coals

Volume I - Eastern Region

ABSTRACT

This report presents the washability and comprehensive characterization results of 543 raw coal samples collected from the Eastern Region of the United States. This is the first volume of a three-volume report on the coals of the United States. All the data are presented in six appendices.

Statistical techniques and definitions are presented in Appendix A, and a glossary of terms is presented in Appendix B. The complete washability data and an in-depth characterization of each sample are presented alphabetically by state in Appendix C. In Appendix D a statistical evaluation is given for the composited washability data, selected chemical and physical properties, and washability data interpolated at various levels of Btu recovery. This presentation is shown by state, section, and region where four or more samples were collected. Appendix E presents coalbed codes and names for the Eastern Region coals. Graphical summations are presented by state, section, and region showing the effects of crushing on impurity reductions, and the distribution of raw and clean coal samples meeting various levels of SO₂ emissions.

The 543 raw coal samples from the Eastern Region contained on the average 14.0 percent ash, 1.84 percent pyritic sulfur, 2.82 percent total sulfur, and 12,730 Btu/pound, and would emit 4.50 pounds SO₂/MM Btu. Crushing the coal to 14-mesh top size and cleaning at 1.30 specific gravity would provide reductions of 79 percent ash, 86 percent pyritic sulfur, 55 percent total sulfur, and 61 percent in SO₂ emissions at a Btu recovery of 46.9 percent.

The Eastern Region produced 459 million tons of coal in 1989, which would emit 18.2 million tons of SO₂ if burned raw. Cleaning the coal crushed to 14-mesh top size at a Btu recovery of 90 percent and burning on a Btu basis equivalent to that of the raw coal would reduce the SO₂ emissions 43 percent to 10.3 million tons SO₂/year. Thus, crushing these coals to liberate impurities and then cleaning the resultant coal would provide significant reductions in mineral matter, and thus SO₂ emissions, and consequent acid rain. However, secondary markets would be needed for all or a portion of the reject material for the process to be economical.

INTRODUCTION

Background

The Air Quality Act of 1963 initiated a concerted effort by federal and local governments to preserve the Nation's air quality. Because air pollution from combustion of fossil fuels has long been recognized as a problem

by the EPA and its predecessors, major emphasis has been placed on the development of methods for controlling sulfur oxide emissions.

Coal-fired electric utility plants are a major source of sulfur oxide air pollution in the United States today. In 1989, the electric utilities burned about 766 million tons of coal, which had an average sulfur content of 1.3 percent. This accounted for 85 percent of all coal consumed domestically. By the year 2000, the amount of coal consumed by the electric utilities is expected to reach 1 billion tons.

In 1965, the National Air Pollution Control Administration (now the Environmental Protection Agency) funded a study by the United States Bureau of Mines to determine the content and forms of sulfur in the major sources of utility steam coals and to perform washability evaluations of these coals. The data from this work are shown in two reports, RI 7633,¹ published in 1972, and its updated version RI 8118,² published in 1976. To accelerate this program, the United States Bureau of Mines (USBM) contracted with Commercial Testing and Engineering Company to assist in the study. In RI 8118, the washability potential of 455 raw coal samples collected from the largest producing coal companies across the United States was evaluated. However, because of the energy crisis in the '70's, the Department of Energy (DOE) decided to assess the number of samples that had been collected in each state and look at a broader range of coals by obtaining additional samples for washability testing, with emphasis given to those coalbeds containing the largest coal reserves. These included samples from Alaska and from the Eastern, Central, and Western regions of the United States, thus increasing the number of samples to 975. These studies were carried out for DOE under contract by the University of Alaska, Conti Testing Laboratory, and Warner Laboratories. Part of the additional washability data obtained from the work was covered in two separate reports published on the coals of Pennsylvania (DOE/PETC/TR-82/15³) in 1982 and of Ohio (DOE/PETC/TR-83/7⁴) in 1983. The remaining washability data and the data on a wide range of characteristics of United States coals, such as proximate and ultimate analyses, sulfur forms, calorific value, ash fusion temperatures, and analyses of ash, were not published.

The data base describing the 975 samples contains the largest collection of washability and raw coal information on 600-pound samples crushed to 1 1/2-inch, 3/8-inch and 14-mesh top size. It is stored in the PETC Coal Technology Data Bank and has proven useful to coal mining, preparation, and utility officials; federal, state, and local governments; various industrial research groups; and academia. In addition, it is helpful in (1) developing SO₂ emission standards and determining compliance coals to meet them; (2) providing specification coals for the emerging synthetic fuels program; and (3) providing valuable information on U.S. coals in relation to the impending acid rain legislation. This report is the first in a three-volume series in which an in-depth characterization and washability data for all 975 samples will be presented: Volume I -- Eastern Region, Volume II -- Central Region, and Volume III -- Western Region.

New Source Performance Standards and Acid Rain Legislation

In 1971, the Environmental Protection Agency (EPA) issued an SO₂ emission standard of 1.2 pounds/million Btu (1.2 lb/MM Btu). In 1979, EPA issued New Source Performance Standards⁵ for new stationary sources, stating that all coals burned by electric utilities must limit SO₂ emissions by using what the regulations refer to as the "best available control technology." This is assumed to mean scrubbing; however, credit is given for sulfur removal during beneficiation because the requirements are based on the sulfur content of the coal as mined. Thus, utilities may use a combination of coal washing and scrubbing to achieve the required reduction in SO₂ emissions. The new regulations classify as-mined coals into four categories of SO₂ emission, each subject to a different level of SO₂ reduction, as shown in Table 1. The washability data from USBM reports RI 7633 and RI 8118 showing sulfur reduction potential of U.S. coals were used by EPA as a guide in setting SO₂ emission standards and by coal operators to determine the potential of cleaning to meet the standards.

Table 1. New Source Performance Standards -- 1979

Category	SO ₂ emission lb/MM Btu	SO ₂ reduction required, %	Ceiling limit, lbSO ₂ /MM Btu
1	<2	70	0.6
2	>2 to 6	70 to 90	0.6
3	>6 to 12	90	1.2
4	>12	>90	1.2

Nearly a dozen acid rain bills are in both houses of Congress, some of which call for substantial reductions of up to 50 percent of SO₂ emissions in the United States by 1995. These bills would require an annual reduction of SO₂ emissions ranging from 8-14 million tons per year below those of 1980 levels. The SO₂ emissions would be achieved in phases by the year 2000 and would take place in the acid deposition impact region consisting of 33 states, most of which are east of the Mississippi River, and the District of Columbia. Generally, each state would have to achieve an average state SO₂ emission rate ranging from 0.8 to 1.2 lb/MM Btu for all utility and non-utility fossil-fuel-fired major source boilers that were in operation in 1980. The states would have about two years after enactment to submit plans to EPA to meet the requirements. Provisions of the various bills would provide up to \$2.5 billion (to be matched by private funds) for a five-year retrofit control technology demonstration program. The washability data in this report could be vital in determining the SO₂ emission reduction possible for those states in the Eastern and Central Regions.

Sulfur in Coal

Available methods for controlling sulfur oxide emissions from stationary combustion sources fall into the following major categories:

1. The physical removal (coal cleaning) of pyritic sulfur prior to combustion
2. The use of fluidized-bed combustion with limestone additives
3. The removal of sulfur oxides from the combustion flue gas
4. The conversion of coal to a clean fuel (low sulfur) by such processes as gasification, liquefaction, and chemical extraction
5. The use of fuel switching and coal blending using low-sulfur coals

Of these five methods, physical removal of pyritic sulfur is the more developed method technologically and is potentially lowest in cost. However, the total amount of sulfur reduction that can be obtained is limited because only pyritic sulfur can be removed. Chemical and biological preparation techniques must be used to remove organic sulfur.

Sulfur in coal occurs in three forms: organic, sulfatic, and pyritic. Organic sulfur accounts for 30 to 70 percent of the total sulfur in most coals and is an integral part of the chemical coal matrix and cannot be removed by physical separation.

The sulfatic sulfur content is normally an oxidation product that is water soluble and is readily removed during coal cleaning. Sulfatic sulfur contents are usually less than 0.05 percent in fresh coal.

Pyritic sulfur occurs in the form FeS_2 , and is present in coal as discrete particles, although often of microscopic size. It is a heavy mineral with a specific gravity of about 5.0, whereas bituminous coal has an average specific gravity of about 1.3. The pyrite content of many coals can be reduced significantly by utilizing size reduction to liberate the pyrite and then performing gravimetric separation to remove it.

Washability tests must be conducted to determine the cleaning potential of a coal. A washability analysis is an evaluation of those physical properties of a coal that determine its amenability to improvements in quality by cleaning. This includes stage crushing to release impurities, specific gravity fractionation to remove the impurities, and chemical analyses and weight balances to show the quality and quantity of the cleaned product. A washability study is made by testing the coal sample at preselected, carefully controlled specific gravities. This is termed "float-sink" analysis, or specific gravity separation. Heavy organic liquids are commonly used in the laboratory to obtain the desired specific gravities of separation. Chemical analyses of the various specific gravity fractions of the coal are used to compile the washability data that indicate how well the coal can be prepared. These washability data in this report include ash, pyritic and total sulfur, and calorific content of the coal.

This report is the first of a three-volume series and presents the washability evaluation and comprehensive characterization of 543 samples collected from the Eastern Region (Figure 1) of the United States. The region is divided into the Northern and Southern sections to reflect the difference in characteristics between the coals of these two areas. The Northern Section includes Maryland, Ohio, Pennsylvania, and 40 counties in Northern West Virginia; and the Southern Section includes Alabama, East Kentucky, Tennessee, Virginia, and 15 counties in Southern West Virginia. Statistics showing the demonstrated reserve base and the production for 1989, and the preparation data for 1983 are presented in Table 2.

Table 2. Statistics Showing Demonstrated Reserve Base, Production, and Preparation for the Eastern Region Coals by State¹
(Thousand Short Tons)

State	1989		1983
	Demonstrated Coal Reserve Base ²	Coal Produced ³	Coal Cleaned
Alabama	4,905,000	28,532	14,746
Kentucky (East)	9,439,000	116,283	25,593
Maryland	768,000	3,149	1,149
Ohio	18,566,000	32,511	21,188
Pennsylvania	29,351,000	68,999	35,134
Tennessee	868,000	6,583	2,115
Virginia	2,793,000	51,236	12,360
West Virginia	37,666,000	151,249	69,020
Total	104,356,000	458,542	181,305

Note: ¹ Data are from Energy Information Administration, Washington, D.C.

² Demonstrated Reserve Base as of January 1989.

³ Preliminary Production Figures for 1989.

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Figure 1
MAP OF THE EASTERN REGION COAL FIELDS

samples from the Western Region; P.D. Rao, of the University of Alaska, who under contract from DOE directed the collection and the washability of the samples from Alaska; Timothy G. and Patricia A. Otroba, from Conti Testing Laboratories, who collected a number of samples from Pennsylvania and Ohio; and Kenneth Savage and Thomas Brazeau, of Commercial Testing & Engineering, Co., who supervised collection of some of the samples from West Virginia.

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TEST PROCEDURE

Collection of Samples

Channel samples were collected from surface and deep mines that were producing coal primarily for consumption by electric utilities. In general, an attempt was made to sample the largest utility-coal-producing mines in the United States; therefore, the 543 coal mine samples reported in this publication represent mines that provide more than 85 percent of the annual utility coal production in the Eastern Region.

Face samples were collected according to the procedure recommended by Fieldner and Selvig⁶ and Holmes⁷ except that the dimensions of each sample cut were expanded to permit 600 pounds of coal to be taken from the face. Partings and impurities were not removed from the samples unless otherwise noted. The face was cleared of loose coal or dirt for a width of approximately five feet. Loose pieces of roof were also taken down to prevent their falling into the sample while it was being obtained. Within the cleaned-off area on the face, the coal was cut from the roof to the floor in a channel one inch deep and about three feet wide to remove any altered or otherwise inferior coal. The floor was cleared and smoothed, and a sampling cloth was spread before collecting the sample.

The actual channel sample was cut perpendicular to the lay of the coalbed approximately 10 inches deep and wide enough to provide a 600-pound sample. For example, for a 4-foot-thick coalbed, a channel 30.5 inches wide was collected. The exception to this rule was a strip-mine sample obtained, where the overburden was removed. In this case, the depth and width of the channel were equal. For example, for the 4-foot-thick bed noted above, the channel was 17.5 inches deep by 17.5 inches wide. The collected sample included all partings and other impurities that occurred in the channel.

One hundred thirty-seven run-of-mine samples were collected by Commercial Testing & Engineering Co. from the raw-coal belt. These samples are easily recognized in this report because they were separated at an additional specific gravity of 1.90.

Sample Preparation

The 600-pound channel samples collected in the field were loaded into steel drums with plastic liners; the drums of coal were sealed, and returned to the coal preparation laboratory for processing. The sample preparation procedure is outlined in the flow sheet in Figure 2. The net weights of as-received coal were obtained for each sample to be tested. Each sample was air dried, reweighed, and crushed to 1 1/2-inch top size using a single-roll crusher. The sample was coned, long-piled, and shoveled into four pans, according to ASTM specifications, and divided into two portions by combining opposite pans.

One of the 1 1/2-inch top size portions was processed as is; the other portion was crushed in a jaw mill to 3/8-inch top size. This 3/8-inch top size material was then riffled into two portions; one was processed as is (3/8-inch top size); and the other was crushed to 14-mesh top size in a hammer mill and processed. Because the minus-100-mesh material is difficult to separate and represented such a small percentage of the weight of the two coarser size fractions analyzed, it was removed from them prior to float-sink testing, analyzed chemically, and included in the table with the washability analysis.

The various sized fractions were then float-sink tested at 1.30, 1.40, and 1.60 specific gravities using CERTIGRAV,* a commercial organic liquid of standardized specific gravity; the solution tolerance was ± 0.001 specific gravity unit and was monitored using a spindle hydrometer. Those samples processed by Commercial Testing and Engineering Co. were float-sink tested at an additional specific gravity of 1.90.

For the two coarser sizes, the separation was made in a screen bottom container that was immersed in 10-gallon-capacity vessels containing the organic liquid. The sample was placed in the 1.30 specific gravity bath in small quantities. This mixture was then stirred to prevent entrapment and allowed to remain quiescent for a while during which the products separated. The lighter specific gravity coal fraction was removed from the surface of the bath with a screen wire strainer; the heavier specific gravity material settled to the container bottom, and was then raised above the liquid level and drained. The container with the heavier specific gravity material was then placed in the 1.40 specific gravity solution, and the process repeated. This was continued until the sample was separated into the desired number of specific gravity fractions.

For the 14-mesh by 0 size fraction, the separation was made in glass separatory flasks joined by standard ground taper joints. After the sample was separated, a stopper was passed through the float layer and inserted into the neck of the separatory funnel. Both products were filtered; the "floats" were dried and prepared for analysis, while the "sinks" were re-introduced into another separatory flask that contained a heavier specific gravity liquid, and the float sink procedure was continued.

*Reference to specific brands does not imply endorsement by the DOE.

Figure 2
FLOW DIAGRAM SHOWING PREPARATION
OF CHANNEL SAMPLES

For the earlier samples processed in this study, a head sample was riffled from the 14-mesh by 0 portion for proximate analysis (moisture, ash, volatile matter, and fixed carbon) and for determination of calorific value, fusibility of ash, free-swelling index, Hardgrove grindability index, and sulfur forms and content (sulfatic, pyritic, organic, and total). In addition, another portion of the 14-mesh x 0 material was float-sink tested at 1.60 specific gravity, and similar analyses were obtained on each fraction. For the later samples, all of the above analyses plus ultimate analyses, analyses of ash, and chlorine content were obtained.

Upon completion of the float-sink testing of the earlier samples, the specific gravity fractions of the three sized samples were analyzed for ash, pyritic sulfur, and total sulfur content. The calorific value for the specific gravity fractions of the samples obtained early in the study were calculated using a relationship between ash and heating values obtained from the raw head sample and the float-sink 1.60 specific gravity products. For the later samples, each specific gravity fraction was analyzed for calorific content. All chemical analyses were reported on a moisture-free basis unless otherwise noted. Total moisture, as presented in the appendix tables, was the moisture loss upon initial air drying of the sample at the coal preparation laboratory plus the loss determined by ASTM method D3173. It is felt that under normal conditions, the moisture content as reported here would closely simulate the natural bed moisture content of the coal.

DESCRIPTION OF APPENDICES

In order to show the effect of size reduction and specific gravity fractionation on the liberation and subsequent removal of pyritic sulfur and other impurities for Eastern Region coals, 543 sets of individual washability data have been compiled. Because of the large amount of data generated, the statistical techniques and definitions, the glossary of terms, the complete washability and characterization data, the various statistical summations, and the coalbed codes and names are presented as appendices.

Appendix A presents the statistical techniques and definitions; Appendix B is a glossary of terms. Appendix C presents the complete washability and characterization data of the Eastern Region coals and constitutes the main body of the report. Appendix D presents a statistical evaluation of composite washability data, selected chemical and physical properties, and washability at various levels of Btu recovery by state, section, and region. Appendix E presents the coalbed codes and names for the Eastern Region coals.

Appendix C is a complete tabulation of the washability data for the 543 samples from the Eastern Region. The data are presented alphabetically by state, county, and coalbed, in two tables for each sample. Each sample was collected from a different mine. The analyses presented in the first table in this appendix show cumulative weight and Btu recoveries, percent ash, percent pyritic sulfur, percent total sulfur, calorific content in Btu per pound, and SO₂ emissions in pounds of SO₂ per million Btu. In addition, the raw coal size distribution and moisture analysis are presented. Ash,

pyritic sulfur, total sulfur and Btu/lb are reported on a moisture-free basis according to ASTM standards.⁸

Appendix C also shows the analyses of the raw coal sample crushed to pass 14 mesh for each channel and run-of-mine sample tested. The analyses presented for each sample are: proximate, Btu, ultimate, and sulfur forms on an as-received, moisture-free and moisture-and ash-free basis; and also mineral analyses of ash, fusibility of ash, miscellaneous data, coal utilization ratios, and physical parameters. About half of the calorific values were measured in the laboratory, and the other half were calculated from an equation. The equation was derived using the ash/Btu values of the raw coal sample and the float-sink 1.60 specific gravity products, as discussed in Appendix B. The mineral matter was determined by the Parr formula, where mineral matter = (1.08)(ash) + (0.55)(total sulfur). The SO₂ emission values, in pounds of SO₂ per million Btu, were calculated by the formula 1b SO₂/MM Btu = (% sulfur) x (20,000)/(Btu/lb). This assumes that all of the sulfur in the coal exits the stack as SO₂. Actual emissions may vary because as-fired coals will contain some moisture, and not all sulfur is converted into SO₂, and may remain in the ash [see Appendix D for sulfites (SO₃)].

Appendix D represents statistical summaries of the washability data given in Appendix C for states from which four or more samples were collected for the Northern and Southern Sections of the Eastern Region.

1. The Northern Section includes the States of Maryland, Pennsylvania, and Ohio, and those 40 counties located in northern and central West Virginia, as shown below.

Barbour*	Hampshire	Mineral	Ritchie
Berkeley	Hancock	Monongalia*	Roane
Braxton	Hardy	Morgan	Taylor
Brooke*	Harrison*	Nicholas*	Tucker
Calhoun	Jackson	Ohio*	Tyler
Clay	Jefferson	Pendleton	Upshur*
Doddridge	Lewis*	Pleasants	Webster
Gilmer*	Marion*	Pocahontas	Wetzel
Grant*	Marshall*	Preston*	Wirt
Greenbrier	Mason	Randolph*	Wood

*Counties from which samples were collected.

2. The Southern Section includes the States of Alabama, Kentucky (east), Tennessee, Virginia, and 15 counties located in southern West Virginia, as shown below.

Boone*	Lincoln	Mingo*	Summers
Cabell	Logan*	Monroe	Wayne
Fayette	McDowell*	Putnam	Wyoming*
Kanawha*	Mercer	Raleigh	

*Counties from which samples were collected.

In addition, Appendix D also gives a statistical evaluation of the composited data for selected chemical and physical properties for the raw coal samples and the float and sink 1.60 specific gravity products from samples which were crushed to 14-mesh top size. This statistical evaluation lists coal characteristics such as proximate and Btu analyses, ultimate analyses, sulfur forms, mineral analyses of ash, fusibility of ash, miscellaneous data, and physical parameters.

The float-sink data obtained from testing of the channel samples are not to be construed as representing the quality of run-of-mine coal but rather as indicating the quality of the bed in that particular geographical location, excluding any dilution from roof or floor material. Float-sink data are based upon theoretically perfect specific gravity separations that are approached but not equaled in commercial practice.

Figure 3 is a nomograph showing the SO_2 emissions that will result from burning coals of various sulfur and Btu contents. When using the nomograph or the formula, both the Btu-per-pound and sulfur values must be on the same basis whether it be as-received, moisture-free, or moisture- and ash-free. For example, a coal containing 0.8 percent sulfur and 13,100 Btu per pound would produce 1.2 pounds SO_2 /MM Btu; however, a coal of the same sulfur content but containing only 10,500 Btu per pound would produce 1.5 pounds of SO_2 /MMBtu.

DISCUSSION OF RESULTS

Northern Section States

A total of 482 coalbed samples were collected from the Northern Section states of Maryland (35), Ohio (149), Pennsylvania (205), and West Virginia (North) (93), and evaluated gravimetrically.

Maryland

The average of the 35 raw coal samples from Maryland contained 16.4 percent ash, 1.73 percent pyritic sulfur, 2.43 percent total sulfur, and 12,627 Btu per pound, which would emit 3.9 pounds SO_2 /MM Btu when burned at the power plant (Appendix D). This appendix also shows that crushing these coals to 14-mesh top size and cleaning at 1.60 specific gravity would provide an average product containing 9.5 percent ash, 0.53 percent pyritic sulfur, 1.27 percent total sulfur, and 13,885 Btu per pound at a Btu recovery of 90 percent, and emitting 1.8 pounds SO_2 /MM Btu when burned. Thus, as shown by these data and Figure 4, preparation techniques would provide an average ash reduction of 42 percent, an average pyritic sulfur reduction of 70 percent, a total sulfur reduction of 48 percent, and an SO_2 emission reduction of 53 percent.

The selected chemical and physical properties showed that the 35 raw coal samples on the average contained 75.1 percent total carbon and 0.08 percent chlorine, had a 2445°F initial ash deformation temperature (ID), 2502°F ash softening temperature (ST), and 2589°F ash fluid temperature (FT). The Hardgrove Grindability Index (HGI) was 90, and the free swelling index (FSI) was 6 1/2 indicating a relatively easy to grind coal that was a

Figure 3
NOMOGRAPH RELATING SULFUR CONTENT
AND CALORIFIC VALUE IN COALS TO POUNDS
SO₂ EMISSION PER MILLION BTU

MARYLAND

Figure 4 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

caking coal. There was no analysis of ash on this coal. Cleaning the coal at 1.60 specific gravity increased the total carbon content to 82.4 percent, the ID temperature to 2668°F, the ST to 2713°F, and the FT to 2755°F. The HGI remained 90, and the FSI increased to 8.

Figure 5 shows a distribution of the SO₂ emissions for those samples collected in the state and shows that 100 percent of the raw coal samples would emit 9.9 pounds of SO₂/MM Btu or less if burned. However, upon crushing to 1 1/2-inch top size and cleaning at 1.60 specific gravity, 100 percent of the samples would emit 6.2 pounds SO₂/MM Btu or less, and crushing to 14-mesh top size and washing at 1.30 specific gravity would improve the quality of the samples to 1.8 pounds SO₂/MM Btu or less. This figure also shows that 13 percent of the raw coal samples, 18 percent of the samples crushed to 1 1/2-inch top size, and 38 percent of the samples crushed to 14-mesh top size would meet a ceiling of 1.2 pounds SO₂/MM Btu.

Maryland produced 3 million tons of coal in 1989, and this coal would emit 0.15 million tons of SO₂/year if fired in utility plant boilers. However, preparing the coal at 14-mesh top size and 90 percent Btu recovery, and burning it on an equivalent Btu basis to that of the raw coal, would provide a product that would emit 0.07 million tons of SO₂, thus reducing the SO₂ emissions by 0.08 million tons, or 53 percent, per year. Therefore, cleaning Maryland coals before burning would provide significant benefits in relation to the SO₂ emission standards and the acid rain problem.

Ohio

The average of the 149 raw coal samples from Ohio contained 13.2 percent ash, 2.50 percent pyritic sulfur, 3.90 percent total sulfur, and 12,470 Btu/pound, and would emit 6.3 pounds SO₂/MM Btu if burned at the power plant as mined (Appendix D). Crushing the coals to 14-mesh top size and cleaning the coal at 1.60 specific gravity would provide a product containing 7.3 percent ash, 1.01 percent pyritic sulfur, 2.40 percent total sulfur, and 13,484 Btu/pound at a Btu recovery of 95 percent, and the coal would emit 3.6 pounds SO₂/MM Btu if fired. Therefore, these data and Figure 6 show that coal preparation techniques would provide an average ash reduction of 45 percent, a pyritic sulfur reduction of 60 percent, a total sulfur reduction of 39 percent, and SO₂ emission reduction of 44 percent.

The various chemical and physical property analyses indicate that the raw coal samples contained an average of 69.8 percent total carbon and 0.09 percent chlorine, and had a 2135°F ID, 2204°F ST, and 2326°F FT. The HGI was 53 indicating a relatively hard to grind coal, and the FSI was 4 1/2, indicating a caking coal. The analysis of ash showed 37.42 percent SiO₂, 20.61 percent Al₂O₃, and 33.33 percent Fe₂O₃. Cleaning the coal at 1.60 specific gravity would provide a product containing 74.8 percent total carbon, 2308°F ID, 2373°F ST, and 2490°F FT. The HGI was 46, and the FSI was 5. The analysis of ash of the clean coal product showed an increase in SiO₂ to 41.76, an increase in Al₂O₃ to 25.61, and a decrease in Fe₂O₃ to 23.84.

Figure 7 presents a distribution of the SO₂ emissions and shows that 100 percent of the raw coal samples would emit 12 pounds SO₂/MM Btu or less

MARYLAND

Figure 5 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

OHIO

Figure 6 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

Figure 7 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

if burned at the power plant. However, crushing these coals to 1 1/2-inch top size and cleaning at a specific gravity of 1.60 would upgrade the samples to 8.3 pounds SO₂/MM Btu. Crushing to 14-mesh top size and washing the coal at 1.30 specific gravity would improve the quality of these coals to 5.9 pounds SO₂/MM Btu or less. This figure also shows that none of the raw coal samples, 3 percent of the samples cleaned at 1 1/2-inch top size, and 14 percent of the samples prepared at 14-mesh top size would meet a level of 1.2 pounds SO₂/MM Btu.

Ohio produced 33 million tons of coal in 1989, which would emit 2.6 million tons SO₂ per year if burned. If the coal were cleaned at a 14-mesh top size and a 90 percent Btu recovery, and burned at an equivalent Btu basis, the SO₂ emissions would be reduced by 46 percent to 1.4 million tons per year. Therefore, cleaning the coal would provide substantial benefits in regard to SO₂ emissions and the resultant acid rain.

Pennsylvania

The average of 205 raw coal samples from Pennsylvania contained 14.8 percent ash, 1.74 percent pyritic sulfur, 2.53 percent total sulfur, and 12,778 Btu/pound, and would emit 4.0 pounds SO₂/MMBtu if burned at the utilities (Appendix D). Crushing the coal to 3/8-inch top size and washing the coal at 1.60 specific gravity would provide a product containing 7.7 percent ash, 0.65 percent pyritic sulfur, 1.44 percent total sulfur, and 14,044 Btu/pound at a Btu recovery of 94 percent, and the coal would emit 2.1 pounds SO₂/MM Btu if fired. These data and Figure 8 show that coal cleaning techniques would provide reductions in ash of 49 percent, in pyritic sulfur of 63 percent, in total sulfur of 43 percent, and in SO₂ emissions of 48 percent. Thus, crushing to liberate impurities and then cleaning to remove them is a very effective technique.

The data show that the raw coal samples contained an average of 72.1 percent total carbon and 0.09 percent chlorine, and had 2399°F ID temperature, 2456°F ST temperature, and 2567°F FT temperature. The HGI was 70, indicating relatively easy to grind coal, while the FSI was 7 1/2, indicating a good caking coal. The analysis of ash showed an SiO₂ content of 49.28 percent, an Al₂O₃ content of 25.58 percent, and an Fe₂O₃ content of 17.49 percent. Upgrading the coal at 1.60 specific gravity would increase the total carbon content to 78.7 percent, the ID temperature to 2675°F, the ST temperature to 2718°F, and the FT to 2773°F. The HGI dropped slightly to 66, while the FSI increased to 8. The analysis of ash of the clean coal product showed that the SiO₂ remained about the same, while the Al₂O₃ increased to 29.35 percent, and the Fe₂O₃ decreased to 12.79 percent.

A distribution of the SO₂ emissions is presented in Figure 9 and shows that 100 percent of the raw coal samples would emit up to 16.1 pounds SO₂/MM Btu or less. Utilizing coal cleaning practices of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would improve the quality of the samples to 8.5 pounds SO₂/MM Btu or less, while crushing to 14-mesh top size and cleaning at 1.30 specific gravity would upgrade the sample to 2.7 pounds SO₂/MM Btu or less. This figure also shows that 7 percent of the raw samples, 12 percent of the samples prepared at 1 1/2-inch top size, and

PENNSYLVANIA

Figure 8 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

PENNSYLVANIA

Figure 9 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

50 percent of the samples cleaned at 14-mesh top size would meet a level of 1.2 pounds SO₂/MM Btu.

Pennsylvania produced 69 million tons of coal in 1989, which would emit 3.5 million tons of SO₂ per year if fired at the power plants. The data show that if burned at a comparable Btu basis, the samples cleaned at 14-mesh top size and 90 percent Btu recovery would produce 1.6 million tons of SO₂ per year, or a reduction of 54 percent. This would substantially lower the SO₂ emissions and the resultant acid rain.

West Virginia (North)

The average of the 93 raw coal samples contained 14.1 percent ash, 1.84 percent pyritic sulfur, 2.88 percent total sulfur, and 12,859 Btu/pound, and would emit 4.5 pounds SO₂/MM Btu if burned. Appendix D shows that crushing the coal to 14-mesh top size and cleaning at 1.60 specific gravity would provide a product containing 7.5 percent ash, 0.64 percent pyritic sulfur, 1.65 percent total sulfur, and 14,043 Btu/pound, and the coal would emit 2.3 pounds SO₂/MM Btu if fired. These data and Figure 10 show that these laboratory coal preparation techniques would provide reductions of 47 percent in ash, 65 percent in pyritic sulfur, 43 percent in total sulfur, and 48 percent in SO₂ emissions.

The selected chemical and physical properties showed that the average raw coal samples contained 72.1 percent total carbon and 0.11 percent chlorine, and had a 2247°F ID temperature, 2336°F ST temperature, and 2429°F FT temperature. The HGI was 60, indicating a relatively hard coal to grind, and the FSI was 7 1/2, indicating a good caking quality. The analysis of ash showed an SiO₂ content of 40.84 percent, an Al₂O₃ content of 24.08 percent, and an Fe₂O₃ content of 23.26 percent. Cleaning the coal at 1.60 specific gravity would increase the total carbon content to 78.3 percent, the ID temperature to 2466°F, the softening temperature to 2534°F, and the fluid temperature to 2606°F. The HGI decreased slightly to 59, while the FSI increased to 8. The analysis of ash of the float 1.60 specific gravity product showed that the SiO₂ increased to 45.78 percent, the Al₂O₃ increased to 29.94 percent, and the Fe₂O₃ decreased to 13.42 percent.

A distribution of the SO₂ emissions is presented in Figure 11 and shows that 100 percent of the raw coal samples would emit 9.2 pounds SO₂/MM Btu or less. Using coal preparation techniques of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would upgrade the samples to 6.8 pounds SO₂/MM Btu or less, while crushing to 14-mesh top size and washing at 1.30 specific gravity would improve the quality to 4.8 pounds SO₂/MM Btu or less. The figure also shows that 3 percent of the raw coal samples, 5 percent of the samples crushed to 1 1/2-inch top size, and 37 percent of the samples crushed to 14-mesh top size would meet an SO₂ emission level of 1.2 pounds/MM Btu.

Northern West Virginia produced 67 million tons of raw coal in 1989, which would emit 3.9 million tons of SO₂ per year if consumed at the utilities. Cleaning the coal crushed to 14-mesh top size and burning on a comparable Btu basis at a Btu recovery of 90 percent would reduce the SO₂ emissions by 51 percent to 1.9 million tons of SO₂ per year. Thus, cleaning

WEST VIRGINIA (NORTH)

Figure 10 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

WEST VIRGINIA (NORTH)

Figure 11 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

these coals would have significant impact on the SO₂ emissions and the resultant acid rain.

Southern Section States

Sixty-one coalbed samples were collected from the Southern Section states of Alabama (10), Kentucky East (18), Tennessee (8), Virginia (8), and West Virginia South (17), and evaluated gravimetrically.

Alabama

The 10 raw coal samples contained an average of 9.5 percent ash, 0.70 percent pyritic sulfur, 1.34 percent total sulfur, and 13,489 Btu/pound, and would emit 2.0 pounds SO₂/MM Btu if burned (Appendix D). The data show that crushing to 1 1/2-inch top size and cleaning the coal at 1.40 specific gravity would produce a product containing 4.7 percent ash, 0.41 percent pyritic sulfur, 1.10 percent total sulfur, and 14,345 Btu/pound, and would emit 1.5 pounds SO₂/MM Btu if burned. These data and Figure 12 show that these coal cleaning techniques would provide reductions of 50 percent ash, 40 percent pyritic sulfur, 17 percent total sulfur, and 23 percent in SO₂ emissions.

The data show that the average raw coal samples contained 82.0 percent total carbon, 0.09 percent chlorine, 2582°F initial deformation temperature, 2620°F softening temperature, and 2663°F fluid temperature. The HGI was 45, indicating a hard-to-grind coal, and the FSI was 7, indicating a good caking coal. The analysis of ash was not performed on these coals. Upgrading the coal at 1.60 specific gravity would have little effect on the total carbon content and increased the ID temperature to 2668°F, the ST to 2669°F, and the FT to 2730°F. The HGI and FSI showed little change.

A distribution of the SO₂ emission for the samples tested is presented in Figure 13 and shows that 100 percent of the raw coal samples would emit 5.8 pounds or less of SO₂/MM Btu. Utilizing coal preparation methods of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would improve the quality of the samples to 4.9 pounds SO₂/MM Btu or less, and crushing to 14-mesh top size and washing the samples at 1.30 specific gravity would upgrade the samples to 1.8 pounds SO₂/MM Btu or less. The figure also shows that 37 percent of the raw coal samples, 50 percent of the samples crushed to 1 1/2-inch top size, and 73 percent of the samples crushed to 14-mesh top size would meet an SO₂ emission level of 1.2.

Alabama produced 29 million tons of raw coal in 1989, which would emit 0.78 million tons of SO₂/year if burned. Washing the coal crushed to 14-mesh top size at a Btu recovery of 90 percent, and burning on a Btu basis equivalent to the raw coal, would reduce the SO₂ emissions by 26 percent, or 0.58 million tons of SO₂ per year. Therefore, cleaning these coals would moderately reduce SO₂ emissions and acid rain.

Kentucky (East)

The data in Appendix D show that the 18 raw coal samples from Kentucky contained an average of 12.4 percent ash, 1.34 percent pyritic sulfur, 2.02

ALABAMA

Figure 12 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

ALABAMA

Figure 13 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

percent total sulfur, and 12,605 Btu/pound, and would emit 3.3 pounds SO_2 /MM Btu if burned. The data show that crushing the coal to 14-mesh top size and cleaning at 1.60 specific gravity would provide a product containing 5.7 percent ash, 0.55 percent pyritic sulfur, 1.32 percent total sulfur, and 13,727 Btu/pound, and would emit 1.9 pounds SO_2 /MM Btu if fired. These data and Figure 14 show that these laboratory coal preparation techniques would provide reductions of 53 percent ash, 58 percent pyritic sulfur, 34 percent total sulfur, and 40 percent SO_2 emissions.

The composite data show that the average raw coal samples contained 71.9 percent total carbon and 0.11 percent chlorine; the ID temperature was 2509°F; the ST was 2561°F; and the FT was 2633°F. The HGI was 44, indicating a hard-to-grind coal, while the FSI was 2 1/2, indicating a caking coal. The analysis of ash showed 36.39 percent SiO_2 , 26.92 Al_2O_3 , and 32.11 Fe_2O_3 . Cleaning the coal at 1.60 specific gravity would increase the total carbon content of the float product to 77.1 and increase the ID to 2643°F, the ST to 2682°F, and the FT to 2729°F. There was little change in HGI and FSI. The SiO_2 content in the ash would increase to 39.38 percent, and the Al_2O_3 to 31.68 percent, while the Fe_2O_3 content in the ash decreased to 23.08 percent.

A distribution of the samples meeting various SO_2 emission levels is depicted in Figure 15 and shows that 100 percent of the raw coal samples would emit 8.8 pounds or less of SO_2 /MM Btu if burned. Using coal cleaning techniques of crushing to 1 1/2-inch top size and fractionating the coal at 1.60 specific gravity would upgrade the samples to 6.0 pounds SO_2 /MM Btu, however crushing to 14-mesh top size and separating at 1.30 specific gravity would improve the quality to 3.0 pounds SO_2 /MM Btu. This figure also shows that 18 percent of the raw coal samples, 28 percent of the samples crushed to 1 1/2-inch top size, and 55 percent of the samples crushed to 14-mesh top size would meet a level of 1.2 pounds SO_2 /MM Btu.

Eastern Kentucky produced 116 million tons of coal in 1989, which would emit an average of 4.8 million tons of SO_2 /year if burned. Cleaning the coal crushed to 14-mesh top size at a Btu recovery of 90 percent and burned at an equivalent Btu basis would reduce the SO_2 emissions by 42 percent to 2.8 million tons SO_2 /year. Therefore, cleaning the coal before burning it would provide significant reductions in SO_2 emissions and acid rain.

Tennessee

The data in Appendix D show that the 8 raw coal samples contained on the average 8.0 percent ash, 0.43 percent pyritic sulfur, 1.17 percent total sulfur, and 13,614 Btu/pound, and would emit 1.7 pounds SO_2 /MM Btu if burned. The data show that crushing the coal to 3/8-inch top size and washing at 1.60 specific gravity would provide a product containing 4.7 percent ash, 0.20 percent pyritic sulfur, 0.98 percent total sulfur, and 14,167 Btu/pound, and the coal would emit 1.4 pounds SO_2 /MM Btu if fired at the power plant. Further crushing would be of minimal benefit. These data and Figure 16 show that these coal cleaning techniques would provide reductions of 39 percent ash, 52 percent pyritic sulfur, 16 percent total sulfur, and 19 percent in SO_2 emissions.

KENTUCKY (EAST)

Figure 14 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

Figure 15 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

TENNESSEE

Figure 16 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

The average data for the selected chemical and physical properties of the raw coal samples were 79.9 percent total carbon, 0.24 percent chlorine, ID temperature of 2398°F, ST of 2453°F, and FT of 2535°F. There was no analysis of ash. The HGI was 40, these were very hard coals to grind, and the FSI was 4 1/2, indicating these were caking coals. Upgrading the coal at 1.60 specific gravity would increase the total carbon to 81.0, and the ash fusion temperatures to ID temperature of 2453°F, ST of 2495°F, and FT of 2620°F. The upgrading would have minimal effect on the HGI (40) and FSI (5 1/2).

A distribution of the samples meeting various levels of SO₂ emissions is presented in Figure 17. The data show that all of the raw coal samples would emit 5.2 pounds SO₂/MM Btu or less if burned. Coal beneficiation techniques of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would improve the quality of the coals to 3.8 pounds SO₂/MM Btu or less, and crushing to 14-mesh top size and cleaning at 1.30 specific gravity would further upgrade the samples to 2.7 pounds SO₂/MM Btu or less. This figure also shows that 35 percent of the raw coal samples, 63 percent of the samples crushed to 1 1/2-inch top size, and 68 percent of the samples crushed to 14-mesh top size would meet a level of 1.2 pounds SO₂/MM Btu.

Tennessee produced 6.5 million tons of coal in 1989, which would emit an average of 0.15 million tons of SO₂ per year if burned. Washing the coal crushed to 14-mesh top size at a Btu recovery of 90 percent and burning on an equivalent Btu basis would reduce the SO₂ emissions 20 percent to 0.12 million tons of SO₂ per year. Thus, cleaning the coal prior to burning would provide moderate reductions in SO₂ emissions and acid rain.

Virginia

The data in Appendix D show that the 8 raw coal samples from Virginia contained on the average 10.1 percent ash, 0.20 percent pyritic sulfur, 0.77 percent total sulfur, and 13,643 Btu/pound, and the coal would emit 1.1 pounds SO₂/MM Btu if burned at the power plant. The data show that crushing to 1 1/2-inch top size and cleaning the samples at 1.60 specific gravity would provide a product containing 5.0 percent ash, 0.13 percent pyritic sulfur, 0.74 percent total sulfur, and 14,511 Btu/pound, and the coal would emit 1.0 pound SO₂/MM Btu if fired. Further crushing would be of minimal benefit. These data and Figure 18 show that these coal cleaning techniques would provide reductions of 50 percent ash, 31 percent pyritic sulfur, 4 percent total sulfur, and 9 percent SO₂ emissions. Note that because of the very low sulfur content of the various clean coal fractions, the percent of sulfur reduction is masked by the statistical fluctuation of the data, which causes anomalies in the reduction curves (Figure 18).

The average data for the selected chemical and physical properties showed that the raw coal samples contained 82.0 percent total carbon and 0.04 percent chlorine, and had a 2380°F initial deformation temperature, 2455°F softening temperature, and 2559°F fluid temperature. There was no analysis of ash. The HGI was 50, indicating a hard-to-grind coal, and the FSI was 7 1/2, indicating a good caking coal. Cleaning the coal at 1.60 specific gravity would increase the total carbon to 83.1 percent and the ash fusion temperature to 2519°F (ID), 2565°F (ST), and 2640°F (FT). The upgrading reduced the HGI to 40 and the FSI to 5 1/2.

Figure 17 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

VIRGINIA

Figure 18 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

Figure 19 presents a distribution of the samples meeting various levels of SO₂ emissions. The data show that 100 percent of the raw coal samples would emit 1.8 pounds SO₂/MM Btu or less, if burned. Coal cleaning techniques of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would improve the quality of the coals to 1.4 pounds SO₂/MM Btu or less, and crushing to 14-mesh top size and washing the coals at 1.30 specific gravity, would upgrade the samples to 1.1 pounds SO₂/MM Btu, or less. This figure also shows that 63 percent of the raw coal samples, 75 percent of the samples crushed to 1 1/2-inch top size, and all of the samples crushed to 14-mesh top size would meet a level of 1.2 pounds SO₂/MM Btu.

Virginia produced 51 million tons of coal in 1989, which would emit an average of 0.77 million tons of SO₂ per year if fired. Cleaning the coal crushed to 14-mesh top size and at a Btu recovery of 90 percent, and burning on a comparable Btu basis, would reduce the SO₂ emissions 19 percent to 0.62 million tons SO₂ per year. Cleaning the coal before burning it would reduce SO₂ emissions and acid rain slightly.

West Virginia (South)

The data in Appendix D show that the 17 raw coal samples contained on the average 13.5 percent ash, 0.26 percent pyritic sulfur, 0.88 percent total sulfur, and 12,781 Btu/pound, and the coal would emit 1.4 pounds SO₂/MM Btu if burned. The data show that crushing the samples to 3/8-inch top size and washing the samples at 1.60 specific gravity would provide products containing 6.2 percent ash, 0.14 percent pyritic sulfur, 0.80 percent total sulfur, and 14,075 Btu/pounds, and the coal would emit 1.1 pounds SO₂/MM Btu if fired. These data and Figure 20 show that these coal cleaning methods would provide reductions of 54 percent ash, 47 percent pyritic sulfur, 8 percent total sulfur, and 16 percent in SO₂ emissions.

The average for the selected chemical and physical data showed that the raw coal samples were 70.7 percent total carbon, 0.15 percent chlorine, 2828°F ID temperature, 2854°F ST, and 2873°F FT. The analysis of ash showed 59.23 percent SiO₂, 29.42 percent Al₂O₃, and 3.72 percent Fe₂O₃. The HGI was 48, while the FSI was 5 1/2. Upgrading the coal at 1.60 specific gravity would increase the total carbon content to 78.8 percent, the Al₂O₃ content in the ash to 34.70 percent, and the Fe₂O₃ to 4.60 percent; decrease the SiO₂ content in the ash to 53.60 percent; and increase the ID temperature to 2884°F, the ST to 2891°F, and the FT to 2891°F. Cleaning had little effect on the HGI and the FSI.

Figure 21 presents a sample distribution at various SO₂ levels. The figure shows that 100 percent of the raw coal samples would emit 2.8 pounds SO₂/MM Btu or less if burned. Laboratory coal preparation methods of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would upgrade the samples to 2.0 pounds SO₂/MM Btu, while crushing to 14-mesh top size and cleaning the coals at 1.30 specific gravity would improve the quality to 1.6 pounds SO₂/MM Btu or less. This figure also shows that 45 percent of the raw coal samples, 77 percent of the coals crushed to 1 1/2-inch top size, and 93 percent of the coals crushed to 14-mesh top size would meet a level of 1.2 pounds SO₂/MM Btu.

VIRGINIA

Figure 19 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

WEST VIRGINIA (SOUTH)

Figure 20 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

**Figure 21 DISTRIBUTION OF RAW AND CLEAN COAL
SAMPLES MEETING VARIOUS LEVELS OF
SULFUR DIOXIDE EMISSIONS**

Southern West Virginia mined 84 million tons of coal in 1989, which would emit an average of 1.5 million tons of SO_2 /year if burned. Washing the coal crushed to 14-mesh top size with a Btu recovery of 90 percent, and burning it on an equivalent Btu basis to that of the raw coal would reduce the SO_2 emissions 20 percent to 1.2 million tons SO_2 per year. Thus, cleaning the coal prior to burning would slightly reduce SO_2 emissions and the resultant acid rain.

Northern Section

The data in Appendix D show that 482 raw coal samples contained on the average 14.3 percent ash, 1.99 percent pyritic sulfur, 3.01 percent total sulfur, and 12,687 Btu/pound, and the coal would emit 4.8 pounds SO_2 /MM Btu if burned at the power plant. The data also show that crushing to 14-mesh top size and cleaning the samples at 1.60 specific gravity would provide a product containing 7.5 percent ash, 0.69 percent pyritic sulfur, 1.70 percent total sulfur, and 13,886 Btu/pound, and the coal would emit 2.5 pounds SO_2 /MM Btu if fired. These data and Figure 22 show that this coal preparation technique would provide reductions of 48 percent ash, 66 percent pyritic sulfur, 44 percent total sulfur, and 49 percent in SO_2 emissions.

The average data for the selected chemical and physical properties of the Northern Section showed that the raw coal samples contained 71.3 percent total carbon, and the ash contained 41.56 percent SiO_2 , 23.25 percent Al_2O_3 , 25.35 percent Fe_2O_3 , and 0.09 percent chlorine. The ash fusion temperatures were ID 2296°F, ST 2363°F, and FT 2471°F. The HGI was 62, indicating these were relatively hard to grind coals, and the FSI was 6 1/2, indicating good caking coals. Beneficiating these 14-mesh topsize coals at 1.60 specific gravity would increase the total carbon content to 77.3, the SiO_2 content in the ash to 45.35 percent, and the Al_2O_3 to 28.36 percent; increase the ash fusion temperature to 2527°F ID, 2581°F ST, and 2653°F FT; and decrease the Fe_2O_3 content to 16.75 percent, but had minimal effect on the HGI and the FSI.

Figure 23 depicts the sample distribution meeting various SO_2 emission levels. The figure shows that 100 percent of the raw coal samples would emit 16.3 pounds SO_2 /MM Btu, or less, if burned. Coal preparation methods of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would improve the quality of the samples to 9.2 pounds SO_2 /MM Btu or less, and crushing to 14-mesh top size and separating at 1.30 specific gravity would upgrade the samples to 6.0 pounds SO_2 /MM Btu or less. This figure also shows that 4 percent of the raw coal samples, 8 percent of the samples crushed to 1 1/2-inch top size, and 35 percent of the samples crushed to 14-mesh top size would meet a level of 1.2 pounds SO_2 /MM Btu.

The Northern Section produced 172 million tons of coal in 1989, which would emit an average of 10.2 million tons of SO_2 /year if burned. Cleaning the coal crushed to 14-mesh top size at a Btu recovery of 90 percent and firing it at a comparable Btu basis as that of the raw coal would reduce SO_2 emissions 51 percent to 5.0 million tons SO_2 /year. Therefore, cleaning the coal before burning it would cut the SO_2 emissions in half and significantly reduce acid rain.

NORTHERN SECTION

Figure 22 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

Figure 23 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

Southern Section

Appendix D shows that the 61 raw coal samples averaged 11.4 percent ash, 0.67 percent pyritic sulfur, 1.31 percent total sulfur, and 13,067 Btu/pound, and would emit 2.1 pounds SO_2 /MMBtu if burned at the power plant. The data also show that crushing to 3/8-inch top size and cleaning the samples at 1.60 specific gravity provided products which averaged 5.8 percent ash, 0.36 percent pyritic sulfur, 1.06 percent total sulfur, and 14,030 Btu/pound, and the coal would emit 1.5 pounds SO_2 /MM Btu if fired. Further crushing would provide minimal benefits. These data and Figure 24 show that these coal cleaning methods would provide reductions of 49 percent in ash, 45 percent in pyritic sulfur, 19 percent in total sulfur, and 25 percent in SO_2 emissions.

The average data for the selected chemical and physical properties of the Southern Section showed that the raw coal samples contained 74.7 percent total carbon, and 0.11 percent chlorine. The ash contained 40.20 percent SiO_2 , 27.34 percent Al_2O_3 , 27.38 percent Fe_2O_3 . The ash fusion temperatures were 2593°F ID, 2638°F ST, and 2692°F FT. The HGI was 46, indicating very hard to grind coals, and the FSI was 5, indicating good caking coals. Crushing the coals to 14-mesh top size and separating at 1.60 specific gravity would increase the total carbon content to 79.2 percent, SiO_2 content in the ash to 41.75 percent, and Al_2O_3 to 32.18 percent; and decrease the Fe_2O_3 in the ash to 20.00 percent. The ID temperature increased to 2690°F, the ST to 2715°F, and the FT to 2754°F. However, cleaning would have minimal effect on the HGI and the FSI of these coals.

Figure 25 presents a distribution of the samples at various SO_2 levels of emission. The figure shows that 100 percent of the raw coal samples would emit 8.8 pounds SO_2 /MM Btu or less if these coals were fired at the utilities. Coal cleaning techniques of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would upgrade the samples to 6.2 pounds SO_2 /MM Btu or less, and crushing to 14-mesh top size and cleaning at 1.30 specific gravity would improve the quality of the samples to 3.0 pounds SO_2 /MM Btu or less. This figure also shows that 37 percent of the raw coal samples, 59 percent of the samples crushed to 1 1/2-inch top size, and 77 percent of the samples crushed to 14-mesh top size would meet an SO_2 emission level of 1.2 pounds per MMBtu.

The Southern Section produced 287 million tons of coal in 1989, which would emit an average of 8.0 million tons of SO_2 per year if burned at the utilities. Cleaning the coal crushed to 14-mesh top size at a Btu recovery of 90 percent and fired at a comparable Btu basis as that of the raw coal would reduce SO_2 emissions 34 percent to 5.3 million tons of SO_2 per year. Thus, cleaning the coal would reduce SO_2 emissions and acid rain moderately.

Eastern Region

The data in Appendix D show that 543 raw coal samples of the Eastern Region contained on the average 14.0 percent ash, 1.84 percent pyritic sulfur, 2.82 percent total sulfur, and 12,730 Btu/pound, and these coals would emit an average of 4.5 pounds SO_2 /MM Btu if burned at the utilities. The data also show that crushing to 14-mesh top size and cleaning at 1.30

SOUTHERN SECTION

Figure 24 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

SOUTHERN SECTION

Figure 25 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

specific gravity would provide products containing an average of 2.9 percent ash, 0.25 percent pyritic sulfur, 1.27 percent total sulfur, and 14,677 Btu/pound, and these coals would emit 1.8 pounds SO_2 /MMBtu if burned. These data and Figure 26 show that the coal preparation techniques would provide reductions of 79 percent ash, 86 percent pyritic sulfur, 55 percent total sulfur, and 61 percent SO_2 emissions.

The composite data show that the average raw coal samples contained 71.7 percent total carbon, 0.09 percent chlorine, 41.50 percent SiO_2 , 23.42 percent Al_2O_3 , and 25.43 percent Fe_2O_3 , while the IDT was 2332°F, the ST 2396°F, and the FT 2497°F. The HGI was 60, indicating relatively hard to grind coals, and the FSI was 6 1/2, indicating good caking coals. Cleaning the coals at 1.60 specific gravity would increase the SiO_2 in the ash to 45.20 percent, the Al_2O_3 to 28.52 percent, and the Fe_2O_3 to 16.89 percent. It would also increase the IDT to 2547°F, the ST to 2597°F, and the FT to 2665°F. However, upgrading the coals had minimal effect on the HGI and FSI.

Figure 27 presents a sample distribution of the SO_2 emissions and shows that 100 percent of the raw coal samples would emit 16.1 pounds SO_2 /MM Btu or less. Coal preparation techniques of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would upgrade the SO_2 distribution to 9.2 pounds SO_2 /MM Btu or less, and crushing to 14-mesh top size and cleaning at 1.30 specific gravity would improve the quality to 6.0 pounds SO_2 /MM Btu or less. This figure also shows that 8 percent of the raw coal samples, 16 percent of the samples crushed to 1 1/2-inch top size, and 45 percent of the samples crushed to 14-mesh top size would meet an emission level of 1.2 pounds SO_2 /MM Btu.

The Eastern Region produced 459 million tons of coal in 1989, which would emit an average of 18.2 million tons of SO_2 /year when burned. Cleaning the coal crushed to 14-mesh top size at a Btu recovery of 90 percent and burning on a Btu basis equivalent to that of the raw coal would reduce SO_2 emissions 43 percent to 10.3 million tons of SO_2 /year. Thus, cleaning the coal before burning it would reduce SO_2 emissions and any resultant acid rain significantly.

CONCLUSIONS

1. The analysis of the raw coal samples of the Northern Section ranged on the average from 13.2 percent ash in Ohio coals to 16.4 percent in Maryland coals, 1.73 percent pyritic sulfur in Maryland coals to 2.50 percent in Ohio coals, 2.43 percent total sulfur in Maryland coals to 3.90 percent in Ohio coals, and 3.9 pounds SO_2 /MM Btu in Maryland coals to a high of 6.3 pounds SO_2 /MM Btu in Ohio coals.
2. The analyses of the raw coal samples of the Southern Section ranged on the average from 8.0 percent ash in Tennessee coals to 13.5 percent in West Virginia (South) coals, 0.20 percent pyritic sulfur in Virginia coals to 1.34 percent in Kentucky (East) coals, 0.88 percent total sulfur in West Virginia (South) coals to 2.02 percent in Kentucky (East) coals, and 1.1 pounds SO_2 /MM Btu in West Virginia (South) coals to 3.3 pounds SO_2 /MM Btu in Kentucky (East) coals.

EASTERN REGION

Figure 26 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

EASTERN REGION

Figure 27 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

3. Crushing the coals from a top size of 1 1/2 inches to 14 mesh to release impurities and subsequently removing them through coal cleaning methods would provide significant reductions in these impurities. For the Northern Section coals, these coal preparation techniques would provide, on the average, reductions in ash ranging from 42 percent in Maryland coals to 49 percent in Pennsylvania coals, in pyritic sulfur of 60 percent in Ohio coals and Pennsylvania coals to 70 percent in Maryland coals, in total sulfur of 39 percent in Ohio coals to 48 percent in Maryland coals and in SO₂ emissions of 44 percent in Ohio coals to 53 percent in Maryland coals.
4. For the Southern Section states, coal preparation techniques of crushing and separating would provide average reductions in ash ranging from 39 percent in Tennessee coals to 54 percent in West Virginia (South) coals, in pyritic sulfur from 31 percent in Virginia coals to 58 percent in Kentucky (East) coals, and in total sulfur of 4 percent in Virginia coals to 34 percent in Kentucky (East) coals, and in SO₂ emissions from 9 percent in Virginia coals to 40 percent in Kentucky (East) coals.
5. The number of raw coal samples in the Northern Section meeting 1.2 pounds SO₂/MM Btu was 13 percent in Maryland, 0 percent in Ohio, 7 percent in Pennsylvania, and 3 percent in West Virginia (North). Using laboratory coal preparation techniques of crushing these coals to 14-mesh top size and obtaining a float 1.30 specific gravity product upgraded 38 percent of the samples in Maryland, 14 percent of these in Ohio, 50 percent in Pennsylvania, and 37 percent of these in West Virginia (North) to meet an emission level of 1.2 pounds SO₂/MM Btu.
6. The number of raw coal samples in the Southern Section meeting an SO₂ emission of 1.2 pounds/MM Btu was 37 percent in Alabama, 18 percent in Kentucky (East), 35 percent in Tennessee, 50 percent in Virginia, and 63 percent in West Virginia (South). Laboratory coal cleaning techniques of crushing these coals to 14-mesh top size and separating at 1.30 specific gravity could upgrade 73 percent of the samples in Alabama, 55 percent in Kentucky East, 68 percent in Tennessee, 100 percent in Virginia, and 93 percent in West Virginia (South) to meet an emission level of 1.2 pounds/MM Btu.
7. Based on 1989 coal production, the amount of SO₂ emitted if all the coal of the Northern Section states were burned as mined in the utility plant boilers would be 0.15 million tons per year in Maryland, 2.6 million tons per year in Ohio, 3.5 million tons in Pennsylvania, and 3.9 million tons per year in West Virginia (North). Cleaning the coal at 14-mesh top size and a Btu recovery of 90 percent, and burning at a comparable Btu basis of the raw coal, would reduce the SO₂ emissions by 53 percent to 0.07 million tons per year in Maryland, 46 percent to 1.4 million tons per year in Ohio, 54 percent to 1.6 million tons per year in Pennsylvania, and 51 percent to 1.9 million tons per year in West Virginia (North). Thus, utilizing coal preparation techniques before burning the coal at the power plant would significantly reduce SO₂ emissions up to 54 percent.

8. Based on 1989 coal production, the amount of SO₂ emitted if all the coal in the Southern Section was burned in the utility plant boilers would be 0.78 million tons per year in Alabama, 4.8 million tons per year in Kentucky (East), 0.15 million tons per year in Tennessee, 0.77 million tons per year in Virginia, and 1.5 million tons per year in West Virginia (South). Cleaning the coal crushed to 14-mesh top size to a Btu recovery of 90 percent and burning at a Btu basis equivalent to that of the raw coal, would reduce the SO₂ emissions 26 percent to 0.58 million tons per year in Alabama, 42 percent to 2.8 million tons per year in Kentucky (East), 20 percent to 0.12 million tons per year in Tennessee, 19 percent to 0.62 million tons per year in Virginia, and 20 percent to 1.2 million tons per year in West Virginia (South). Even though these coals are generally low in sulfur, cleaning prior to burning would reduce SO₂ emissions in a range from 19 to 42 percent.
9. The 482 raw coal samples from the Northern Section contained on the average 14.3 percent ash, 1.99 percent pyritic sulfur, 3.01 percent total sulfur, and 12,687 Btu/lb, and would emit 4.8 pounds SO₂/MM Btu as burned. Appropriate cleaning methods would provide reductions of 48 percent ash, 66 percent pyritic sulfur, 44 percent total sulfur, and 49 percent SO₂ emissions. Therefore, crushing to liberate impurities and then cleaning the coal provided large reductions in mineral matter.
10. Evaluation of the Northern Section coals show that 4 percent of the raw coal samples, 8 percent of the samples crushed to 1 1/2-inch top size, and 35 percent of the samples crushed to 14-mesh top size would meet a level of 1.2 pounds SO₂/MM Btu.
11. Based on 1989 coal production the Northern Section coals would emit 10.2 million tons of SO₂/per year if burned. Cleaning the coals crushed to 14-mesh top size to a Btu recovery of 90 percent and burning at a comparable Btu recovery as that of the raw coal would reduce SO₂ emissions by 51 percent to 5.0 million tons of SO₂ per year. Therefore, cleaning the coal before burning it would cut the SO₂ emissions in half and reduce acid rain.
12. The 61 raw coal samples from the Southern Section contained on the average 11.4 percent ash, 0.67 percent pyritic sulfur, 1.31 percent total sulfur, and 13,067 Btu/pound, and would emit 2.1 pounds SO₂/MM Btu if burned. Appropriate coal preparation techniques would provide reductions of 49 percent ash, 45 percent pyritic sulfur, 19 percent total sulfur, and 25 percent in SO₂ emissions. Thus, crushing the coal to various top sizes ranging from 1 1/2 inches to 14 mesh to liberate impurities and then subsequently removing them provided significant reductions in mineral matter.
13. Analysis of the Southern Section coals show that 37 percent of the raw coal samples, 59 percent of the samples crushed to 1 1/2-inch top size, and 77 percent of these crushed to 14-mesh top size would meet an SO₂ emission level of 1.2 pounds/MM Btu.

14. Based on 1989 coal production, the Southern Section coals would emit an average of 8.0 million tons of SO_2 per year when burned. Cleaning the coal by crushing to 14-mesh top size at a 90 percent Btu recovery, and burning it at an equivalent Btu basis, would reduce the SO_2 emissions by 34 percent to 5.3 million tons per year. Even though these are low-sulfur coals, coal preparation techniques will provide large reductions in SO_2 emissions.
15. Overall, the 543 raw coal samples from the Eastern Region contained on the average 14.0 percent ash, 1.84 percent pyritic sulfur, 2.82 percent total sulfur, and 12,730 Btu/pound, and would emit 4.5 pounds SO_2 /MM Btu. Crushing the coal to 14-mesh top size and then cleaning at 1.30 specific gravity would provide reductions of 79 percent ash, 86 percent pyritic sulfur, 55 percent total sulfur, and 61 percent SO_2 emissions. Thus, crushing these coals to liberate impurities and then cleaning the resultant coal would reduce the mineral matter and resultant SO_2 emissions significantly.
16. The average data for the selected chemical and physical properties of the Eastern Region showed that cleaning the coals at 1.60 specific gravity would increase the total carbon content and thus the calorific value. Upgrading these coals would increase the SiO_2 and Al_2O_3 content in the ash and decrease the Fe_2O_3 content in the ash of the float 1.60 specific gravity products and increase the ash fusion temperatures, and thus affect the fouling and slagging in the utility boilers. Beneficiation had minimal effect on the HGI, FSI, and chlorine content of the product coal.
17. Based on 1989 coal production, the Eastern Region coals would emit an average of 18.2 million tons of SO_2 per year when burned. Cleaning the coals and burning them at the utilities would reduce SO_2 emissions 43 percent to 10.3 million tons per year and thus reduce any resultant acid rain significantly.

REFERENCES

1. Deurbrouck, A.W. Sulfur Reduction Potential of the Coals of the United States, U.S.B.M. R.I.7633, 1972, 289 pp.
2. Cavallaro, J.A., M.T. Johnston, and A.W. Deurbrouck. Sulfur Reduction Potential of the Coals of the United States, U.S.B.M. R.I.8118, 1976, 323 pp.
3. Wizzard, J.T., J.A. Cavallaro, and A.W. Deurbrouck. Sulfur Reduction Potential of the Bituminous Coals of Pennsylvania, DOE/PETC/TR-82/15, 1982, 329 pp.
4. Wizzard, J.T., J.A. Cavallaro, and A.W. Deurbrouck. Sulfur Reduction Potential of the Coals of Ohio, DOE/PETC/TR-83/7, 1983, 246 pp.
5. Federal Register, Part II Environmental Protection Agency, New Stationary Sources Performance Standards; Electric Utility Steam Generating Units, Monday, June 11, 1979, Vol. 44, No. 113.

6. Fieldner, A.C., and W.A. Selvig. Notes in the Sampling and Analysis of Coal. BuMines Tech. Paper 586, 1938, 48 pp.
7. Holmes, J.A. The Sampling of Coal in the Mine. BuMines Tech. Paper 1, 1918, 22 pp.
8. 1976 Annual Book of ASTM Standards, Part 26, Gaseous Fuels: Coal and Coke, Atmospheric Analysis, pp. 396-398.
9. Coal Fouling and Slagging Parameters, The American Society of Mechanical Engineers, 1974, 34 pp.
10. Winegartner, E.C., and Rhodes, B.T., "An Empirical Study of the Relation of Chemical Properties to Ash-Fusion Temperatures," J. Eng. Power 97, 1975, pp. 395-406.
11. Reid, W.T., and Cohen, P., "The Flow Characteristics of Coal-Ash Slags in the Solidification Range," ASME Transactions, Vol. 66, Special Edition, 1944, pp. 83-84.
12. "Guide Specifications, Cyclone Furnace Fuel Systems, Coal," Babcock and Wilcox Co., February 7, 1971.

OTHER PERTINENT REFERENCES

Keystone Coal Industry Manual 1988, A Maclean Hunter Publication, Chicago, IL, 1127 pp.

Coal Preparation, 4th Edition, The American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc., New York, 1979.

APPENDIX A

STATISTICAL TECHNIQUES AND DEFINITIONS

APPENDIX A STATISTICAL TECHNIQUES AND DEFINITIONS

Appendix D presents three types of statistical summaries, or composites, of the individual sample data given in Appendix C. The first type of summary, in principle, represents averages of all samples collected in a particular state. Exceptions have been made in the cases of West Virginia and Kentucky. West Virginia has been divided into a northern and a southern section according to the distinction traditionally made between the northern and southern Appalachian coal fields. Another exception to the grouping by state has been made in the case of Kentucky, where only the eastern fields are considered to belong to the Eastern region treated in this report.

In the second type of summary, the numerical information concerning the individual samples was averaged for each of the two sections of the Eastern coal region -- the Northern Section and the Southern Section -- regardless of the state. The third type of summary contains averages over the whole Eastern Region. Because all coals described in this report are bituminous, no classification or summary by rank was necessary.

Each set of statistical data for a given state, section, or region consists of three pages, each evaluating the data from different perspectives. The first page, entitled "Statistical Evaluation of the Composited Washability Data by State/Section/Region," describes the results of washability tests. For the three different top sizes and their individual specific gravities, the appropriate numbers of all the samples from the particular geographic location have been averaged for the following parameters: weight recovery, Btu recovery, heating value (in Btu/lb), ash content, pyritic sulfur content, total sulfur content, and the sulfur dioxide emission (in lb SO₂/million Btu). The sulfur dioxide emission was calculated for each sample using the equation

$$\text{Emission, lb SO}_2\text{/MM Btu} = \frac{20,000 \times \text{Total Sulfur, percent}}{\text{Heating Value, Btu/lb}} \quad (1)$$

With the total sulfur given in weight percent and the heating value in Btu/lb, the resulting number represents pounds of emitted SO₂ per million Btu of coal burned.

The averages ($\bar{X}$) and their standard deviations (σ) are calculated according to the following conventional formulas:

$$\bar{X} = \frac{\sum_{i=1}^N X_i}{N} \quad (2)$$

$$\sigma = \sqrt{\frac{\sum_{i=1}^N (X_i - \bar{X})^2}{N-1}} \quad (3)$$

Here, X_i designates the quantity (X) of the i th sample to be averaged, and N is the number of samples in the averaging group. If the number of samples was less than 4 ($N < 4$), no statistical evaluations were carried out.

The averages and standard deviations can be used to define confidence intervals and/or tolerance limits for some measured attributes of the coal samples. If the sample data follow a normal distribution, then for 68 percent of the samples, the parameter $\bar{X}$ should fall within the range of $\bar{X} \pm \sigma$, for 95 percent the range is $\bar{X} \pm 2\sigma$, and for 99.7 percent it is $\bar{X} \pm 3\sigma$.

The increase in the heating value and the reduction of the other quantities (ash content, the various sulfur contents, and the sulfur dioxide emission), together with their standard deviations, were calculated from the averaged numbers and their standard deviations. The formulas for those calculations are

$$\bar{X} = 100 \frac{\bar{X}_g}{\bar{X}_o} \quad (4)$$

$$\sigma = 100 \frac{\bar{X}_g}{\bar{X}_o} \sqrt{\left(\frac{\sigma_g}{\bar{X}_g}\right)^2 + \left(\frac{\sigma_o}{\bar{X}_o}\right)^2} \quad (5)$$

The subscript "g" refers to the specific gravity for which the float test was carried out (FLOAT 1.30, 1.40, 1.60), and the subscript "o" refers to the corresponding reference value of the unwashed sample (CUMULATIVE).

The second page of each data set in Appendix D, entitled "Statistical Evaluation of Selected Chemical and Physical Properties by State/Section/Region," shows a selection of chemical and physical properties of the coal sample group under consideration. These are analyses of head samples performed on the raw coal, the float 1.60 specific gravity fraction, and the sink 1.60 specific gravity fraction. All head sample data were obtained on a 14-mesh by 0 (Tyler) size range of coal. The proximate, ultimate, and sulfur analyses have been carried out on a dry basis using the ASTM standard procedures. The first entry of the proximate analysis is the moisture content of the sample as received at the chemical analysis lab. The averages and standard deviations have been calculated using equations (2) and (3) respectively. The number of samples available for the calculations is given in the columns preceding the averages.

The temperatures of the ash fusibility have been determined at oxidizing conditions. Also, note that in those cases for which the actual temperature was higher than the limitations of the laboratory apparatus, ash fusibility temperatures are given as the maximum limit of the apparatus and are designated with a plus sign (e.g., 2910+). The averages have been calculated over the temperature values as they appear in the reports for the individual samples and include the values discussed above.

The third page of each statistical data set in Appendix D, entitled "Statistical Evaluation of Washability Data at Various Levels of Btu Recovery by State/Section/and Region," contains washability information from the same source page one except the data are shown with reference to the Btu

recovery. The washability data have been interpolated and recalculated as functions of the Btu recovery. The washability data of each individual sample within each size group have been used to produce a set of interpolated values for the Btu recoveries between 50 percent and 100 percent. Details of the interpolation procedure are described below. The interpolated values have been averaged according to the same concept as the experimental data on page one of the statistical data set. The averages and standard deviations of the various parameters (weight recovery, heating value, and ash and sulfur analyses) have been calculated using equations (2) and (3) respectively, and the averages and standard deviations of their reduction (or increase) have been determined with equations (4) and (5) respectively. Here, subscripts "g" and "o" of the X values refer to the level of Btu recovery and to the reference case of total recovery, respectively.

The selection of the method of interpolation required some subjective judgment based on the nature of the relationship between the dependent variable to be interpolated and the interpolant (the Btu recovery). Many of the conventional methods (like the Lagrangian or spline methods) do not yield acceptable results if the number of points available to create an interpolation curve is too small. In this instance, only four points are available for each curve, which is not sufficient to calculate the higher order coefficients for half of the range of the interpolation values. But, empirically it is known what type of behavior to expect from the new relationships. In all cases, whether it is the weight recovery, the heating value, or the ash or sulfur contents, the variable must always be positive, and it should decrease monotonically with decreasing Btu recovery. Also, the effect of the coal cleaning should be strongest in the beginning, and with extended cleaning, the effects should level off. In other words, a functional relationship where the dependent variable and the first and second derivatives of this variable are positive and increase monotonically with increasing value of the independent variable (i.e., Btu recovery) is being sought. In the case of the heating value, the criteria differ only in the fact that the first and second derivatives are negative, but they also increase in magnitude.

The exponential function satisfies these requirements. Therefore, for each adjacent pair of points, an exponential was found to connect those points. Spot checks showed that the resulting interpolation curves are similar to piece-wise linear connecting curves except that the breaks at the location of the fitted points are smoothed significantly.

The interpolation of the heating value data was somewhat less straightforward. The exponential function is the proper type of interpolation function. However, this exponential function is negative and requires an offset. Certain speculative assumptions about the physical nature and magnitude of this offset could be made but it was considered prudent, however, to use the more conservative approach of a linear connection between two adjacent points.

Note that the number of samples included in an average does not remain constant within an averaging group. This reflects that extrapolation of the cleaning effect has not been attempted. Interpolation values for the

individual samples were calculated for those Btu recovery fractions that are within the range of the measured Btu recovery values. For example, if a particular coal sample did not show a Btu recovery of 50 percent or less so that a 50 percent Btu recovery value could be interpolated, then this sample could not be included into the averaging procedures for the Btu recovery of 50 percent. This would be the case, for example, when the float 1.30 specific gravity product for an individual sample had a Btu recovery of 51 percent or more.

APPENDIX B

GLOSSARY OF TERMS

APPENDIX B

GLOSSARY OF TERMS

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GLOSSARY OF TERMS

ANALYSIS BASIS

- o As-Received Basis - The as-received basis is the value of a parameter (e.g., ash) on the basis of moisture content as received by the analytical laboratory for determination. This basis is used in calculating analyses to different bases as described in ASTM D3180.

An example of calculating the as-received basis is given below.

Calculation:

1. As-received basis from moisture-free basis = $DP \times \left[\frac{100-M}{100} \right]$

where DP = parameter, moisture-free basis, %
M = as-received moisture, %

- o Moisture Free - Moisture free is the basis of reporting analytical results of coal without moisture. Moisture free is calculated from the as-received moisture-basis data.

Calculation

Moisture-free basis from as-received moisture basis = $ARP / \left[\frac{100-M}{100} \right]$

where ARP = Parameter, as-received moisture basis, %
M = as-received moisture, %

Note: Moisture-free and dry in this report are considered equivalent.

- o Moisture- and Ash-Free - The moisture- and ash-free (MAF) basis is the basis of reporting analytical results of coal without the combined weight of moisture and ash. This basis is calculated from the dry basis data.

Calculation

Moisture- and ash-free basis (MAF) = $DP / \left[\frac{100-A}{100} \right]$

where MAF = moisture- and ash-free basis parameter, %
DP = parameter on moisture-free basis, %
A = ash on moisture-free basis, %

Btu ANALYSIS

- o Btu/lb (for washability analysis) - Btu/lb content for each sample not containing Btu/lb data on the individual float-and-sink fractions was calculated from a uniquely derived equation. The equation was derived from the Btu/lb and ash data (y/x relationship) for the raw coal, float

1.60 specific gravity fraction, and the sink 1.60 specific gravity fraction of the 14-mesh top-size head-sample. A least squares fit to a straight line (linear regression) was used. By definition, for regression analyses, the sum of the squares of the deviations is a minimum.

For some of the samples, only the raw coal Btu and ash data were available. In these cases, the average slope and/or intercept of similar samples (close in state, county, and coalbed association) was chosen.

Calculation

$$\text{Btu/lb} = A + B [\text{Ash}]$$

where Btu/lb = Btu/lb, moisture-free
 A = intercept
 B = slope
 Ash = ash, moisture-free, %

- o Btu/lb (for rank determination) - Btu on the moist (inherent moisture), mineral-matter-free basis is used for the purpose of determining rank by ASTM D388. However, in this report, the available total moisture content (see "Moisture Total" in this Glossary) was used to calculate moist, mineral-matter-free basis calorific values, and thus the rank determined is considered "apparent." The mineral matter is determined from the Parr equation (see "Mineral Matter" in this Glossary).

Calculation

$$\text{MMMF Btu} = [(\text{Btu} - 50 S) \left(\frac{100-M}{100} \right) (100)] /$$

$$[100 - \left(\frac{100-M}{100} \right) (1.08 A + 0.55 S)]$$

where MMMF Btu = moist, mineral-matter-free Btu/lb
 Btu = Btu/lb, moisture-free
 A = ash, moisture-free, %
 S = total sulfur, moisture-free, %
 M = total moisture, %

- o Btu Recovery - Btu recovery is the recovery, expressed as percent, of the total available Btu for a fraction (e.g., float 1.30 specific gravity) of the total sample.

Calculation

$$\text{Btu recovery} = \frac{W [\text{Btu}(1)]}{\text{Btu}(2)}$$

where Btu recovery = Btu recovery, %
 W = weight percent of the sample fraction
 Btu(1) = Btu/lb value of the sample fraction
 Btu(2) = Btu/lb value of the total sample

CHEMICAL ANALYSES

- o Proximate Analysis - The proximate analysis of coal is a standard suite of analyses performed consecutively per ASTM D3172. The analysis covers the determination of moisture, volatile matter, and ash, and the calculation of fixed carbon by the difference between 100.00 percent and the sum of the first three parameters.
- o Ultimate Analysis - The ultimate analysis of coal is a standard suite of analyses performed consecutively per ASTM D3176, Standard Method for Ultimate Analysis of Coal and Coke. The analysis covers the determination of carbon and hydrogen as found in the gaseous products from the complete combustion of the coal samples; the determination of sulfur, nitrogen, and ash in the coal sample as a whole; and the calculation of oxygen by difference between 100.00 percent and the sum of the first five parameters. The hydrogen and oxygen values reported do include the hydrogen and oxygen in the free water (moisture) associated with the sample.

FUSIBILITY OF ASH (OXIDIZING ATMOSPHERE) - The fusibility of ash is determined by ASTM D1857, which "covers the observation of the temperatures at which triangular pyramids (cones) prepared from coal ash attain and pass through certain defined stages of fusing and flow when heated at a specified rate in controlled... oxidizing atmospheres." These "defined stages" are called initial deformation, softening temperature, and fluid temperature. Note that another commonly determined stage, "hemispherical temperature," is not included in the ash fusibility data of this report. Note also that the apparatus used by various laboratories in determining the ash fusion temperatures were limited to different maximum temperatures. Therefore, any temperature that exceeded the maximum is indicated by a + sign after the temperature, for example, 2910⁺°F.

- o Initial Deformation Temperature - In the laboratory, the initial deformation temperature is the temperature at which a prepared standard cone of ash just begins to fuse or show evidence of deformation at the top of the cone as it is being heated in a standard test furnace. This would correspond to the temperature in an operating furnace at which the particles of coal ash, in transit through the furnace, have been cooled to a point where they still retain a slight tendency to stick together or slowly to build up on heat-adsorption surfaces. When the temperatures in an operating furnace are such that the ash particles have cooled to a temperature lower than their initial deformation temperature, they tend to accumulate as a "dry" product.
- o Softening Temperature - The softening temperature (commonly called the fusion temperature of an ash) corresponds to an observed condition between initial deformation and fluidity. To the laboratory technician, the softening temperature is the temperature at which the test cone under observation has deformed to a spherical form where the height = width.
- o Fluid Temperature - In the laboratory determination, the fluid temperature is the temperature at which the test cone flattens out to a pan-cake shape on the plaque. To the operating engineer, the fluid temperature is related to the temperature at which the coal ash may be

expected to flow in streams or drip from heat-absorption surfaces, or the temperature at which heavy clinker forms on the grates under a fuel bed.

MINERAL ANALYSIS OF ASH - Mineral analysis of ash is determined by ASTM D3682 and "covers the analysis of the commonly determined major and minor elements in coal ash." The method covers the following elements: silicon, aluminum, iron, calcium, magnesium, sodium, potassium, manganese, and titanium. The element is expressed as the oxide in percent. The sum of the elements may not equal 100.0 percent because of trace elements not accounted for. In the presently reported mineral analysis, manganese is not reported and sulfites (SO_3) values are added to the report.

Knowledge of ash composition is useful in predicting the behavior of ashes and slags in combustion chambers. Utilization of the ash by-products of coal combustion sometimes depends on the chemical composition of the ash (ASTM D3682). The oxides as reported are used in the calculation of various "ratios" used to predict coal combustion effects (see "Utilization Ratios of the Raw Coal").

MISCELLANEOUS DATA

- o Chlorine - Chlorine is determined by ASTM D4208 covering the analysis of the total chlorine content of the whole raw coal, and not on an ash basis.

NOTE: The purpose of this test method is to measure the total chlorine content of coal. The chlorine content of coals may be useful in the evaluation of slagging problems, and of corrosion in engineering processes, and in the total analysis of coal and coke. When coal samples are combusted in accordance with this test method, the chlorine is quantitatively retained and is representative of the total chlorine content of the whole coal from ASTM D4208.

- o Sodium - The sodium content is reported on the "element of total dry coal basis." It is calculated from the mineral analysis of ash oxide as follows:

$$\text{Na} = \text{Na}_2\text{O} \times 0.0074 \text{ A}$$

where Na = sodium, on a total coal basis, %
 Na_2O = sodium oxide, ash basis, %
 Ash = ash, moisture-free, %

Sodium contributes to corrosion and fouling of convection section surfaces and is one of several parameters used to judge potential problems of this type. The total sodium content provides an indication of how severe such deposits might be if all of the sodium were vaporized. (From Coal Fouling and Slagging Parameters, ASME, 1974)

- o Mineral Matter (Parr) - Mineral matter is calculated using the so-called Parr formula. This value is used in the calculation of fixed

carbon, volatile matter, and calorific value on the mineral-matter-free basis in the classification of coals by rank.

Calculation

$$MM = 1.08 A + 0.55 S$$

where MM = mineral-matter, moisture-free, %
 A = ash, moisture-free, %
 S = total sulfur, moisture-free, %

MOISTURE

- o Moisture, As-Received - The "as-received moisture" is determined on samples of coal per ASTM D3173. The moisture is that contained at the time the analytical laboratory receives the coal sample. This usually means that an air-dry moisture loss has occurred and/or has been determined prior to determining as-received moisture. Moisture as determined by ASTM D3173 "is used for calculating other analytical results to a moisture-free basis."
- o Moisture, Total - The total moisture is determined per ASTM D3302. The method covers the measurement of the moisture in coal as it exists at the site at the time and under the conditions it is sampled. It is applicable to coals as mined, processed, shipped, or utilized in normal commercial pursuits. By inference, ASTM D3302 is applicable to the channel samples taken as the basis of the analyses in this report.

The procedure involves a two-step process of an air-dry loss followed by determining the residual moisture in the air-dried sample per ASTM D3173. The total moisture is determined as follows:

$$M = R [(100-ADL)/100] + ADL$$

where M = total moisture, %
 ADL = air-dry loss, %
 R = residual moisture, %

The total moisture as determined by ASTM D3302 is not equivalent to, nor is to be confused with, inherent, total coalbed, or equilibrium moistures. The last three moistures are equivalent per ASTM D121 and ASTM D1412.

- o Dry Basis - See Moisture-Free Basis
- o Dry- and Ash-Free Basis - See Moisture- and Ash-Free Basis

PHYSICAL PARAMETERS

- o Free Swelling Index (FSI) - The free swelling index is determined by ASTM D720, which states "a small-scale test for obtaining information regarding the free-swelling properties of coal." The value obtained is used to indicate "the caking properties of coal when burned as a fuel"

and give "a broad indication of the degree of oxidation of a coal." The values of FSI obtained range from 0 to 9 by $\frac{1}{2}$ intervals per a standard set of profiles. Any value less than 1 is considered, for the purposes of this test, as non-caking; values from 1 to 9 indicate increasing degrees of caking quality.

- o Hardgrove Grindability Index (HGI) - The Hardgrove Grindability Index is determined by ASTM D409, which states "the index is relative grindability or ease of pulverization of coals in comparison with coals chosen as standards."

The value so determined ranges from about 35 to 120 and is given the acronym HGI. A low(er) numerical value is associated with hard(er)-to-grind coals; a high(er) numerical value is associated with easy(ier)-to-grind coals.

POUNDS OF SO₂ PER MILLION Btu - The "pounds of SO₂ per million Btu" value is used as a measure of the amount of SO₂ produced upon combustion of coal. It is calculated as follows:

$$1b \text{ SO}_2/\text{MM Btu} = \frac{20,000 \text{ S}}{\text{Btu}}$$

where 1b SO₂/MM Btu = pounds of SO₂ per million Btu

S* = total sulfur, %

Btu* = Btu/lb

*S and Btu values must be on the same basis.

In actual power-plant combustion, about 5% of the SO₂ is collected in the produced fly ash, and therefore the algorithm stated above is customarily multiplied by a factor of about 0.95.

PRODUCT (CUMULATIVE WASHABILITY DATA)

- o 100 M x 0 - This material was screened from the 1 1/2-inch x 0 material prior to float-sink testing. The 100-M x 0 material was not subjected to float-sink testing but was analyzed chemically for calorific content, ash, and pyritic and total sulfur, and included with the presentation of the washability data of the 1 1/2-inch x 100-M material.
- o Total (1 1/2-inch x 0) - This material represents the mathematical cumulation of the washability data of the 1 1/2-inch x 100-M plus the analytical data of the 100-M x 0 material.
- o Total (3/8-inch x 0) - Similarly the same procedure as above was followed for the 100-M x 0 and total (3/8-inch x 0) products for the sample crushed to pass 3/8-inch.
- o Cum (14-M x 0) - This summation represents the mathematical cumulation of the washability data of the 14-mesh x 0 material.

RANK - In the United States, the classification of coals by rank is according to their degree of metamorphism, or progressive alteration, in the natural series from lignite to anthracite. This classification is covered

in ASTM D388 and is according to fixed carbon (dry) and gross calorific value (moist) (expressed in Btu/lb) calculated on the mineral-matter-free basis (see Table 1). The higher-rank coals are classified according to fixed carbon on the dry basis; the lower rank coals are classified according to gross calorific value on the moist (inherent moisture) basis. Agglomerating character is used to differentiate between adjacent groups. (From ASTM D388, Section 4).

Rank as reported in this publication is considered as "apparent" because the ASTM-stipulated inherent moisture was not used. As a substitute, the available total moisture content was used to calculate "moist, mineral-matter-free (MMMF) basis" calorific values.

Values of fixed carbon, volatile matter, and calorific value (expressed in Btu/lb) are utilized on the mineral-matter-free basis in classifying coals by rank. The mineral-matter-free basis is calculated by using the Parr formulas as given below.

- o Btu (moist, mineral-matter-free):

$$= \frac{(\text{Btu}-50) S \left(\frac{100-M}{100}\right) 100}{100 - \left(\frac{100-M}{100}\right) (1.08 A + 0.55 S)}$$

where Btu = Btu/lb, moisture-free
M = total moisture, -%
A = ash, moisture-free, %
S = total sulfur, moisture free, %

- o Fixed Carbon (dry, mineral-matter-free):

$$= \frac{100 (\text{FC}-0.15 S)}{100 - (1.08 A + 0.55 S)}$$

where: FC = fixed carbon, moisture-free, %
S = total sulfur, moisture-free, %
A = ash, moisture-free, %

- o Mineral Matter (dry) (Parr formula):

$$1.08 A + 0.55 S$$

where: A = ash, moisture-free, %
S = total sulfur, moisture-free, %

SULFUR FORMS

- o Sulfatic Sulfur - This form of sulfur is determined by ASTM D2492 based on its solubility in hydrochloric acid. In industrial coal processing, the sulfatic sulfur is considered soluble in plant water and exits with the plant water-bleed.

TABLE 3. CLASSIFICATION OF COALS BY RANK^a BASED UPON ASTM METHOD D388

Class	Group	Fixed Carbon Limits, percent (Dry, Mineral-Matter-Free Basis)			Volatile Matter Limits, percent (Dry, Mineral-Matter-Free Basis)			Calorific Value Limits, Btu per Pound (Moist, Mineral-Matter-Free Basis)			Agglomerating Character			
		Equal or Greater Than			Greater Than			Equal or Greater Than						
		98	92	86	98	92	86	98	92	86		98	92	86
I. Anthracite	1. Meta-anthracite	98	92	86	98	92	86	98	92	86	98	92	86	nonagglomerating
	2. Anthracite													
	3. Semianthracite ^c													
II. Bituminous	4. Low Volatile Bituminous Coal	78	69		86	78	69	14	22	31	...	...	...	commonly agglomerating
	5. Medium Volatile Bituminous Coal										14 000 ^d	...	...	
	6. High Volatile A Bituminous Coal							31	...	...	13 000 ^d	14 000	...	
	7. High Volatile B Bituminous Coal										11 500	13 000	11 500	agglomerating
	8. High Volatile C Bituminous Coal										10 500	11 500	11 500	
	9. Subbituminous A Coal										10 500	11 500	11 500	
III. Subbituminous	10. Subbituminous B Coal										9 500	10 500	10 500	nonagglomerating
	11. Subbituminous C Coal										8 300	9 500	9 500	
IV. Lignitic	12. Lignite A										6 300	8 300	8 300	nonagglomerating
	13. Lignite B										...	...	...	

^aThis classification does not include a few coals, principally nonbanded varieties, that have unusual physical and chemical properties and that come within the limits of fixed carbon or calorific value of high-volatile bituminous and subbituminous ranks. All of these coals either contain less than 48% dry, mineral-matter-free carbon or have more than 15,500 moist, mineral-matter-free British thermal units per pound.

^bMoist refers to coal containing its natural inherent moisture but not including water on the surface of the coal.

^cIf this is agglomerating type, classify it in low-volatile group of the bituminous class.

^dCoals having 69% or more fixed carbon on the dry, mineral-matter-free basis shall be classified according to fixed carbon, regardless of calorific value.

^eIt is recognized that there may be nonagglomerating varieties in these groups of the bituminous class, and that there are notable exceptions in the high volatile C bituminous group.

- o Pyritic Sulfur - This form of sulfur is a disulfide and is determined by ASTM D2492 based on its insolubility in hydrochloric acid.

This form of sulfur is the main target for removal during physical coal preparation processing. The pyritic sulfur is liberated from the raw coal upon crushing and subsequently separated by gravimetric-based processing methods. Coals differ widely in their liberation of pyritic sulfur upon crushing.

- o Organic Sulfur - Organic sulfur is calculated by deducting the sums of sulfate and pyritic sulfur from the total sulfur in the coal as determined by ASTM D3177. This form of sulfur can be removed (only) by chemical methods with and without above-ambient operating temperatures. Chemical removal methods are beyond the scope of unit operations used in present-day preparation plants.
- o Total Sulfur - Total sulfur comprises sulfatic, pyritic, and organic sulfur, and is determined by ASTM D3177. The values of total sulfur are used in determining sulfur emissions from coal combustion and in evaluating coal preparation processes and coal quality in contract specifications, in addition to other purposes of commercial or scientific interest.

UTILIZATION RATIOS OF THE RAW COAL⁹

- o Base/Acid

The ratio is determined as follows:

$$\text{Base/Acid Ratio} = \frac{[\text{Fe}_2\text{O}_3 + \text{CaO} + \text{MgO} + \text{K}_2\text{O} + \text{Na}_2\text{O}]}{[\text{SiO}_2 + \text{TiO}_2 + \text{Al}_2\text{O}_3]}$$

where oxides are determined on the ash basis and expressed as percent.

The base-to-acid ratio has been empirically correlated with ash-melting and viscosity properties and problems. At values less than 0.75, the melting temperature and the viscosity of the ash at any given temperature decrease as base-to-acid ratio increases. A maximum base-to-acid ratio is frequently specific for coal intended for dry bottom furnaces to guard against slag buildup problems.

- o Dolomite

The ratio is determined as follows:

$$\text{Dolomite Ratio} = \frac{[\text{CaO} + \text{MgO}]}{[\text{Fe}_2\text{O}_3 + \text{CaO} + \text{MgO} + \text{Na}_2\text{O} + \text{K}_2\text{O}]}$$

where oxides are determined on the ash basis and expressed as percent.

Purpose: The dolomite ratio is used primarily in calculating the temperature (T250) at which the viscosity of the slag is 250 poise when 20% of the iron in the slag is present in the ferric form.

o Hydrogen/Carbon

The ratio is determined in the atomic, mineral-matter free basis as follows:

$$\text{H/C Ratio} = 11.916 \text{ (H/C)}$$

where H = the hydrogen content on the dry basis determined as part of the ultimate analysis of the raw coal
C = the carbon content on the dry basis determined as part of the ultimate analysis of the raw coal

Purpose: The ratio is used in empirical algorithms that determine product yields from the processing of coal.

o Oxygen/Carbon

The ratio is determined on the atomic, mineral-matter-free basis as follows:

$$\text{O/C Ratio} = 0.75073 \text{ (O/C)}$$

where O = the oxygen content on the dry basis determined as part of the ultimate analysis of the raw coal
C = the carbon content on the dry basis determined as part of the ultimate analysis of the raw coal

Purpose: The ratio is used in empirical algorithms that determine product yields from the processing of coal.

o R250

The ratio is determined as follows:

$$\text{R250 Ratio} = (\text{SiO}_2 + \text{Al}_2\text{O}_3) / (\text{SiO}_2 + \text{Al}_2\text{O}_3 + \text{Fe}_2\text{O}_3 + \text{CaO})$$

where oxides are determined on the ash basis and expressed as percent.

Purpose: The R250 ratio is used by Winegartner and Rhodes¹⁰ in their empirical algorithm for the prediction of the fusibility of ash from mineral oxide analyses.

o Silica

The ratio is determined as follows:

$$\text{Silica Ratio} = (\text{SiO}_2) / (\text{SiO}_2 + \text{Fe}_2\text{O}_3 + \text{CaO} + \text{MgO})$$

where oxides are determined on the ash basis and expressed as percent.

Purpose: Silica ratio was introduced by Reid and Cohen¹¹ as a parameter that could be calculated from chemical composition and could be related to the viscosity of the coal ash slag at temperatures above the temperature of critical viscosity. As the silica ratio increases, the viscosity of the slag increases.

o Silica/Alumina

The ratio is determined as follows:

$$\text{Silica/Alumina Ratio} = \text{SiO}_2/\text{Al}_2\text{O}_3$$

where oxides are determined on the ash basis and expressed as percent.

Purpose: The silica-to-alumina ratio is used in estimating the T₂₅₀ temperature by the Babcock & Wilcox¹² method. When the percent base or base-to-acid ratio is low, alumina serves to flux the slag and thus reduce the temperature at which the viscosity of the slag will be 250 poise.

APPENDIX C

COMPLETE WASHABILITY AND CHARACTERIZATION OF EASTERN REGION COALS

APPENDIX C
COMPLETE WASHABILITY AND CHARACTERIZATION OF EASTERN REGION COALS

<u>State</u>	<u>Bed</u>	<u>County</u>	<u>Page</u>
Alabama	American	Walker	84
	Black Creek	Blount	86
	Black Creek	Cullman	88
	Black Creek	Jefferson	90
	Black Creek (2)	Marion	96
	Clements	Walker	96
	Gwin	Jefferson	98
	Mary Lee (2)	Jefferson	100
Kentucky (East)	Chilton	Bell	104
	Chilton	Floyd	106
	Coalburg	Breathitt	108
	Hazard No. 7	Breathitt	112
	Low Splint	Carter	114
	Low Splint	Harlan	116
	Princess No. 5	Carter	118
	Princess No. 6	Elliott	120
	Princess No. 7	Elliott	122
	Stockton	Martin	124
	Upper Elkhorn No. 1 (2)	Laurel	126
	Upper Elkhorn No. 2	Floyd	130
	Upper Elkhorn No. 3	McCreary	132
	Upper Elkhorn No. 3	Morgan	134
	Whitesburg	Carter	136
	Winifrede	Bell	138
Maryland	Bakerstown	Allegany	140
	Elk Lick (2)	Garrett	142
	Franklin (3)	Allegany	146
	Franklin (4)	Garrett	152
	Harlem	Garrett	160
	Little Pittsburgh	Allegany	162
	Lower Bakerstown (2)	Garrett	164
	Lower Freeport	Garrett	168
	Lower Kittanning (3)	Garrett	170
	Pittsburgh	Garrett	176
	Redstone (2)	Allegany	178
	Sewickley	Allegany	182
	Sewickley	Garrett	184
	Upper Freeport	Allegany	186
	Upper Freeport (7)	Garrett	188
	Upper Kittanning (2)	Garrett	202
	Waynesburg (2)	Allegany	206
Ohio	Bakerstown	Tuscarawas	210
	Brookville	Jackson	212
	Brookville	Mahoning	214
	Brookville	Stark	216

State	Bed	County	Page
Ohio (continued)	Clarion	Meigs	218
	Clarion	Vinton	220
	Lower Freeport	Columbiana	222
	Lower Freeport (6)	Harrison	224
	Lower Kittanning	Carroll	236
	Lower Kittanning	Coshocton	238
	Lower Kittanning (3)	Holmes	240
	Lower Kittanning	Jefferson	246
	Lower Kittanning	Lawrence	248
	Lower Kittanning (3)	Mahoning	250
	Lower Kittanning	Muskingum	256
	Lower Kittanning (3)	Stark	258
	Lower Kittanning (7)	Tuscarawas	264
	Lower Kittanning	Vinton	278
	Lower Mercer	Holmes	280
	Mahoning	Guernsey	282
	Mahoning	Jefferson	284
	Middle Kittanning	Carroll	286
	Middle Kittanning (6)	Columbiana	288
	Middle Kittanning (2)	Coshocton	300
	Middle Kittanning (2)	Holmes	304
	Middle Kittanning	Jefferson	308
	Middle Kittanning (2)	Muskingum	310
	Middle Kittanning (5)	Perry	314
	Middle Kittanning (2)	Stark	324
	Middle Kittanning (7)	Tuscarawas	328
	Middle Kittanning	Vinton	342
	Pittsburgh (14)	Belmont	344
	Pittsburgh	Gallia	372
	Pittsburgh (2)	Guernsey	374
	Pittsburgh (6)	Harrison	378
	Pittsburgh (12)	Jefferson	390
	Pittsburgh (2)	Monroe	414
	Redstone	Jefferson	418
	Sewickley (9)	Belmont	420
	Sewickley (8)	Harrison	438
	Sewickley (4)	Morgan	454
	Sewickley	Muskingum	462
	Sewickley (3)	Noble	464
	Sewickley	Washington	470
	Upper Freeport	Columbiana	472
	Upper Freeport	Guernsey	474
	Upper Freeport	Muskingum	476
	Upper Freeport	Perry	478
	Various	Athens	480
	Washington	Belmont	482
	Waynesburg (9)	Belmont	484
	Waynesburg (3)	Jefferson	502
Pennsylvania	Bakerstown (2)	Westmoreland	508
	Brookville	Butler	512

State	Bed	County	Page
Pennsylvania (continued)	Brookville (2)	Centre	514
	Brookville (2)	Lawrence	518
	Brookville (4)	Mercer	522
	Brookville	Venango	530
	Brush Creek	Westmoreland	532
	Clarion	Centre	534
	Clarion (4)	Clarion	536
	Clarion	Venango	544
	Lower Bakerstown (2)	Somerset	546
	Lower Bakerstown	Westmoreland	550
	Lower Freeport (4)	Armstrong	552
	Lower Freeport (2)	Butler	560
	Lower Freeport (2)	Cambria	564
	Lower Freeport (3)	Clearfield	568
	Lower Freeport (3)	Indiana	574
	Lower Freeport (2)	Jefferson	580
	Lower Freeport (5)	Somerset	584
	Lower Freeport	Westmoreland	594
	Lower Kittanning (4)	Armstrong	596
	Lower Kittanning	Bedford	604
	Lower Kittanning	Butler	606
	Lower Kittanning (5)	Cambria	608
	Lower Kittanning	Centre	618
	Lower Kittanning (3)	Clarion	620
	Lower Kittanning (5)	Clearfield	626
	Lower Kittanning	Clinton	636
	Lower Kittanning (2)	Fayette	638
	Lower Kittanning (11)	Indiana	642
	Lower Kittanning (3)	Jefferson	664
	Lower Kittanning	Lawrence	670
	Lower Kittanning (4)	Somerset	672
	Lower Kittanning	Tioga	680
	Lower Kittanning and Lower Freeport	Cambria	682
	Lower Mercer	Clearfield	684
	Middle Kittanning	Armstrong	686
	Middle Kittanning (2)	Butler	688
	Middle Kittanning (2)	Clarion	692
	Middle Kittanning (5)	Clearfield	696
	Middle Kittanning (2)	Somerset	706
	Middle Kittanning (4)	Tioga	710
	Pittsburgh (4)	Allegheny	718
	Pittsburgh	Armstrong	726
	Pittsburgh (BOT)	Armstrong	728
	Pittsburgh (TOP)	Armstrong	730
	Pittsburgh (2)	Fayette	732
	Pittsburgh (5)	Greene	736
	Pittsburgh	Indiana	746

State	Bed	County	Page
Pennsylvania (continued)	Pittsburgh (BOT)	Somerset	748
	Pittsburgh (TOP)	Somerset	750
	Pittsburgh (11)	Washington	752
	Pittsburgh (2)	Westmoreland	774
	Redstone (2)	Fayette	778
	Redstone	Somerset	782
	Redstone	Westmoreland	784
	Sewickley	Fayette	786
	Sewickley (4)	Greene	788
	Sewickley	Somerset	796
	Sewickley	Washington	798
	Uncorrelated (3)	Tioga	800
	Upper Clarion	Butler	806
	Upper Freeport	Allegheny	808
	Upper Freeport (11)	Armstrong	810
	Upper Freeport (2)	Butler	832
	Upper Freeport	Cambria	836
	Upper Freeport	Clarion	838
	Upper Freeport (3)	Clearfield	840
	Upper Freeport	Elk	846
	Upper Freeport (3)	Indiana	848
	Upper Freeport	Jefferson	854
	Upper Freeport (4)	Somerset	856
	Upper Freeport	Tioga	864
	Upper Freeport (2)	Westmoreland	866
	Upper Kittanning	Armstrong	870
	Upper Kittanning (3)	Cambria	872
	Upper Kittanning (2)	Clearfield	878
	Upper Kittanning	Jefferson	882
	Upper Kittanning (4)	Somerset	884
	Upper Kittanning (2)	Tioga	892
	Washington	Washington	896
	Waynesburg (2)	Fayette	898
	Waynesburg (2)	Greene	902
	Waynesburg	Somerset	906
	Waynesburg (4)	Washington	908
	Waynesburg	Westmoreland	916
Tennessee	Big Mary	Anderson	918
	Jellico (2)	Campbell	920
	Jellico	Claiborne	924
	Peabody	Campbell	926
	Poplar Lick	Scott	928
	Sewanee	Marion	930
Virginia	Walnut Mountain	Campbell	932
	Cedar Grove	Wise	934
	Dorchester	Wise	936
	Jawbone	Russell	938
	Kelly	Wise	940
	No. 2 Gas	Wise	942

State	Bed	County	Page
Virginia	Splash Dam	Dickenson	944
(continued)	Tiller	Russell	946
	Upper Banner	Dickenson	948
West Virginia	Bakerstown	Barbour	950
	Cedar Grove (2)	Logan	952
	Chilton	Logan	956
	Clarion	Barbour	958
	Coalburg	Mingo	960
	Elk Lick	Lewis	962
	Gilbert	Wyoming	964
	Lower Bakerstown (2)	Grant	966
	Lower Bakerstown	Preston	970
	Lower Kittanning (5)	Barbour	972
	Lower Kittanning	Boone	982
	Lower Kittanning (3)	Logan	984
	Lower Kittanning	Marion	990
	Lower Kittanning (2)	Upshur	992
	Lower War Eagle	McDowell	996
	Mahoning	Preston	998
	Middle Kittanning (5)	Barbour	1000
	Middle Kittanning	Nicholas	1010
	Middle Kittanning	Preston	1012
	Middle Kittanning	Randolph	1014
	No. 2 Gas	Mingo	1016
	Pittsburgh (6)	Barbour	1018
	Pittsburgh (3)	Brooke	1030
	Pittsburgh	Gilmer	1036
	Pittsburgh (11)	Harrison	1038
	Pittsburgh (2)	Lewis	1060
	Pittsburgh (6)	Marion	1064
	Pittsburgh (2)	Marshall	1076
	Pittsburgh (5)	Monongalia	1080
	Pittsburgh (2)	Ohio	1090
	Powellton	Logan	1094
	Redstone (5)	Barbour	1096
	Redstone	Harrison	1106
	Redstone (3)	Lewis	1108
	Sewickley (2)	Harrison	1114
	Sewickley	Marion	1118
	Sewickley	Monongalia	1120
	Stockton	Logan	1122
	Upper Freeport (2)	Grant	1124
	Upper Freeport (7)	Preston	1128
	Upper Kittanning (3)	Barbour	1142
	Upper Kittanning	Preston	1148
	Upper Kittanning	Randolph	1150
	Upper Kittanning (3)	Upshur	1152
	Waynesburg	Brooke	1158
	Waynesburg	Monongalia	1160

<u>State</u>	<u>Bed</u>	<u>County</u>	<u>Page</u>
West Virginia	Winifrede	Boone	1162
(continued)	Winifrede (2)	Kanawha	1164
	Winifrede	Logan	1168

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STATE: ALABAMA
 COUNTY: WALKER
 BED: AMERICAN
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 229
 SAMPLE NO. 1

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.6	2.8	.19	14535	1.5
FLOAT 1.40	69.6	4.4	.44	14256	1.9
FLOAT 1.60	83.7	7.1	.93	13784	2.2
CUM(1-1/2" X 100M)	100.0	13.9	.93	12597	2.7
100M X 0	.5	17.6	1.24	11951	3.6
TOTAL(1-1/2" X 0)	100.0	13.9	.93	12594	2.7

SAMPLE CRUSHED TO PASS 3/8"
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.2	2.5	.12	14588	1.4
FLOAT 1.40	71.9	4.5	.41	14238	1.9
FLOAT 1.60	83.8	6.9	.52	13819	2.0
CUM(3/8" X 100M)	100.0	14.1	.94	12562	2.8
100M X 0	1.0	16.3	1.15	12178	3.2
TOTAL(3/8" X 0)	100.0	14.1	.94	12558	2.8

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.9	2.4	.10	14605	1.3
FLOAT 1.40	70.9	4.5	.29	14238	1.5
FLOAT 1.60	81.8	6.6	.39	13872	1.7
CUM(14M X 0)	100.0	14.9	.97	12422	2.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	
3/8" X 14M	
14M X 100M	
100M X 0	
TOTAL	4.4
AS RECEIVED	1.7

STATE: ALABAMA		BED: AMERICAN		BED CODE: 229	
COUNTY: WALKER		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 1	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	1.70	1.80 1.90	--	--	--
ASH	14.06	6.28 51.31	14.30	6.40 52.30	--
VOLATILE MATTER	31.81	33.78 --	32.36	34.40 --	37.76 36.75
FIXED CARBON	52.43	58.13 --	53.34	59.20 --	62.24 63.25
BTU/LB	12519	13748 --	12736	14009 --	14861 14957
----- ULTIMATE ANALYSIS, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	--	--	--	--	--
HYDROGEN	--	--	--	--	--
NITROGEN	--	--	--	--	--
SULFUR	1.75	1.23 3.95	1.78	1.25 4.03	2.08 1.34 8.44
OXYGEN	--	--	--	--	--
ASH	14.06	6.28 51.31	14.30	6.40 52.30	--
----- SULFUR FORMS ANALYSIS, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	.91	.34 3.51	.93	.35 3.58	1.09 .38 7.50
SULFATIC	.02	.01 .03	.02	.01 .03	.02 .01 .06
ORGANIC	.82	.87 .41	.83	.89 .42	.97 .95 .88
TOTAL	1.75	1.23 3.95	1.78	1.25 4.03	2.08 1.34 8.44
----- MINERAL ANALYSIS OF ASH, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--
----- COAL UTILIZATION RATIOS -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60	RAW	FL 1.60	RAW FL 1.60
BASE/ACID	--	--	--	--	--
DOLOMITE	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--
R250	--	--	--	--	--
SILICA	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--
----- FUSIBILITY OF ASH, DEGREES F -----					
(IN OXIDIZING ATMOSPHERE)					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--
----- MISCELLANEOUS DATA, % -----					
CL (CHLORINE) (ANALYZED)	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--
FREE SWELLING (FSI)	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--
----- PHYSICAL PARAMETERS, INDEX -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60	RAW	FL 1.60	RAW FL 1.60
FREE SWELLING (FSI)	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--

STATE: ALABAMA
COUNTY: BLOUNT

BED: BLACK CREEK
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 299
SAMPLE NO. 2

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	83.0	2.0	.06	14829	1.0
FLOAT 1.40	90.3	2.4	.07	14759	1.0
FLOAT 1.60	93.7	2.8	.10	14688	1.0
FLOAT 1.90	94.8	3.2	.15	14617	1.1
CUM(1-1/2" X 100M)	100.0	7.0	.32	13947	1.3
100M X 0	.2	24.7	.71	10824	2.2
TOTAL(1-1/2" X 0)	100.0	7.0	.32	13941	1.3

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	82.6	1.4	.04	14935	1.0
FLOAT 1.40	89.3	1.8	.05	14864	1.0
FLOAT 1.60	93.5	2.3	.06	14776	1.0
FLOAT 1.90	94.8	3.2	.15	14617	1.1
CUM(3/8" X 100M)	100.0	6.8	.28	13982	1.3
100M X 0	.7	14.2	.68	12677	1.9
TOTAL(3/8" X 0)	100.0	6.9	.28	13973	1.3

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	75.7	1.2	.04	14970	.9
FLOAT 1.40	87.3	1.8	.06	14864	.9
FLOAT 1.60	92.6	2.4	.07	14759	.9
FLOAT 1.90	94.8	3.2	.15	14617	1.1
CUM(14M X 0)	100.0	7.4	.31	13876	1.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---

SAMPLE CRUSHED TO PASS 1-1/2"	MOISTURE, %
1-1/2" X 3/8"	1.6
3/8" X 14M	1.1
14M X 100M	
100M X 0	

TOTAL
AS RECEIVED

STATE: ALABAMA
COUNTY: BLOUNT

BED: BLACK CREEK
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 299
SAMPLE NO. 2

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.10	--	--	--	--	--
ASH	7.03	--	7.10	--	--	--
VOLATILE MATTER	31.41	--	31.76	--	34.19	--
FIXED CARBON	60.46	--	61.14	--	65.81	--
BTU/LB	14461	--	14621	--	15740	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.90	--	.91	--	.98	--
OXYGEN	--	--	--	--	--	--
ASH	7.03	--	7.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.32	--	.32	--	.34	--
SULFATIC	.06	--	.06	--	.06	--
ORGANIC	.52	--	.53	--	.57	--
TOTAL	.90	--	.91	--	.98	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: ALABAMA
COUNTY: CULLMAN

BED: BLACK CREEK
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 299
SAMPLE NO. 3

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	95.6	1.4	.04	14851	.8
FLOAT 1.40	98.9	1.5	.05	14834	.8
FLOAT 1.60	99.6	1.7	.06	14800	.8
CUM(1-1/2" X 100M)	100.0	1.8	.06	14783	.8
100M X 0	1.0	5.3	.34	14185	1.4
TOTAL(1-1/2" X 0)	100.0	1.8	.06	14777	.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	92.9	1.2	.04	14885	.8
FLOAT 1.40	98.4	1.4	.05	14851	.8
FLOAT 1.60	99.5	1.5	.06	14834	.8
CUM(3/8" X 100M)	100.0	1.7	.06	14800	.9
100M X 0	4.1	3.4	.24	14509	1.2
TOTAL(3/8" X 0)	100.0	1.8	.07	14788	.9

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	86.5	.8	.05	14953	.8
FLOAT 1.40	97.1	1.2	.05	14885	.8
FLOAT 1.60	99.0	1.3	.07	14868	.8
CUM(14M X 0)	100.0	1.7	.08	14800	.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	81.3
3/8" X 14M	13.4
14M X 100M	4.3
100M X 0	1.0

MOISTURE, %
TOTAL AS RECEIVED
6.9
6.0

STATE: ALABAMA
COUNTY: CULLMAN

BED: BLACK CREEK
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 299
SAMPLE NO. 3

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	6.00	1.90	1.70	--	--	--
ASH	1.66	1.33	42.22	1.77	1.35	42.95
VOLATILE MATTER	35.86	37.59	20.20	38.15	38.32	20.55
FIXED CARBON	56.48	59.18	35.88	60.09	60.32	36.50
BTU/LB	13917	14560	7628	14805	14842	7760

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	78.61	82.42	23.67	83.62	84.02	24.08
HYDROGEN	5.69	5.48	1.64	5.34	5.37	1.48
NITROGEN	1.69	1.77	.32	1.80	1.81	.33
SULFUR	.65	.65	1.74	.69	.67	1.77
OXYGEN	11.70	8.35	30.40	6.78	6.79	29.39
ASH	1.66	1.33	42.22	1.77	1.35	42.95

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.07	.07	1.16	.08	.07	1.18
SULFATIC	.00	.00	.06	.01	.00	.06
ORGANIC	.58	.59	.53	.61	.53	.53
TOTAL	.65	.65	1.74	.69	.67	1.77

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLomite	--	--	--	--	--	--
HYDROGEN/CARBON	.77	.77	--	--	--	--
OXYGEN/CARBON	.06	.06	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING	6	1/2	6	1/2	6	1/2
HARDGROVE GRINDABILITY (HGI)	41	41	41	41	41	41

STATE: ALABAMA
COUNTY: JEFFERSON
BED: BLACK CREEK
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 299
SAMPLE NO. 4

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	89.0	1.1	90.7	.07	15320	.8
FLOAT 1.40	95.0	1.2	96.7	.07	15302	.7
FLOAT 1.60	97.5	1.5	98.9	.07	15248	.7
CUM(1-1/2" X 100M)	100.0	2.7	100.0	.09	15032	.8
100M X 0	.8	10.1	.7	.88	13701	2.4
TOTAL(1-1/2" X 0)	100.0	2.8	100.0	.10	15022	.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	88.1	1.1	89.9	.05	15320	.8
FLOAT 1.40	93.9	1.2	95.7	.05	15302	.8
FLOAT 1.60	97.3	1.5	98.8	.06	15248	.8
CUM(3/8" X 100M)	100.0	2.8	100.0	.08	15014	.8
100M X 0	4.9	5.6	4.7	.35	14511	1.3
TOTAL(3/8" X 0)	100.0	2.9	100.0	.09	14990	.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	87.0	1.0	88.5	.07	15338	.7
FLOAT 1.40	92.6	1.1	94.0	.07	15320	.7
FLOAT 1.60	97.0	1.5	98.0	.08	15248	.7
CUM(14M X 0)	100.0	2.4	100.0	.10	15086	.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	51.0
3/8" X 14M	40.6
14M X 100M	7.6
100M X 0	.8

MOISTURE, %

TOTAL	6.2
AS RECEIVED	4.6

STATE: ALABAMA BED: BLACK CREEK BED CODE: 299
COUNTY: JEFFERSON RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 4

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.60	.90	.90	--	--	--
ASH	2.38	1.49	32.47	2.50	32.76	--
VOLATILE MATTER	30.37	31.67	27.89	31.84	28.14	41.85
FIXED CARBON	62.65	65.94	38.75	65.67	39.10	58.15
BTU/LB	374	15113	9539	15067	15250	15482
					9625	14315

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	81.10	85.53	43.85	85.01	86.31	87.62
HYDROGEN	5.44	5.30	2.71	5.17	5.25	5.30
NITROGEN	1.66	1.75	.81	1.74	1.77	1.79
SULFUR	.63	.52	1.69	.66	.52	.67
OXYGEN	8.79	5.42	18.47	4.93	4.66	5.06
ASH	2.38	1.49	32.47	2.50	1.50	4.73
						26.51

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.10	.07	.81	.11	.07	.82
SULFATIC	.02	.02	.02	.02	.02	.02
ORGANIC	.51	.42	.86	.53	.43	.86
TOTAL	.63	.52	1.69	.66	.52	1.71

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	.90	.60	.60	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--
DOLOMITE	--	--	--	--	--
HYDROGEN/CARBON	.73	.73	--	--	--
OXYGEN/CARBON	.04	.04	--	--	--
R250	--	--	--	--	--
SILICA	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	1
HARDGROVE GRINDABILITY (HGI)	63	66	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2910+
SOFTENING TEMPERATURE (ST)	2910+	2910+	2910+
FLUID TEMPERATURE (FT)	2910+	2910+	2910+
MISCELLANEOUS DATA, %	--	--	--
CL (CHLORINE) (ANALYZED)	.02	.02	.02
NA (SODIUM) (CALCULATED)	.02	.01	.15
MINERAL MATTER (PARR)	3.36	1.91	46.12

STATE: ALABAMA
COUNTY: MARION
BED: BLACK CREEK
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 299
SAMPLE NO. 5

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	88.9	1.6	.16	14454	1.1
FLOAT 1.40	97.5	2.0	.21	14384	1.2
FLOAT 1.60	98.8	2.1	.23	14367	1.2
CUM(1-1/2" X 100M)	100.0	2.9	.27	14228	1.3
100M X 0	1.8	6.4	.92	13620	2.0
TOTAL(1-1/2" X 0)	100.0	3.0	.28	14217	1.3

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	88.3	1.7	.15	14436	1.1
FLOAT 1.40	96.4	1.9	.19	14402	1.2
FLOAT 1.60	98.4	2.1	.20	14367	1.2
CUM(3/8" X 100M)	100.0	3.2	.28	14176	1.3
100M X 0	4.0	5.2	.78	13828	2.0
TOTAL(3/8" X 0)	100.0	3.3	.30	14162	1.3

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	87.0	1.7	.13	14436	1.1
FLOAT 1.40	94.9	1.9	.16	14402	1.1
FLOAT 1.60	98.0	2.1	.24	14367	1.1
CUM(14M X 0)	100.0	3.3	.31	14158	1.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	78.4
3/8" X 14M	15.6
14M X 100M	4.2
100M X 0	1.8

MOISTURE, %

TOTAL AS RECEIVED	4.9
	4.4

STATE: ALABAMA
COUNTY: MARION

BED: BLACK CREEK
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 299
SAMPLE NO. 5

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	4.40	2.20	--	--	--	--
ASH	3.15	1.97	3.30	2.02	41.25	41.18
VOLATILE MATTER	38.13	39.46	39.88	40.35	58.75	58.82
FIXED CARBON	54.32	56.37	56.82	57.63	32.65	32.65
BTU/LB	13572	14028	14197	14344	10822	10822

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	76.37	79.17	79.89	80.95	82.61	82.61
HYDROGEN	5.57	5.52	5.31	5.39	5.50	5.51
NITROGEN	1.76	1.82	1.84	1.87	1.90	1.90
SULFUR	.88	.77	.92	.79	.95	.81
OXYGEN	12.27	10.74	8.74	8.99	9.04	9.17
ASH	3.15	1.97	3.30	2.02	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	.30	.21	.31	.22	.32	.22
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.57	.55	.60	.56	.62	.58
TOTAL	.88	.77	.92	.79	.95	.81

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	.30	.30	.30
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.80	.80
OXYGEN/CARBON	.08	.08
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2140	2410	--
SOFTENING TEMPERATURE (ST)	2190	2460	--
FLUID TEMPERATURE (FT)	2290	2510	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	.03	--	--
NA (SODIUM) (CALCULATED)	.01	--	--
MINERAL MATTER (PARR)	4.07	2.61	67.76

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3	1/2	4
HARDGROVE GRINDABILITY (HGI)	37	37	37

STATE: ALABAMA
COUNTY: MARION
BED: BLACK CREEK
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 299
SAMPLE NO. 6

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	83.2	84.7	2.1	.31	14350	1.4
FLOAT 1.40	96.1	97.3	2.6	.39	14263	1.5
FLOAT 1.60	98.3	99.3	2.8	.43	14228	1.6
CUM(1-1/2" X 100M)	100.0	100.0	3.6	.55	14089	1.7
100M X 0	1.9	1.7	11.5	2.21	12717	5.0
TOTAL(1-1/2" X 0)	100.0	100.0	3.8	.58	14063	1.8

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	86.3	87.8	2.1	.34	14350	1.3
FLOAT 1.40	95.6	96.9	2.4	.40	14298	1.4
FLOAT 1.60	98.2	99.2	2.7	.42	14245	1.4
CUM(3/8" X 100M)	100.0	100.0	3.5	.57	14106	1.6
100M X 0	4.5	4.3	7.4	1.65	13429	3.8
TOTAL(3/8" X 0)	100.0	100.0	3.7	.62	14076	1.7

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	72.2	73.9	1.8	.23	14402	1.2
FLOAT 1.40	92.9	94.6	2.2	.32	14332	1.3
FLOAT 1.60	97.4	99.0	2.4	.34	14298	1.3
CUM(14M X 0)	100.0	100.0	3.7	.58	14072	1.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	81.6
3/8" X 14M	12.8
14M X 100M	3.7
100M X 0	1.9

--- MOISTURE, % ---

TOTAL	8.1
AS RECEIVED	5.4

STATE: ALABAMA
COUNTY: MARION

BED: BLACK CREEK
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 299
SAMPLE NO. 6

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	5.40	2.60				
ASH	3.64	2.53				
VOLATILE MATTER	32.36	33.50	3.85	2.60	35.58	35.31
FIXED CARBON	58.60	61.37	34.21	34.39	64.42	64.69
BTU/LB	13324	13855	6012	14225	14648	14605

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	75.28	78.74	79.57	80.85	82.76	83.00
HYDROGEN	5.53	5.45	5.21	5.30	5.42	5.44
NITROGEN	1.64	1.72	1.73	1.77	1.80	1.82
SULFUR	1.11	1.03	1.17	1.06	1.22	1.08
OXYGEN	12.81	10.52	8.46	8.43	8.80	8.65
ASH	3.64	2.53	3.85	2.60		

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.52	.36	.55	.37	.57	.38
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.58	.65	.61	.67	.63	.69
TOTAL	1.11	1.03	1.17	1.06	1.22	1.08

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES						
SiO2 (SILICON OXIDE)	--	--				
Al2O3 (ALUMINUM OXIDE)	--	--				
Fe2O3 (IRON OXIDE)	--	--				
TiO2 (TITANIUM OXIDE)	--	--				
CaO (CALCIUM OXIDE)	--	--				
MgO (MAGNESIUM OXIDE)	--	--				
Na2O (SODIUM OXIDE)	.30	.30				
K2O (POTASSIUM OXIDE)	--	--				
SO3 (SULFITES)	--	--				

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--				
DOLomite	--	--				
HYDROGEN/CARBON	.79	.79				
OXYGEN/CARBON	.08	.08				
R250	--	--				
SILICA	--	--				
SILICA/ALUMINA	--	--				

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSL)	3	3				
HARDGROVE GRINDABILITY (HGI)	37	37				

STATE: ALABAMA
COUNTY: WALKER

BED: CLEMENTS
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 201
SAMPLE NO. 7

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.1	33.4	2.8	.26	1.12	14702	1.5
FLOAT 1.40	70.5	77.4	6.4	1.70	2.66	14066	3.8
FLOAT 1.60	90.5	96.4	8.8	2.45	3.40	13642	5.0
CUM(1-1/2" X 100M)	100.0	100.0	13.5	2.84	3.75	12812	5.9
100M X 0	.3	.2	29.6	2.59	3.15	9969	6.3
TOTAL(1-1/2" X 0)	100.0	100.0	13.5	2.84	3.75	12803	5.9

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.0	40.3	2.8	.31	1.20	14702	1.6
FLOAT 1.40	72.5	80.4	5.8	1.55	2.55	14172	3.6
FLOAT 1.60	88.9	95.8	8.1	2.24	3.23	13766	4.7
CUM(3/8" X 100M)	100.0	100.0	13.7	2.82	3.76	12777	5.9
100M X 0	1.0	.8	25.0	3.49	4.29	10781	8.0
TOTAL(3/8" X 0)	100.0	100.0	13.8	2.83	3.77	12757	5.9

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.7	49.6	2.9	.35	1.33	14684	1.8
FLOAT 1.40	71.5	80.8	5.1	1.07	2.06	14295	2.9
FLOAT 1.60	87.5	95.1	8.2	1.75	2.77	13748	4.0
CUM(14M X 0)	100.0	100.0	14.4	2.81	3.78	12653	6.0

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

--- MOISTURE, % ---

TOTAL
AS RECEIVED
3.9
1.2

STATE: ALABAMA
COUNTY: WALKER

BED: CLEMENTS
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 201
SAMPLE NO. 7

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.20	1.30	1.40	--	--	--	--	--	--
ASH	14.23	7.77	56.89	14.40	7.87	57.70	--	--	--
VOLATILE MATTER	34.18	35.41	--	34.60	35.88	--	40.42	38.94	--
FIXED CARBON	50.39	55.52	--	51.00	56.25	--	59.58	61.06	--
BTU/LB	12696	13733	--	12850	13914	--	15012	15102	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.71	2.67	10.70	3.76	2.71	10.86	4.39	2.94	25.66
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	14.23	7.77	56.89	14.40	7.87	57.70	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.80	1.70	10.09	2.83	1.72	10.23	3.31	1.87	24.18
SULFATIC	--	.00	.01	.01	.00	.01	.01	.00	.02
ORGANIC	.91	.98	.61	.92	.99	.62	1.07	1.97	1.45
TOTAL	3.71	2.67	10.70	3.76	2.71	10.86	4.39	2.94	25.66

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	.46	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLomite	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2390	2140	--
SOFTENING TEMPERATURE (ST)	2530	2190	--
FLUID TEMPERATURE (FT)	2640	2440	--
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.05	--	--
MINERAL MATTER (PARR)	17.62	9.99	68.29

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	8	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: ALABAMA
COUNTY: JEFFERSON
BED: GWIN
RANK: MED VOLATILE BITUMINOUS
BED CODE: 207
SAMPLE NO. 8

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	12.4	4.6	.41	14720	1.7
FLOAT 1.40	62.1	9.8	.73	13780	2.2
FLOAT 1.60	91.6	14.1	.80	13003	2.3
CUM(1-1/2" X 100M)	100.0	16.3	1.12	12605	2.8
100M X 0	1.1	13.1	1.30	13184	3.2
TOTAL(1-1/2" X 0)	100.0	16.3	1.12	12612	2.8

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	15.9	4.8	.42	14684	1.7
FLOAT 1.40	64.0	9.5	.71	13834	2.2
FLOAT 1.60	91.3	13.5	.76	13111	2.2
CUM(3/8" X 100M)	100.0	15.9	1.12	12678	2.8
100M X 0	1.5	13.8	1.50	13057	3.5
TOTAL(3/8" X 0)	100.0	15.9	1.13	12683	2.8

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	19.4	4.0	.34	14828	1.6
FLOAT 1.40	57.2	8.3	.52	14051	1.9
FLOAT 1.60	88.9	12.9	.62	13220	2.0
CUM(14M X 0)	100.0	16.4	1.24	12587	3.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	3.2
3/8" X 14M	.5
14M X 100M	
100M X 0	

TOTAL
AS RECEIVED

STATE: ALABAMA
COUNTY: JEFFERSON

BED: GWIN
RANK: MED VOLATILE BITUMINOUS

BED CODE: 207
SAMPLE NO. 8

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	.50	.70	--	--	--	--
ASH	16.42	12.91	16.50	13.00	--	--
VOLATILE MATTER	23.68	24.13	23.80	24.30	28.50	27.93
FIXED CARBON	59.40	62.26	59.70	62.70	71.50	72.07
BTU/LB	12795	13336	12859	13430	15400	15437

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.87	1.33	1.88	1.34	2.25	1.54
OXYGEN	--	--	--	--	--	--
ASH	16.42	12.91	16.50	13.00	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	1.20	.58	1.21	.58	1.45	.67
SULFATIC	.00	.00	.01	.01	.01	.00
ORGANIC	.66	.75	.66	.76	.79	.87
TOTAL	1.87	1.33	1.88	1.34	2.25	1.54

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW		SK 1.60	
	FL 1.60	2910+	FL 1.60	2910+
INITIAL DEFORMATION (ID)	--	2910+	--	2910+
SOFTENING TEMPERATURE (ST)	--	2910+	--	2910+
FLUID TEMPERATURE (FT)	--	2910+	--	2910+
MISCELLANEOUS DATA, %				
CL (CHLORINE) (ANALYZED)	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--
MINERAL MATTER (PARR)	18.85	14.78	51.38	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7 1/2	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: ALABAMA
COUNTY: JEFFERSON

BED: MARY LEE
RANK: MED VOLATILE BITUMINOUS

BED CODE: 279
SAMPLE NO. 9

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.7	3.9	.04	14777	1.0
FLOAT 1.40	76.9	7.8	.07	14076	1.0
FLOAT 1.60	88.1	9.6	.08	13752	1.0
CUM(1-1/2" X 100M)	100.0	16.7	.11	12475	1.1
100M X 0	.8	16.0	.59	12601	1.9
TOTAL(1-1/2" X 0)	100.0	16.7	.11	12476	1.1

(FLOAT-SINK PERFORMED ON 3/8" X 100% MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.6	3.8	.06	14795	.9
FLOAT 1.40	76.6	7.1	.11	14202	.9
FLOAT 1.60	87.8	9.0	.12	13860	.9
CUM(3/8" X 100M)	100.0	16.4	.15	12529	1.0
100M X 0	1.0	15.4	.37	12709	1.6
TOTAL(3/8" X 0)	100.0	16.4	.15	12531	1.0

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.7	3.2	.02	14903	1.0
FLOAT 1.40	74.2	6.3	.05	14346	1.0
FLOAT 1.60	87.3	8.5	.07	13950	1.0
CUM(14M X 0)	100.0	15.6	.13	12673	1.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" --
3/8" X 14M --
14M X 100M --
100M X 0 --

MOISTURE, %
TOTAL AS RECEIVED 3.5
.8

STATE: ALABAMA
COUNTY: JEFFERSON

BED: MARY LEE
RANK: MED VOLATILE BITUMINOUS

BED CODE: 279
SAMPLE NO. 9

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.80	.90	.70	--	--	--
ASH	15.67	8.52	63.75	15.80	8.60	64.20
VOLATILE MATTER	25.49	27.15	--	25.70	27.40	--
FIXED CARBON	58.03	63.42	--	58.50	64.00	--
BTU/LB	12787	13943	--	12890	14070	--
				15309	15394	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.72	.74	.76	.73	.76	.82
OXYGEN	--	--	--	--	--	--
ASH	15.67	8.52	63.75	15.80	8.60	64.20

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRLITIC	.14	.08	.54	.14	.08	.54
SULFATIC	.00	.00	.01	.01	.01	.01
ORGANIC	.58	.67	.21	.59	.67	.21
TOTAL	.72	.74	.76	.73	.75	.76

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2910+
SOFTENING TEMPERATURE (ST)	2910+	2910+	2910+
FLUID TEMPERATURE (FT)	2910+	2910+	2910+
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	17.47	9.71	69.76

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: ALABAMA
COUNTY: JEFFERSON

BED: MARY LEE
RANK: MED VOLATILE BITUMINOUS

BED CODE: 279
SAMPLE NO. 10

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.7	4.9	.16	14463	1.1
FLOAT 1.40	77.9	9.0	.34	13732	1.4
FLOAT 1.60	87.8	10.4	.46	13483	1.6
CUM(1-1/2" X 100M)	100.0	16.4	.53	12413	1.8
100M X 0	1.0	14.9	.72	12681	2.0
TOTAL(1-1/2" X 0)	100.0	16.4	.53	12416	1.8

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.0	4.3	.16	14570	1.2
FLOAT 1.40	75.8	8.1	.32	13892	1.4
FLOAT 1.60	88.0	10.0	.45	13554	1.6
CUM(3/8" X 100M)	100.0	16.3	.54	12431	1.8
100M X 0	1.3	15.6	.70	12556	2.1
TOTAL(3/8" X 0)	100.0	16.3	.54	12433	1.8

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.5	3.1	.12	14784	1.1
FLOAT 1.40	71.6	7.1	.25	14071	1.4
FLOAT 1.60	87.3	9.7	.37	13607	1.5
CUM(14M X 0)	100.0	16.1	.54	12467	1.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

MOISTURE, %

TOTAL
AS RECEIVED
3.5
.8

STATE: ALABAMA
COUNTY: JEFFERSON

BED: MARY LEE
RANK: MED VOLATILE BITUMINOUS

BED CODE: 279
SAMPLE NO. 10

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.80	1.00	--	--	--	--
ASH	15.87	9.50	16.00	9.60	--	--
VOLATILE MATTER	26.78	28.51	27.00	28.80	32.14	31.86
FIXED CARBON	56.54	60.98	57.00	61.60	67.86	68.14
BTU/LB	12723	13692	12826	13830	15269	15299

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.13	.98	1.14	.99	1.36	1.10
OXYGEN	--	--	--	--	--	--
ASH	15.87	9.50	16.00	9.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.56	.36	.56	.36	.67	.40
SULFATIC	.00	.00	.00	.00	.00	.00
ORGANIC	.58	.62	.58	.63	.69	.70
TOTAL	1.13	.98	1.14	.99	1.36	1.10

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: KENTUCKY (EAST) BED: CHILTON BED CODE: 135
COUNTY: BELL RANK: HIGH VOLATILE B BITUMINOUS SAMPLE NO. 11

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	47.4	2.7	59.2	.13	14485	1.2
FLOAT 1.40	73.2	4.3	89.8	.26	14218	1.4
FLOAT 1.60	78.7	5.5	95.2	.32	14017	1.5
CUM(1-1/2" X 100M)	100.0	20.0	100.0	.75	11594	2.3
100M X 0	.9	23.7	.9	.70	10975	2.5
TOTAL(1-1/2" X 0)	100.0	20.0	100.0	.75	11588	2.3

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	53.0	2.2	66.0	.10	14569	1.2
FLOAT 1.40	73.5	3.6	90.1	.22	14335	1.3
FLOAT 1.60	78.7	4.8	95.1	.27	14134	1.4
CUM(3/8" X 100M)	100.0	19.4	100.0	.70	11694	2.2
100M X 0	4.7	19.9	4.7	.62	11610	2.3
TOTAL(3/8" X 0)	100.0	19.4	100.0	.70	11690	2.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	51.1	1.9	64.2	.10	14619	1.3
FLOAT 1.40	67.9	3.1	84.1	.20	14418	1.5
FLOAT 1.60	77.1	4.8	93.6	.28	14134	1.6
CUM(14M X 0)	100.0	19.7	100.0	.69	11644	2.3

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.4
3/8" X 14M	17.8
14M X 100M	4.9
100M X 0	.9

----- MOISTURE, % -----

TOTAL	4.2
AS RECEIVED	3.2

STATE: KENTUCKY (EAST) BED: CHILTON BED CODE: 135
COUNTY: BELL RANK: HIGH VOLATILE B BITUMINOUS SAMPLE NO. 11

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.20	1.90	1.70	--	--	--	--	--	--
ASH	18.20	4.71	71.07	18.80	4.80	72.30	--	--	--
VOLATILE MATTER	34.93	40.14	17.10	36.08	40.92	17.40	44.44	42.98	62.82
FIXED CARBON	43.67	53.25	10.12	45.12	54.28	10.30	55.56	57.02	37.18
BTU/LB	11238	14009	2841	11610	14280	2890	14298	15000	10433

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	64.73	78.40	17.78	66.87	79.92	18.09	82.35	83.95	65.31
HYDROGEN	4.91	5.60	1.86	4.70	5.49	1.70	5.79	5.77	6.14
NITROGEN	1.61	1.90	.59	1.66	1.93	.60	2.05	2.03	2.17
SULFUR	1.20	.98	2.08	1.24	1.00	2.12	1.53	1.05	7.65
OXYGEN	9.35	8.41	6.61	6.72	6.86	5.19	8.28	7.20	18.74
ASH	18.20	4.71	71.07	18.80	4.80	72.30	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.65	.27	2.04	.68	.28	2.07	.83	.29	7.47
SULFATIC	.02	.02	.00	.03	.02	.00	.03	.02	.02
ORGANIC	.52	.69	.04	.54	.70	.04	.67	.73	.16
TOTAL	1.20	.98	2.08	1.24	1.00	2.12	1.53	1.05	7.65

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	1.35	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.84	.82
OXYGEN/CARBON	.08	.06
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2300	2630	2250
SOFTENING TEMPERATURE (ST)	2400	2730	2330
FLUID TEMPERATURE (FT)	2700	2830	2650

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.14	--	--
NA (SODIUM) (CALCULATED)	.19	--	--
MINERAL MATTER (PARR)	20.99	5.72	79.25

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4 1/2	4	0
HARDGROVE GRINDABILITY (HGI)	43	--	--

STATE: KENTUCKY (EAST) BED: CHILTON BED CODE: 135
COUNTY: FLOYD RANK: HIGH VOLATILE B BITUMINOUS SAMPLE NO. 12

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	47.4	3.4	.12	14120	1.2
FLOAT 1.40	79.0	4.6	.11	13915	1.2
FLOAT 1.60	82.6	5.1	.12	13830	1.2
CUM(1-1/2" X 100M)	100.0	15.6	.22	12043	1.4
100M X 0	1.6	16.2	.57	11940	2.8
TOTAL(1-1/2" X 0)	100.0	15.6	.23	12041	1.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	49.2	3.4	.12	14120	1.1
FLOAT 1.40	77.4	4.7	.15	13898	1.1
FLOAT 1.60	82.0	5.3	.15	13796	1.1
CUM(3/8" X 100M)	100.0	16.1	.23	11957	1.3
100M X 0	3.7	18.3	.62	11583	2.6
TOTAL(3/8" X 0)	100.0	16.2	.24	11944	1.4

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	50.2	2.8	.12	14222	1.0
FLOAT 1.40	73.7	4.0	.10	14018	1.0
FLOAT 1.60	82.8	5.2	.11	13813	1.1
CUM(14M X 0)	100.0	15.7	.21	12026	1.2

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.1
3/8" X 14M	18.9
14M X 100M	6.4
100M X 0	1.6

--- MOISTURE, % ---

TOTAL	4.5
AS RECEIVED	3.8

STATE: KENTUCKY (EAST) BED: CHILTON BED CODE: 135
COUNTY: FLOYD RANK: HIGH VOLATILE B BITUMINOUS SAMPLE NO. 12

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.80	3.10	--	--	--	--
ASH	14.62	5.23	15.20	5.40	42.29	41.90
VOLATILE MATTER	34.50	38.41	35.86	39.64	57.71	58.10
FIXED CARBON	47.08	53.26	48.94	54.96	57.71	58.10
BTU/LB	11546	13440	12002	13870	14153	14662

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	66.88	75.52	69.53	77.94	81.99	82.39
HYDROGEN	4.94	5.39	4.70	5.21	5.54	5.51
NITROGEN	1.26	1.45	1.31	1.49	1.55	1.58
SULFUR	.72	.73	.75	.76	.88	.80
OXYGEN	11.57	11.67	8.52	9.20	10.05	9.73
ASH	14.62	5.23	15.20	5.40	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.20	.10	.20	.10	.24	.10
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.51	.63	.53	.65	.63	.68
TOTAL	.72	.73	.75	.76	.88	.80

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	.90	.50	.10	.10	.12	.02
K2O (POTASSIUM OXIDE)	--	--	--	--	.10	.02
SO3 (SULFITES)	--	--	--	--	16.83	6.25

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.81	.80	--	--	--	--
OXYGEN/CARBON	.09	.09	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: KENTUCKY (EAST)
COUNTY: BREATHTITT

BED: COALBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 111
SAMPLE NO. 13

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.9	3.4	.35	14328	1.4
FLOAT 1.40	59.5	6.1	.44	13881	1.5
FLOAT 1.60	78.9	11.3	.43	13020	1.5
CUM(1-1/2" X 100M)	100.0	22.0	.53	11249	1.8
100M X 0	1.3	28.7	.59	10140	2.5
TOTAL(1-1/2" X 0)	100.0	22.1	.53	11235	1.8

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.0	3.1	.27	14378	1.3
FLOAT 1.40	60.5	5.1	.37	14047	1.5
FLOAT 1.60	77.4	9.6	.40	13302	1.5
CUM(3/8" X 100M)	100.0	21.5	.49	11332	1.8
100M X 0	4.7	28.6	.57	10157	2.1
TOTAL(3/8" X 0)	100.0	21.8	.49	11277	1.8

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.6	3.5	.18	14311	1.2
FLOAT 1.40	52.5	5.1	.27	14047	1.3
FLOAT 1.60	74.7	9.2	.30	13368	1.3
CUM(14M X 0)	100.0	21.7	.45	11299	1.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.9
3/8" X 14M	19.4
14M X 100M	5.4
100M X 0	1.3

MOISTURE, %

TOTAL	7.1
AS RECEIVED	4.7

STATE: KENTUCKY (EAST)
COUNTY: BREATHTITT

BED: COALBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 111
SAMPLE NO. 13

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.70	1.90 3.10	--	--	--	--
ASH	21.35	9.39 55.23	22.40	9.57 57.00	--	--
VOLATILE MATTER	32.51	38.31 19.67	34.11	39.06 20.30	43.96	43.19 47.21
FIXED CARBON	41.44	50.40 22.00	43.49	51.38 22.70	56.04	56.81 52.79
BTU/LB	10712	13013 5271	11240	13265 5440	14485	14669 12651

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	60.05	72.73 30.72	63.01	74.14 31.70	81.20	81.99 73.72
HYDROGEN	4.72	5.19 2.86	4.41	5.08 2.60	5.68	5.61 6.05
NITROGEN	1.24	1.49 .58	1.30	1.52 .60	1.68	1.68 1.40
SULFUR	.87	.90 1.06	.91	.92 1.10	1.17	1.02 2.55
OXYGEN	11.77	10.29 9.54	7.97	8.77 7.00	10.27	9.70 16.28
ASH	21.35	9.39 55.23	22.40	9.57 57.00	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.47	.32 .87	.50	.33 .89	.64	.36 2.08
SULFATIC	.01	.01 .01	.01	.01 .01	.01	.01 .02
ORGANIC	.38	.57 .19	.40	.58 .19	.52	.64 .45
TOTAL	.87	.90 1.06	.91	.92 1.10	1.17	1.02 2.55

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	.30	.30 .30	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLomite	--	--	--	--	--	--
HYDROGEN/CARBON	.84	.82	--	--	--	--
OXYGEN/CARBON	.09	.09	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

FREE SWELLING (FSI) 1 | 2 | -- |

HARDGROVE GRINDABILITY (HGI) 43 | -- | -- |

STATE: KENTUCKY (EAST)
COUNTY: BREATHTT

BED: COALBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 111
SAMPLE NO. 14

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	94.6	1.4	.04	14420	1.0
FLOAT 1.40	97.6	1.5	.05	14403	1.0
FLOAT 1.60	98.6	1.7	.05	14370	1.0
CUM(1-1/2" X 100M)	100.0	2.6	.06	14222	1.0
100M X 0	3.7	11.6	.62	12741	1.5
TOTAL(1-1/2" X 0)	100.0	2.9	.08	14167	1.0

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	93.9	1.4	.03	14420	.8
FLOAT 1.40	97.7	1.6	.04	14387	.8
FLOAT 1.60	98.7	1.7	.04	14370	.8
CUM(3/8" X 100M)	100.0	2.5	.08	14238	.9
100M X 0	5.7	9.4	.30	13103	1.1
TOTAL(3/8" X 0)	100.0	2.9	.09	14174	.9

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	74.8	1.0	.00	14485	1.0
FLOAT 1.40	94.1	1.4	.01	14420	1.0
FLOAT 1.60	97.6	1.7	.02	14370	1.0
CUM(14M X 0)	100.0	3.2	.05	14123	1.0

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	67.1
3/8" X 14M	23.9
14M X 100M	5.3
100M X 0	3.7

----- MOISTURE, % -----

TOTAL	5.2
AS RECEIVED	4.3

STATE: KENTUCKY (EAST)
COUNTY: BREATHTITT

BED: COALBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 111
SAMPLE NO. 14

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.30	1.80 2.20	--	--	--	--
ASH	3.06	1.60 65.43	3.20	1.63 66.90	--	--
VOLATILE MATTER	36.31	37.87 12.52	37.94	38.56 12.80	39.20	39.20 38.67
FIXED CARBON	56.33	58.73 19.85	58.86	59.80 20.30	60.80	60.80 61.33
BTU/LB	13593	14067 3863	14204	14325 3950	14674	14563 11934

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	76.79	80.14 15.77	80.24	81.60 16.13	82.90	82.96 48.72
HYDROGEN	5.37	5.31 1.28	5.11	5.20 1.06	5.28	5.29 3.19
NITROGEN	1.38	1.44 .19	1.44	1.47 .20	1.49	1.49 .60
SULFUR	.74	.69 1.67	.77	.71 1.71	.80	.72 5.16
OXYGEN	12.66	10.82 15.66	9.23	9.39 14.01	9.54	9.55 42.32
ASH	3.06	1.60 65.43	3.20	1.63 66.90	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.08	.02 1.37	.08	.02 1.40	.08	.02 4.22
SULFATIC	.01	.01 .01	.01	.01 .01	.01	.01 .03
ORGANIC	.65	.66 .30	.68	.67 .30	.71	.68 .91
TOTAL	.74	.69 1.67	.77	.71 1.71	.80	.72 5.16

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	.20	.20
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.76	.76
OXYGEN/CARBON	.08	.09
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2840	2840
SOFTENING TEMPERATURE (ST)	2910+	2910+
FLUID TEMPERATURE (FT)	--	--
MISCELLANEOUS DATA, %		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.01	--
MINERAL MATTER (PARR)	.00	.10
	4.15	2.15 80.90

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	2	2
HARDGROVE GRINDABILITY (HGI)	43	--

STATE: KENTUCKY (EAST) BED: HAZARD NO.7 BED CODE: 104
COUNTY: BREATHT RANK: HIGH VOLATILE B BITUMINOUS SAMPLE NO. 15

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.2	5.0	.99	14027	3.6
FLOAT 1.40	49.9	8.3	1.63	13463	4.5
FLOAT 1.60	73.5	12.7	2.02	12710	5.2
CUM(1-1/2" X 100M)	100.0	23.3	3.81	10898	8.8
100M X 0	1.4	27.9	2.41	10112	6.5
TOTAL(1-1/2" X 0)	100.0	23.4	3.79	10887	8.8

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	17.3	4.6	.86	14095	3.4
FLOAT 1.40	50.8	8.0	1.51	13514	4.4
FLOAT 1.60	72.0	12.0	1.92	12830	5.2
CUM(3/8" X 100M)	100.0	23.9	3.96	10795	9.3
100M X 0	4.6	26.8	3.53	10300	9.0
TOTAL(3/8" X 0)	100.0	24.0	3.94	10773	9.3

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.2	4.3	.58	14147	3.1
FLOAT 1.40	51.9	7.1	1.11	13668	3.9
FLOAT 1.60	71.5	10.7	1.53	13052	4.6
CUM(14M X 0)	100.0	23.2	3.73	10915	8.8

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	81.1
3/8" X 14M	13.6
14M X 100M	3.9
100M X 0	1.4

----- MOISTURE, % -----

TOTAL	5.3
AS RECEIVED	3.5

STATE: KENTUCKY (EAST)
COUNTY: BREATHT

BED: HAZARD NO.7
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 104
SAMPLE NO. 15

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.50	1.40 1.40	--	--	--	--
ASH	21.91	10.97 53.74	22.70	11.13 54.50	--	--
VOLATILE MATTER	36.70	42.84 22.58	38.04	43.45 22.90	49.21	48.89 50.33
FIXED CARBON	37.89	44.79 22.28	39.26	45.42 22.60	50.79	51.11 49.67
BTU/LB	10555	12843 5502	10938	13025 5580	14150	14656 12264

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	61.29	70.78 30.02	63.51	71.78 30.45	82.16	80.77 66.92
HYDROGEN	4.79	5.42 2.42	4.56	5.33 2.30	5.90	6.00 5.05
NITROGEN	1.10	1.28 .59	1.14	1.30 .60	1.48	1.47 1.32
SULFUR	4.23	2.74 8.36	4.38	2.77 8.48	5.67	3.12 18.65
OXYGEN	6.69	8.81 4.86	3.71	7.68 3.67	4.79	8.64 8.06
ASH	21.91	10.97 53.74	22.70	11.13 54.50	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.32	1.41 8.21	3.44	1.43 8.32	4.45	1.61 18.30
SULFATIC	.01	.01 .00	.02	.01 .00	.02	.01 .01
ORGANIC	.89	1.31 .15	.93	1.33 .15	1.20	1.50 .34
TOTAL	4.23	2.74 8.36	4.38	2.77 8.48	5.67	3.12 18.65

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	.30	.30 .20	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.86	.89	--	--	--	--
OXYGEN/CARBON	.06	.08	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SORTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: KENTUCKY (EAST) BED: LOW SPLINT BED CODE: 142
COUNTY: CARTER RANK: HIGH VOLATILE C BITUMINOUS SAMPLE NO. 16

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	39.2	3.3	1.53	13642	3.8
FLOAT 1.40	81.2	5.3	2.91	13417	5.2
FLOAT 1.60	95.8	7.6	3.17	13076	5.7
CUM(1-1/2" X 100M)	100.0	9.0	3.88	12816	6.9
100M X 0	2.0	17.8	6.01	11252	11.0
TOTAL(1-1/2" X 0)	100.0	9.2	3.92	12785	7.0

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	43.5	2.4	1.28	14041	3.2
FLOAT 1.40	80.2	4.4	2.19	13705	4.5
FLOAT 1.60	94.3	6.5	2.65	13353	5.2
CUM(3/8" X 100M)	100.0	8.5	3.63	13000	6.8
100M X 0	4.9	16.8	5.95	11434	11.7
TOTAL(3/8" X 0)	100.0	8.9	3.74	12923	7.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	48.1	2.1	1.04	14104	2.9
FLOAT 1.40	76.1	3.5	1.76	13866	3.8
FLOAT 1.60	93.2	5.8	2.44	13498	4.8
CUM(14M X 0)	100.0	8.3	3.61	13052	6.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	79.0
3/8" X 14M	15.0
14M X 100M	4.0
100M X 0	2.0

MOISTURE, %

TOTAL	9.7
AS RECEIVED	7.6

STATE: KENTUCKY (EAST)	BED: LOW SPLINT	BED CODE: 142
COUNTY: CARTER	RANK: HIGH VOLATILE C BITUMINOUS	SAMPLE NO. 16
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	7.60 5.00	42.63 42.85
ASH	8.04 5.70	57.37 57.15
VOLATILE MATTER	35.96 38.27	41.60 41.60
FIXED CARBON	48.40 51.03	58.40 58.40
BTU/LB	12007 12796	14233 14329
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	66.43 70.89	78.75 79.38
HYDROGEN	5.41 5.44	5.41 5.47
NITROGEN	1.31 1.41	1.55 1.57
SULFUR	4.21 3.13	5.00 3.50
OXYGEN	14.60 13.44	9.30 10.08
ASH	8.04 5.70	-- --
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	3.30 2.11	3.91 2.36
SULFATIC	.01 .01	.01 .01
ORGANIC	.91 1.01	1.07 1.13
TOTAL	4.21 3.13	5.00 3.50
----- MINERAL ANALYSIS OF ASH, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	26.00 26.00	3.91 2.36
SiO2 (SILICON OXIDE)	19.23 19.23	2020 2000
Al2O3 (ALUMINUM OXIDE)	50.47 50.47	2070 2050
Fe2O3 (IRON OXIDE)	1.00 1.00	2170 2150
TiO2 (TITANIUM OXIDE)	.92 .92	-- --
CaO (CALCIUM OXIDE)	.53 .53	-- --
MgO (MAGNESIUM OXIDE)	.05 .05	RAW FL 1.60 SK 1.60
Na2O (SODIUM OXIDE)	1.06 1.04	.05 --
K2O (POTASSIUM OXIDE)	.59 .57	.00 .00
SO3 (SULFITES)	-- --	11.90 8.29
----- COAL UTILIZATION RATIOS -----		
	RAW FL 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	1.15 1.15	-- --
DOLMITE	.03 .03	-- --
HYDROGEN/CARBON	.82 .83	2 1 1/2
OXYGEN/CARBON	.09 .10	48 45
R250	.47 .47	-- --
SILICA	.33 .33	-- --
SILICA/ALUMINA	1.35 1.35	-- --
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2020 2000	-- --
SOFTENING TEMPERATURE (ST)	2070 2050	-- --
FLUID TEMPERATURE (FT)	2170 2150	-- --
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.05 --	.05 --
MINERAL MATTER (PARR)	11.90 8.29	55.79 55.79
----- PHYSICAL PARAMETERS, INDEX -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)	2 1 1/2	-- --
HARDGROVE GRINDABILITY (HGI)	48 45	-- --

STATE: KENTUCKY (EAST) BED: LOW SPLINT BED CODE: 142
COUNTY: HARLAN RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 17

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.7	3.1	.35	13921	2.6
FLOAT 1.40	84.2	6.4	.75	13322	3.2
FLOAT 1.60	90.3	7.1	.98	13195	3.6
FLOAT 1.90	92.9	7.4	1.05	13140	3.7
CUM(1-1/2" X 100M)	100.0	10.9	1.73	12505	4.9
100M X 0	.6	11.1	1.68	12472	4.9
TOTAL(1-1/2" X 0)	100.0	10.9	1.73	12505	4.9

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.1	3.4	.50	13867	2.8
FLOAT 1.40	79.3	4.9	.68	13594	3.1
FLOAT 1.60	88.3	5.8	.92	13431	3.5
FLOAT 1.90	92.9	7.4	1.05	13140	3.7
CUM(3/8" X 100M)	100.0	10.6	1.73	12559	5.0
100M X 0	3.1	10.6	1.86	12552	5.1
TOTAL(3/8" X 0)	100.0	10.6	1.73	12559	5.0

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.6	4.1	.48	13740	2.6
FLOAT 1.40	83.0	5.2	.64	13540	2.9
FLOAT 1.60	91.1	6.3	.88	13340	3.2
FLOAT 1.90	92.9	7.4	1.05	13140	3.7
CUM(14M X 0)	100.0	11.1	1.79	12468	4.8

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.6

----- MOISTURE, % -----

TOTAL	3.3
AS RECEIVED	2.2

STATE: KENTUCKY (EAST) BED: LOW SPLINT BED CODE: 142
COUNTY: HARLAN RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 17

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.20	--	--	--	--	--
ASH	11.15	--	11.40	--	--	--
VOLATILE MATTER	38.04	--	38.90	--	43.91	--
FIXED CARBON	48.61	--	49.70	--	56.09	--
BTU/LB	13053	--	13347	--	15064	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.91	--	2.98	--	3.36	--
OXYGEN	--	--	--	--	--	--
ASH	11.15	--	11.40	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.80	--	1.84	--	2.08	--
SULFATIC	.08	--	.08	--	.09	--
ORGANIC	1.04	--	1.06	--	1.20	--
TOTAL	2.91	--	2.98	--	3.36	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--
SOFTENING TEMPERATURE (ST)	--	--
FLUID TEMPERATURE (FT)	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	13.95	--

COAL UTILIZATION RATIOS

RAW FL 1.60

BASE/ACID	--
DOLOMITE	--
HYDROGEN/CARBON	--
OXYGEN/CARBON	--
R250	--
SILICA	--
SILICA/ALUMINA	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--
HARDGROVE GRINDABILITY (HGI)	--	--

STATE: KENTUCKY (EAST) BED: PRINCESS NO. 5 BED CODE: 90
COUNTY: CARTER RANK: HIGH VOLATILE B BITUMINOUS SAMPLE NO. 18

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	12.7	4.7	.24	13657	1.6
FLOAT 1.40	52.2	10.1	.77	12777	2.6
FLOAT 1.60	82.5	15.4	1.46	11956	3.6
CUM(1-1/2" X 100M)	100.0	22.5	2.88	10811	6.4
100M X 0	1.6	32.5	5.60	9202	12.5
TOTAL(1-1/2" X 0)	100.0	22.7	2.92	10785	6.5

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.2	4.2	.30	13702	1.6
FLOAT 1.40	57.9	8.2	.55	13069	2.1
FLOAT 1.60	79.3	12.4	.80	12406	2.5
CUM(3/8" X 100M)	100.0	21.7	3.04	10904	6.7
100M X 0	5.2	29.1	3.99	9745	8.8
TOTAL(3/8" X 0)	100.0	22.1	3.09	10844	6.8

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	21.7	2.7	.15	13990	1.4
FLOAT 1.40	52.0	5.9	.41	13467	1.8
FLOAT 1.60	78.4	10.5	.69	12723	2.4
CUM(14M X 0)	100.0	20.2	2.73	11155	6.1

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	71.4
3/8" X 14M	21.0
14M X 100M	6.0
100M X 0	1.6

TOTAL AS RECEIVED	6.9
MOISTURE, %	4.5

STATE: KENTUCKY (EAST) BED: PRINCESS NO.5 BED CODE: 90
COUNTY: CARTER RANK: HIGH VOLATILE B BITUMINOUS SAMPLE NO. 18

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.50	3.30 3.30	--	--	--	--
ASH	20.06	10.56 55.72	21.01	10.92 57.62	--	--
VOLATILE MATTER	33.87	37.18 24.93	35.46	38.45 25.78	44.90	43.16 60.83
FIXED CARBON	41.57	48.96 16.05	43.53	50.63 16.60	55.10	56.84 39.17
BTU/LB	10545	12246 5018	11042	12664 5190	13978	14216 12246

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	60.67	68.46 24.89	63.53	70.79 25.74	80.42	79.47 60.74
HYDROGEN	4.67	5.14 2.49	4.36	4.94 2.20	5.53	5.54 5.19
NITROGEN	1.13	1.35 .39	1.18	1.40 .40	1.49	1.57 .94
SULFUR	3.03	1.44 8.92	3.17	1.49 9.23	4.01	1.67 21.77
OXYGEN	10.45	13.05 7.59	6.75	10.46 4.81	8.54	11.75 11.35
ASH	20.06	10.56 55.72	21.01	10.92 57.62	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.50	.61 8.82	2.62	.63 9.12	3.32	.70 21.52
SULFATIC	.02	.01 .01	.03	.01 .01	.03	.01 .03
ORGANIC	.50	.82 .09	.52	.85 .09	.66	.95 .21
TOTAL	3.03	1.44 8.92	3.17	1.49 9.23	4.01	1.67 21.77

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	43.89	49.43 41.76				
SiO2 (SILICON OXIDE)	29.04	33.94 27.15			2430	2910+
Al2O3 (ALUMINUM OXIDE)	20.30	9.15 24.88			2480	2910+
Fe2O3 (IRON OXIDE)	1.00	1.67 .67			2590	2910+
TiO2 (TITANIUM OXIDE)	.31	.59 .11				
CaO (CALCIUM OXIDE)	.83	.93 .70				
MgO (MAGNESIUM OXIDE)	.30	.22 .27				
Na2O (SODIUM OXIDE)	3.42	3.40 3.40				
K2O (POTASSIUM OXIDE)	.67	.67 .68				
SO3 (SULFITES)						

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)						
NA (SODIUM) (CALCULATED)						
MINERAL MATTER (PARR)						

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.34	.17				
DOLOMITE	.05	.11				
HYDROGEN/CARBON	.82	.84				
OXYGEN/CARBON	.09	.11				
R250	.78	.90				
SILICA	.67	.82				
SILICA/ALUMINA	1.51	1.46				

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING						
HARDGROVE GRINDABILITY (HGI)						

BED CODE: 83
SAMPLE NO. 19

BED: PRINCESS NO. 6
RANK: HIGH VOLATILE B BITUMINOUS

STATE: KENTUCKY (EAST)
COUNTY: ELLIOTT

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	18.9	21.4	4.1	.77	13823	1.9
FLOAT 1.40	74.3	80.0	8.2	2.67	13142	4.9
FLOAT 1.60	91.2	95.2	10.4	3.33	12753	6.1
CUM(1-1/2" X 100M)	100.0	100.0	13.5	4.42	12211	8.1
100M X 0	1.1	.8	32.3	12.98	8801	30.0
TOTAL(1-1/2" X 0)	100.0	100.0	13.7	4.51	12174	8.2

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.8	40.7	3.6	.65	13792	1.8
FLOAT 1.40	76.1	83.3	6.7	1.74	13267	3.4
FLOAT 1.60	88.6	94.6	8.6	2.36	12946	4.3
CUM(3/8" X 100M)	100.0	100.0	13.9	4.72	12125	8.5
100M X 0	3.5	3.0	23.4	8.86	10384	18.0
TOTAL(3/8" X 0)	100.0	100.0	14.2	4.86	12064	8.8

----- SAMPLE CRUSHED TO PASS 1/4" -----
(FLOAT-SINK PERFORMED ON 1/4" X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.5	44.3	2.8	.36	14075	1.4
FLOAT 1.40	73.3	82.3	4.6	.78	13734	2.0
FLOAT 1.60	86.1	94.5	6.4	1.25	13419	2.7
CUM(1/4" X 0)	100.0	100.0	13.0	4.37	12229	8.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %

SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	77.9
3/8" X 1/4"	17.0
1/4" X 100M	4.0
100M X 0	1.1

TOTAL
AS RECEIVED
7.5
5.3

STATE: KENTUCKY (EAST) BED: PRINCESS NO. 6 BED CODE: 83
COUNTY: ELLIOTT RANK: HIGH VOLATILE B BITUMINOUS SAMPLE NO. 19

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.30	3.60	3.60	--	--	--	--	--	--
ASH	12.80	6.42	52.92	13.52	6.66	54.90	45.61	45.16	53.44
VOLATILE MATTER	37.36	40.64	23.23	39.45	42.16	24.10	54.39	54.84	46.56
FIXED CARBON	44.54	49.34	20.24	47.03	51.19	21.00	--	--	--
BTU/LB	11512	12900	4583	12156	13382	4754	14057	14336	10540

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	68.16	71.98	--	71.97	74.67	--	83.23	80.00	--
HYDROGEN	5.38	5.53	--	5.06	5.32	--	5.85	5.70	--
NITROGEN	1.33	1.52	.39	1.40	1.57	.40	1.62	1.69	.89
SULFUR	4.31	1.78	20.56	4.55	1.85	21.33	5.26	1.98	47.30
OXYGEN	8.02	12.77	--	3.49	9.93	--	4.04	10.64	--
ASH	12.80	6.42	52.92	13.52	6.66	54.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.91	1.14	20.56	4.12	1.19	21.33	4.77	1.27	47.29
SULFATIC	.00	.00	.00	.00	.00	.00	.00	.00	.00
ORGANIC	.40	.64	.00	.43	.66	.00	.49	.71	.01
TOTAL	4.31	1.78	20.56	4.55	1.85	21.33	5.26	1.93	47.30

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	28.55	36.22	22.16
SiO2 (SILICON OXIDE)	25.64	34.70	18.48
AL2O3 (ALUMINUM OXIDE)	43.17	24.88	57.62
FE2O3 (IRON OXIDE)	.67	.73	.33
TiO2 (TITANIUM OXIDE)	.59	.67	.14
CaO (CALCIUM OXIDE)	.27	1.20	.20
MgO (MAGNESIUM OXIDE)	.08	.40	.11
Na2O (SODIUM OXIDE)	.60	.19	.51
K2O (POTASSIUM OXIDE)	.33	.72	.33
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.81	.38
DOLOMITE	.02	.07
HYDROGEN/CARBON	.84	.85
OXYGEN/CARBON	.06	.10
R250	.55	.74
SILICA	.39	.58
SILICA/ALUMINA	1.11	1.04

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2200	2410	--
SOFTENING TEMPERATURE (ST)	2300	2460	--
FLUID TEMPERATURE (FT)	2430	2780	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.02	--	--
NA (SODIUM) (CALCULATED)	.01	.02	.04
MINERAL MATTER (FARR)	15.65	8.20	60.49

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4	1/2	4
HARDGROVE GRINDABILITY (HGI)	52	46	--

STATE: KENTUCKY (EAST) BED: PRINCESS NO.7 BED CODE: 77
COUNTY: ELLIOTT RANK: HIGH VOLATILE B BITUMINOUS SAMPLE NO. 20

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.2	4.1	.95	13955	2.3
FLOAT 1.40	87.1	5.4	1.77	13738	3.4
FLOAT 1.60	90.7	5.9	2.03	13643	3.8
CUM(1-1/2" X 100M)	100.0	11.4	2.77	12745	5.1
100M X 0	.9	24.2	9.49	10550	18.4
TOTAL(1-1/2" X 0)	100.0	11.5	2.83	12725	5.2

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	73.2	2.8	.48	14118	1.4
FLOAT 1.40	84.1	3.6	.89	13974	2.0
FLOAT 1.60	88.8	4.4	1.28	13838	2.6
CUM(3/8" X 100M)	100.0	10.8	2.59	12747	4.7
100M X 0	4.5	17.4	6.03	11692	10.9
TOTAL(3/8" X 0)	100.0	11.1	2.74	12699	5.0

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.2	2.3	.30	14244	1.2
FLOAT 1.40	81.5	3.0	.45	14118	1.4
FLOAT 1.60	87.3	3.8	.73	13977	1.8
CUM(14M X 0)	100.0	11.1	2.70	12749	5.0

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.1
3/8" X 14M	17.0
14M X 100M	5.0
100M X 0	.9

----- MOISTURE, % -----
TOTAL AS RECEIVED 7.6
5.7

STATE: KENTUCKY (EAST)
COUNTY: ELLIOTT

BED: PRINCESS NO.7
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 77
SAMPLE NO. 20

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	5.70	3.80 3.80	--	--	--	--
ASH	10.75	3.80 59.16	11.40	3.95 61.50	--	--
VOLATILE MATTER	37.91	41.66 17.99	40.20	43.31 18.70	45.37	45.09 48.57
FIXED CARBON	45.64	50.74 19.05	48.40	52.74 19.80	54.63	54.91 51.43
BTU/LB	11982	13424 4122	12706	13955 4285	14341	14529 11129

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	66.68	74.27 18.92	70.71	77.20 19.67	79.81	80.38 51.09
HYDROGEN	5.23	5.58 1.96	4.88	5.36 1.60	5.50	5.58 4.16
NITROGEN	1.26	1.42 .29	1.33	1.48 .30	1.50	1.54 .78
SULFUR	3.33	1.33 15.76	3.54	1.39 16.38	3.99	1.44 42.54
OXYGEN	12.74	13.60 3.91	8.14	10.62 .55	9.19	11.06 1.43
ASH	10.75	3.80 59.16	11.40	3.95 61.50	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.73	.72 15.62	2.90	.75 16.24	3.27	.78 42.12
SULFATIC	.01	.01 .01	.01	.01 .01	.01	.01 .03
ORGANIC	.59	.60 .12	.63	.63 .13	.71	.65 .33
TOTAL	3.33	1.33 15.76	3.54	1.39 16.38	3.99	1.44 42.54

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	34.09	36.22 39.21
Al2O3 (ALUMINUM OXIDE)	21.87	30.55 20.36
Fe2O3 (IRON OXIDE)	39.75	26.02 35.17
TiO2 (TITANIUM OXIDE)	1.00	1.60 1.33
CaO (CALCIUM OXIDE)	.70	1.74 .25
MgO (MAGNESIUM OXIDE)	.43	.50 .46
Na2O (SODIUM OXIDE)	.13	.11 .13
K2O (POTASSIUM OXIDE)	.80	.65 1.06
SO3 (SULFITES)	.67	.65 .33

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.73	.43
DOLOMITE	.03	.08
HYDROGEN/CARBON	.83	.83
OXYGEN/CARBON	.09	.10
R250	.58	.71
SILICA	.45	.56
SILICA/ALUMINA	1.56	1.19

FUSIBILITY OF ASH, DEGREES F
(IN XIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2120	2140
SOFTENING TEMPERATURE (ST)	2170	2190
FLUID TEMPERATURE (FT)	2270	2290

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.01	--
NA (SODIUM) (CALCULATED)	.01	.00 .06
MINERAL MATTER (FARR)	14.26	5.03 75.43

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	3 1/2	4
HARDGROVE GRINDABILITY (HGI)	54	49

STATE: KENTUCKY (EAST) BED: STOCKTON BED CODE: 103
COUNTY: MARTIN RANK: HIGH VOLATILE B BITUMINOUS SAMPLE NO. 21

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.0	3.3	.06	14117	1.2
FLOAT 1.40	79.1	5.6	.12	13741	1.3
FLOAT 1.60	87.6	7.2	.13	13479	1.3
CUM(1-1/2" X 100M)	100.0	12.5	.19	12611	1.4
100M X 0	1.3	20.9	1.78	11235	5.3
TOTAL(1-1/2" X 0)	100.0	12.6	.21	12593	1.4

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.3	3.5	.05	14084	1.2
FLOAT 1.40	78.1	5.5	.06	13757	1.2
FLOAT 1.60	87.2	7.0	.07	13511	1.2
CUM(3/8" X 100M)	100.0	12.5	.19	12611	1.4
100M X 0	3.5	18.5	1.21	11628	3.2
TOTAL(3/8" X 0)	100.0	12.7	.23	12576	1.5

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.3	3.0	.06	14166	1.2
FLOAT 1.40	77.7	5.4	.07	13773	1.2
FLOAT 1.60	88.0	6.7	.08	13560	1.2
CUM(14M X 0)	100.0	12.0	.25	12693	1.5

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	80.6
3/8" X 14M	14.2
14M X 100M	3.9
100M X 0	1.3

----- MOISTURE, % -----

TOTAL	8.6
AS RECEIVED	6.1

STATE: KENTUCKY (EAST)
COUNTY: MARTIN

BED: STOCKTON
RANK: HIGH VOLATILE B BITUMINOUS

RED CODE: 103
SAMPLE NO. 21

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	6.10	2.70	2.70	--	--	--	--	--	--
ASH	11.72	6.32	49.82	12.48	6.50	51.20	--	--	--
VOLATILE MATTER	32.93	36.88	16.35	35.07	37.90	16.80	40.07	40.54	34.43
FIXED CARBON	49.25	54.10	31.14	52.45	55.60	32.00	59.93	59.46	65.57
BTU/LB	11870	13204	6101	12641	13570	6270	14443	14513	12848

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	67.29	74.89	36.35	71.66	76.97	37.36	81.88	82.32	76.56
HYDROGEN	5.12	5.26	2.64	4.73	5.09	2.40	5.41	5.45	4.92
NITROGEN	1.32	1.46	.68	1.41	1.50	.70	1.61	1.60	1.43
SULFUR	.92	.81	1.70	.98	.83	1.75	1.12	.89	3.58
OXYGEN	13.63	11.26	8.82	8.74	9.11	6.59	9.98	9.74	13.51
ASH	11.72	6.32	49.82	12.48	6.50	51.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.23	.08	1.46	.24	.08	1.50	.27	.09	3.07
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.69	.72	.23	.73	.74	.24	.83	.79	.49
TOTAL	.92	.81	1.70	.98	.83	1.75	1.12	.89	3.58

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	.20	.20	.30	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLomite	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	.79	.79	--	--	--	--	--	--	--
OXYGEN/CARBON	.09	.09	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING	--	--	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--

STATE: KENTUCKY (EAST) BED: UPPER ELKHORN NO.1 BED CODE: 157
COUNTY: LAUREL RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 22

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	81.8	1.5	.12	14711	.9
FLOAT 1.40	92.2	2.0	.12	14627	1.0
FLOAT 1.60	97.0	2.9	.13	14476	1.0
CUM(1-1/2" X 100M)	100.0	4.4	.17	14224	1.1
100M X 0	1.0	16.4	.54	12210	1.9
TOTAL(1-1/2" X 0)	100.0	4.5	.17	14204	1.1

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	80.7	1.2	.07	14762	1.1
FLOAT 1.40	90.1	1.7	.07	14678	1.1
FLOAT 1.60	96.1	2.9	.08	14476	1.1
CUM(3/8" X 100M)	100.0	4.7	.13	14174	1.2
100M X 0	3.0	14.9	.45	12462	1.5
TOTAL(3/8" X 0)	100.0	5.0	.14	14123	1.2

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	81.3	1.3	.06	14745	.9
FLOAT 1.40	92.6	1.8	.09	14661	.9
FLOAT 1.60	96.0	2.3	.15	14577	.9
CUM(14M X 0)	100.0	4.4	.16	14224	1.0

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	80.3
3/8" X 14M	14.2
14M X 100M	4.5
100M X 0	1.0

--- MOISTURE, % ---
TOTAL
AS RECEIVED
6.0
5.1

STATE: KENTUCKY (EAST) BED: UPPER ELKHORN NO.1 BED CODE: 157
COUNTY: LAUREL RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 22

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	5.10	3.10	---	---	---	---
ASH	4.27	2.32	4.50	2.39	---	---
VOLATILE MATTER	37.43	38.86	39.45	40.10	41.30	41.09
FIXED CARBON	53.20	55.72	56.05	57.50	58.70	58.91
BTU/LB	13514	14080	5554	14531	5610	14887
					14911	12664

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	75.65	78.89	79.71	81.42	83.47	83.41
HYDROGEN	5.65	5.65	5.36	5.47	5.61	5.61
NITROGEN	1.69	1.77	1.78	1.83	1.87	1.87
SULFUR	.76	.74	.80	.76	.84	.78
OXYGEN	11.98	10.63	7.85	8.13	8.22	8.33
ASH	4.27	2.32	4.50	2.39	---	---

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.14	.13	.15	.14	.16	.14
SULFATIC	.02	.02	.02	.02	.02	.02
ORGANIC	.60	.59	.63	.60	.66	.62
TOTAL	.76	.74	.80	.76	.84	.78

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	---	---	---	---	---	---
SiO2 (SILICON OXIDE)	---	---	---	---	---	---
Al2O3 (ALUMINUM OXIDE)	---	---	---	---	---	---
Fe2O3 (IRON OXIDE)	---	---	---	---	---	---
TiO2 (TITANIUM OXIDE)	---	---	---	---	---	---
CaO (CALCIUM OXIDE)	---	---	---	---	---	---
MgO (MAGNESIUM OXIDE)	---	---	---	---	---	---
Na2O (SODIUM OXIDE)	---	---	---	---	---	---
K2O (POTASSIUM OXIDE)	---	---	---	---	---	---
SO3 (SULFITES)	---	---	---	---	---	---

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	---	---	---	---	---	---
DOLOMITE	---	---	---	---	---	---
HYDROGEN/CARBON	.81	.81	---	---	---	---
OXYGEN/CARBON	.07	.07	---	---	---	---
R250	---	---	---	---	---	---
SILICA	---	---	---	---	---	---
SILICA/ALUMINA	---	---	---	---	---	---

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	---	---	---	---	---	---
NA (SODIUM) (CALCULATED)	---	---	---	---	---	---
MINERAL MATTER (PARR)	5.30	3.01	---	---	---	---

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2410	2680	---	---	---	---
SOFTENING TEMPERATURE (ST)	2460	2730	---	---	---	---
FLUID TEMPERATURE (FT)	2560	2780	---	---	---	---

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	4	1/2	---	---	---	---
HARDGROVE GRINDABILITY (HGI)	45	---	---	---	---	---

STATE: KENTUCKY (EAST) BED: UPPER ELKHORN NO.1 BED CODE: 157
COUNTY: LAUREL RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 23

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	86.7	88.6	1.5	.14	14691	1.0
FLOAT 1.40	95.8	97.1	2.1	.14	14581	1.1
FLOAT 1.60	98.8	99.4	2.7	.14	14471	1.1
CUM(1-1/2" X 100M)	100.0	100.0	3.2	.36	14379	1.4
100M X 0	1.0	.9	11.3	.93	12894	2.4
TOTAL(1-1/2" X 0)	100.0	100.0	3.3	.37	14365	1.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	86.4	88.3	1.6	.14	14673	1.1
FLOAT 1.40	95.4	96.9	2.1	.14	14581	1.1
FLOAT 1.60	98.5	99.3	2.7	.14	14471	1.1
CUM(3/8" X 100M)	100.0	100.0	3.3	.43	14361	1.5
100M X 0	3.4	3.2	7.4	.71	13609	2.0
TOTAL(3/8" X 0)	100.0	100.0	3.4	.44	14335	1.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.1	67.2	1.1	.09	14765	1.0
FLOAT 1.40	93.3	95.5	1.8	.11	14636	1.0
FLOAT 1.60	97.7	99.0	2.6	.12	14489	1.1
CUM(14M X 0)	100.0	100.0	3.6	.46	14306	1.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---		--- MOISTURE, % ---	
SAMPLE CRUSHED TO PASS 1-1/2"		TOTAL AS RECEIVED	
1-1/2" X 3/8"	81.4	5.6	
3/8" X 14M	13.1	4.4	
14M X 100M	4.5		
100M X 0	1.0		

STATE: KENTUCKY (EAST)
COUNTY: LAUREL

BED: UPPER ELKHORN NO.1
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 157
SAMPLE NO. 23

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.40	2.80 2.50	--	--	--	--
ASH	3.30	2.43 46.72	3.46	2.50 47.92	--	--
VOLATILE MATTER	38.68	39.69 23.18	40.46	23.78	41.91	41.88
FIXED CARBON	53.61	55.08 27.59	56.08	28.30	58.09	58.12
BTU/LB	13773	14032 6020	14407	6175	14922	14805

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	76.55	78.80 31.21	80.07	32.01	82.94	83.15
HYDROGEN	5.61	5.59 2.33	5.36	2.10	5.55	5.57
NITROGEN	1.71	1.76 .49	1.78	.50	1.85	1.86
SULFUR	.96	.67 15.17	1.01	15.56	1.04	.71
OXYGEN	11.87	10.75 4.09	8.32	1.91	8.62	8.71
ASH	3.30	2.43 46.72	3.46	47.92	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.42	.13 14.53	.44	14.90	.46	.14
SULFATIC	.02	.03	.03	.03	.03	.02
ORGANIC	.52	.53 .61	.54	.63	.56	.55
TOTAL	.96	.67 15.17	1.01	15.56	1.04	.71

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	RAW	FL 1.60 SK 1.60
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	2450	2910+
Fe2O3 (IRON OXIDE)	--	--	--	--	2500	2910+
TiO2 (TITANIUM OXIDE)	--	--	--	--	2550	2910+
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	RAW	FL 1.60 SK 1.60
K2O (POTASSIUM OXIDE)	--	--	--	--	.25	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.80	.80	--	--	RAW	FL 1.60 SK 1.60
OXYGEN/CARBON	.08	.08	--	--	4	5
R250	--	--	--	--	46	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)	RAW	FL 1.60	SK 1.60
HARDGROVE GRINDABILITY (HGI)	4	5	0

STATE: KENTUCKY (EAST) BED: UPPER ELKHORN NO. 2 BED CODE: 154
COUNTY: FLOYD RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 24

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"									
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU				
FLOAT 1.30	74.0	1.6	.12	14527	1.1				
FLOAT 1.40	90.6	2.4	.24	14389	1.3				
FLOAT 1.60	94.2	3.2	.27	14251	1.3				
CUM(1-1/2" X 100M)	100.0	5.8	.35	13804	1.5				
100M X 0	1.4	11.2	1.35	12874	3.1				
TOTAL(1-1/2" X 0)	100.0	5.9	.36	13791	1.5				

SAMPLE CRUSHED TO PASS 3/8"									
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU				
FLOAT 1.30	71.5	1.4	.10	14561	1.1				
FLOAT 1.40	90.3	2.2	.17	14423	1.2				
FLOAT 1.60	94.0	2.9	.21	14303	1.2				
CUM(3/8" X 100M)	100.0	5.8	.30	13804	1.4				
100M X 0	4.3	9.3	1.10	13201	2.6				
TOTAL(3/8" X 0)	100.0	6.0	.33	13778	1.4				

SAMPLE CRUSHED TO PASS 14M									
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU				
FLOAT 1.30	73.6	1.3	.10	14578	1.1				
FLOAT 1.40	90.2	2.0	.20	14458	1.2				
FLOAT 1.60	94.9	2.8	.25	14320	1.2				
CUM(14M X 0)	100.0	5.3	.40	13890	1.5				

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %		MOISTURE, %	
SAMPLE CRUSHED TO PASS 1-1/2"			
1-1/2" X 3/8"	78.6	TOTAL	4.7
3/8" X 14M	14.9	AS RECEIVED	4.1
14M X 100M	5.1		
100M X 0	1.4		

STATE: KENTUCKY (EAST)
COUNTY: FLOYD

BED: UPPER ELKHORN NO.2
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 154
SAMPLE NO. 24

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.10	3.40 1.80	--	--	--	--
ASH	5.29	2.70 51.36	5.51	2.80 52.30	--	--
VOLATILE MATTER	35.03	36.14 20.92	36.53	37.41 21.30	38.66	38.49 44.65
FIXED CARBON	55.59	57.76 25.92	57.96	59.79 26.40	61.34	61.51 55.35
BTU/LB	13352	13843 6177	13923	14330 6290	14735	14743 13187

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	75.27	78.57 35.38	78.49	81.34 36.03	83.07	83.68 75.53
HYDROGEN	5.42	5.52 2.75	5.18	5.32 2.60	5.48	5.48 5.45
NITROGEN	1.42	1.47 .59	1.48	1.52 .60	1.56	1.57 1.26
SULFUR	.94	.95 3.18	.98	.98 3.24	1.03	1.01 6.80
OXYGEN	11.67	10.78 6.73	8.37	8.03 5.23	8.86	8.26 10.96
ASH	5.29	2.70 51.36	5.51	2.80 52.30	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.33	.22 3.13	.35	.23 3.19	.37	.24 6.69
SULFATIC	.03	.03 .01	.03	.01 .03	.03	.03 .01
ORGANIC	.58	.69 .05	.60	.72 .05	.64	.74 .10
TOTAL	.94	.95 3.18	.98	.98 3.24	1.03	1.01 6.80

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	.08	.50
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.79	.79
OXYGEN/CARBON	.08	.07
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2620	2620
SOFTENING TEMPERATURE (ST)	2680	2680
FLUID TEMPERATURE (FT)	2780	2780

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.18	--
NA (SODIUM) (CALCULATED)	.00	.02 .19
MINERAL MATTER (PARR)	6.49	3.56 58.27

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	3	3
HARDGROVE GRINDABILITY (HGI)	38	39

STATE: KENTUCKY (EAST) BED: UPPER ELKHORN NO.3 BED CODE: 151
COUNTY: MCCREARY RANK: HIGH VOLATILE B BITUMINOUS SAMPLE NO. 25

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	74.0	2.0	.14	14478	1.2
FLOAT 1.40	85.1	2.8	.31	14340	1.5
FLOAT 1.60	88.8	3.4	.37	14237	1.5
CUM(1-1/2" X 100M)	100.0	11.8	.68	12789	2.1
100M X 0	.7	15.2	1.06	12203	3.0
TOTAL(1-1/2" X 0)	100.0	11.8	.68	12785	2.1

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	72.9	1.7	.14	14530	1.2
FLOAT 1.40	82.2	2.1	.23	14461	1.4
FLOAT 1.60	88.4	3.0	.33	14306	1.5
CUM(3/8" X 100M)	100.0	11.8	.67	12789	2.1
100M X 0	4.2	12.9	1.06	12600	2.8
TOTAL(3/8" X 0)	100.0	11.8	.69	12781	2.1

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.7	1.3	.16	14599	1.2
FLOAT 1.40	82.2	2.0	.27	14478	1.4
FLOAT 1.60	88.4	2.8	.37	14340	1.6
CUM(14M X 0)	100.0	11.4	.65	12858	2.1

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---

SAMPLE CRUSHED TO PASS 1-1/2"		MOISTURE, %
1-1/2" X 3/8"	77.8	5.4
3/8" X 14M	16.6	3.9
14M X 100M	4.9	
100M X 0	.7	
TOTAL AS RECEIVED		

STATE: KENTUCKY (EAST)
COUNTY: MCCREARY

BED: UPPER ELKHORN NO.3
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 151
SAMPLE NO. 25

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW FL 1.60 SK 1.60

3.90 1.90 1.90

10.67 2.84 72.01

33.68 37.26 12.95

51.76 57.99 13.15

12405 14175 2855

MOISTURE FREE

RAW FL 1.60 SK 1.60

-- --

11.10 2.90 73.40

35.04 37.99 13.20

53.86 59.11 13.40

12908 14450 2910

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

-- --

39.42 39.12 49.62

60.58 60.88 50.38

14520 14882 10940

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

70.93 79.40 16.87

5.15 5.46 1.68

1.64 1.84 .39

1.25 1.04 2.87

10.36 9.41 6.17

10.67 2.84 72.01

MOISTURE FREE

RAW FL 1.60 SK 1.60

73.81 80.94 17.20

4.91 5.35 1.50

1.71 1.88 .40

1.30 1.06 2.93

7.17 7.87 4.57

11.10 2.90 73.40

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

83.03 83.36 64.66

5.52 5.51 5.64

1.92 1.94 1.50

1.46 1.09 11.02

8.07 8.10 17.18

-- --

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

.60 .33 2.73

.01 .01 .01

.64 .70 .13

1.25 1.04 2.87

MOISTURE FREE

RAW FL 1.60 SK 1.60

.62 .33 2.78

.01 .01 .01

.67 .72 .14

1.30 1.06 2.93

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

.70 .34 10.47

.01 .01 .04

.75 .74 .51

1.46 1.09 11.02

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW FL 1.60 SK 1.60

-- --

-- --

-- --

-- --

-- --

.50 .60 .50

-- --

-- --

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

-- --

-- --

-- --

-- --

-- --

-- --

-- --

COAL UTILIZATION RATIOS

AS RECEIVED

RAW FL 1.60

-- --

.80 .79

.07 .07

-- --

-- --

MOISTURE AND ASH FREE

RAW FL 1.60

-- --

-- --

-- --

-- --

-- --

BASE/ACID

AS RECEIVED

RAW FL 1.60

-- --

-- --

4 1/2 4 1/2

43 41

MOISTURE AND ASH FREE

RAW FL 1.60

-- --

-- --

-- --

-- --

-- --

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

AS RECEIVED

RAW FL 1.60 SK 1.60

2400 2250

2500 2300

2780 2360

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

2400 2250

2500 2300

2780 2360

MISCELLANEOUS DATA, %

AS RECEIVED

RAW FL 1.60

-- --

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

MOISTURE AND ASH FREE

RAW FL 1.60

-- --

.23

.04

12.70 3.72

PHYSICAL PARAMETERS, INDEX

AS RECEIVED

RAW FL 1.60

-- --

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

MOISTURE AND ASH FREE

RAW FL 1.60

-- --

4 1/2 4 1/2

43 41

STATE: KENTUCKY (EAST) BED: UPPER ELKHORN NO.3 BED CODE: 151
COUNTY: MORGAN RANK: HIGH VOLATILE B BITUMINOUS SAMPLE NO. 26

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	96.6	1.4	.02	14430	.8
FLOAT 1.40	98.4	1.5	.02	14413	.8
FLOAT 1.60	99.1	1.6	.02	14396	.8
CUM(1-1/2" X 100M)	100.0	2.2	.02	14298	.9
100M X 0	.9	12.4	1.24	12548	3.4
TOTAL(1-1/2" X 0)	100.0	2.3	.03	14283	.9

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	90.6	1.2	.03	14410	.7
FLOAT 1.40	98.0	1.4	.03	14365	.7
FLOAT 1.60	99.1	1.6	.03	14341	.7
CUM(3/8" X 100M)	100.0	2.1	.04	14252	.7
100M X 0	3.1	7.2	.30	13417	1.2
TOTAL(3/8" X 0)	100.0	2.3	.05	14226	.7

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	82.9	.7	.01	14500	.7
FLOAT 1.40	96.7	1.0	.01	14423	.8
FLOAT 1.60	98.7	1.3	.02	14382	.8
CUM(14M X 0)	100.0	2.1	.03	14249	.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	80.6
3/8" X 14M	14.7
14M X 100M	3.8
100M X 0	.9

--- MOISTURE, % ---

TOTAL	6.6
AS RECEIVED	6.0

STATE: KENTUCKY (EAST) BED: UPPER ELKHORN NO.3 BED CODE: 151
COUNTY: MORGAN RANK: HIGH VOLATILE B BITUMINOUS SAMPLE NO. 26

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	6.00	3.10	--	--	--	--
ASH	2.05	1.31	2.18	1.35	--	--
VOLATILE MATTER	36.80	38.25	39.15	39.47	40.03	40.02
FIXED CARBON	55.15	57.34	58.67	59.18	59.98	59.99
BTU/LB	13383	13929	14237	14374	14555	14571

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	75.60	78.63	80.42	81.15	82.22	82.26
HYDROGEN	5.64	5.52	5.29	5.34	5.41	5.41
NITROGEN	1.60	1.66	1.70	1.71	1.74	1.73
SULFUR	.48	.49	.51	.50	.52	.51
OXYGEN	14.63	12.39	9.89	9.95	10.11	10.08
ASH	2.05	1.31	2.18	1.35	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.03	.02	.03	.02	.03	.02
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.44	.46	.47	.48	.48	.48
TOTAL	.48	.49	.51	.50	.52	.51

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	.51	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.79	--
OXYGEN/CARBON	.09	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2720	2720
SOFTENING TEMPERATURE (ST)	2770	2770
FLUID TEMPERATURE (FT)	2820	2820
MISCELLANEOUS DATA, %		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.18	--
MINERAL MATTER (PARR)	.01	--
	2.64	1.73
		67.80

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	1	1 1/2
HARDGROVE GRINDABILITY (HGI)	41	38

STATE: KENTUCKY (EAST) BED: WHITESBURG BED CODE: 137
COUNTY: CARTER RANK: HIGH VOLATILE B BITUMINOUS SAMPLE NO. 27

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	1.7	3.8	.21	13652	1.5
FLOAT 1.40	76.5	13.5	.35	12319	1.7
FLOAT 1.60	95.5	16.0	.47	11900	1.9
CUM(1-1/2" X 100M)	100.0	17.2	.58	11704	2.1
100M X 0	.6	25.1	2.00	10444	5.3
TOTAL(1-1/2" X 0)	100.0	17.2	.59	11696	2.1

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.5	3.5	.18	13670	1.4
FLOAT 1.40	70.7	11.2	.32	12555	1.6
FLOAT 1.60	93.7	14.3	.42	12053	1.8
CUM(3/8" X 100M)	100.0	16.3	.63	11724	2.1
100M X 0	3.6	21.0	1.30	11071	3.5
TOTAL(3/8" X 0)	100.0	16.5	.65	11701	2.2

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	18.7	2.8	.18	13914	1.4
FLOAT 1.40	62.7	8.6	.26	12990	1.7
FLOAT 1.60	93.3	13.5	.37	12212	1.9
CUM(14M X 0)	100.0	16.1	.60	11815	2.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	83.2
3/8" X 14M	12.6
14M X 100M	3.6
100M X 0	.6

--- MOISTURE, % ---

TOTAL	7.5
AS RECEIVED	6.0

STATE: KENTUCKY (EAST)
COUNTY: CARTER

BED: WHITESBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 137
SAMPLE NO. 27

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	6.00	3.20	--	--	--	--
ASH	15.74	13.16	16.74	13.60	--	--
VOLATILE MATTER	36.29	38.72	38.60	40.00	46.37	46.91
FIXED CARBON	41.98	44.92	44.66	46.40	53.64	53.09
BTU/LB	11021	11808	11724	12198	14082	14118

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	61.27	66.25	65.18	68.44	78.29	79.21
HYDROGEN	5.22	5.21	4.85	5.01	5.82	5.80
NITROGEN	1.34	1.44	1.42	1.49	1.71	1.73
SULFUR	1.20	1.03	1.28	1.06	1.54	1.23
OXYGEN	15.23	12.91	10.53	10.40	12.64	12.03
ASH	15.74	13.16	16.74	13.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.61	.35	.64	.36	.77	.42
SULFATIC	.01	.01	.02	.01	.02	.01
ORGANIC	.58	.67	.62	.69	.74	.80
TOTAL	1.20	1.03	1.28	1.06	1.54	1.23

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	49.43	49.01
Al2O3 (ALUMINUM OXIDE)	38.84	39.97
Fe2O3 (IRON OXIDE)	6.86	4.87
TiO2 (TITANIUM OXIDE)	1.00	1.00
CaO (CALCIUM OXIDE)	.67	.78
MgO (MAGNESIUM OXIDE)	.56	.56
Na2O (SODIUM OXIDE)	.13	.13
K2O (POTASSIUM OXIDE)	1.30	1.23
SO3 (SULFITES)	.16	.21

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.11	.08
DOLOMITE	.13	.18
HYDROGEN/CARBON	.89	.88
OXYGEN/CARBON	.12	.11
R250	.92	.94
SILICA	.86	.89
SILICA/ALUMINA	1.27	1.23

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+
SOFTENING TEMPERATURE (ST)	2910+	2910+
FLUID TEMPERATURE (FT)	2910+	2910+
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.01	--
MINERAL MATTER (PARR)	.02	.01
	18.79	15.27
		57.78

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	2	--
HARDGROVE GRINDABILITY (HGI)	44	--

STATE: KENTUCKY (EAST) BED: WINIFREDE BED CODE: 121
COUNTY: BELL RANK: HIGH VOLATILE B BITUMINOUS SAMPLE NO. 28

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.7	3.3	.28	14056	1.8
FLOAT 1.40	74.6	5.6	.36	13665	1.9
FLOAT 1.60	86.1	7.7	.39	13308	2.0
CUM(1-1/2" X 100M)	100.0	15.2	.42	12033	2.1
100M X 0	1.2	32.1	.51	9161	2.4
TOTAL(1-1/2" X 0)	100.0	15.4	.42	11999	2.1

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.0	2.8	.44	14141	1.7
FLOAT 1.40	73.1	5.1	.46	13750	1.8
FLOAT 1.60	85.7	7.1	.46	13410	1.9
CUM(3/8" X 100M)	100.0	15.1	.53	12050	2.1
100M X 0	3.6	28.9	.45	9705	2.7
TOTAL(3/8" X 0)	100.0	15.6	.53	11966	2.1

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.0	2.5	.14	14192	1.8
FLOAT 1.40	69.2	4.4	.27	13869	1.8
FLOAT 1.60	83.8	6.5	.34	13512	2.0
CUM(14M X 0)	100.0	15.7	.49	11948	2.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---

SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	71.4
3/8" X 14M	21.8
14M X 100M	5.6
100M X 0	1.2

--- MOISTURE, % ---

TOTAL	4.1
AS RECEIVED	3.1

STATE: KENTUCKY (EAST)

COUNTY: BELL

BED: WINIFREDE

RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 121

SAMPLE NO. 28

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

MOISTURE

3.10

3.10

2.90

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--

ASH

15.41

6.49

62.73

15.90

6.70

64.60

VOLATILE MATTER

35.79

39.21

17.67

40.46

18.20

18.20

FIXED CARBON

45.70

51.20

16.70

47.16

52.84

17.20

BTU/LB

11744

13091

4166

12120

13510

4290

14411

14480

12119

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

CARBON

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HYDROGEN

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NITROGEN

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SULFUR

1.38

1.19

1.46

1.43

1.23

1.51

OXYGEN

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ASH

15.41

6.49

62.73

15.90

6.70

64.60

1.70

1.32

4.25

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

PYRITIC

.51

.32

1.23

.53

1.27

.35

SULFATIC

.01

.01

.01

.01

.01

.03

ORGANIC

.86

.86

.22

.89

.23

.65

TOTAL

1.38

1.19

1.46

1.43

1.23

1.51

1.70

1.32

4.25

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

OXIDES

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SiO2 (SILICON OXIDE)

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AL2O3 (ALUMINUM OXIDE)

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FE2O3 (IRON OXIDE)

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TiO2 (TITANIUM OXIDE)

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CaO (CALCIUM OXIDE)

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MgO (MAGNESIUM OXIDE)

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Na2O (SODIUM OXIDE)

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K2O (POTASSIUM OXIDE)

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SO3 (SULFITES)

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BASE/ACID

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DOLOMITE

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HYDROGEN/CARBON

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OXYGEN/CARBON

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R250

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SILICA

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SILICA/ALUMINA

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FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

AS RECEIVED

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

INITIAL DEFORMATION (ID)

--

--

--

2460

2780

2290

SOFTENING TEMPERATURE (ST)

--

--

--

2570

2870

2480

FLUID TEMPERATURE (FT)

--

--

--

2700

2910+

2775

MISCELLANEOUS DATA, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

CL (CHLORINE) (ANALYZED)

--

--

--

RAW

FL 1.60

SK 1.60

NA (SODIUM) (CALCULATED)

--

--

--

18.15

7.91

70.60

MINERAL MATTER (PARR)

--

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PHYSICAL PARAMETERS, INDEX

AS RECEIVED

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

FREE SWELLING (FSI)

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1

2

HARDGROVE GRINDABILITY (HGI)

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43

40

STATE: MARYLAND
COUNTY: ALLEGANY
BED: BAKERSTOWN
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 62
SAMPLE NO. 29

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU			
FLOAT 1.30	6.2	2.1	8.1	.24	15060	1.4			
FLOAT 1.40	40.3	8.1	49.0	.93	13970	2.5			
FLOAT 1.60	80.5	15.8	88.1	1.29	12572	3.1			
CUM(1-1/2" X 100M)	100.0	21.8	100.0	2.00	11482	4.5			
100M X 0	1.0	15.4	1.1	1.99	12644	5.0			
TOTAL(1-1/2" X 0)	100.0	21.7	100.0	2.00	11493	4.6			

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU			
FLOAT 1.30	9.6	2.1	12.2	.26	15060	1.4			
FLOAT 1.40	47.0	7.3	56.1	.74	14116	2.2			
FLOAT 1.60	82.9	14.2	90.2	1.11	12862	2.8			
CUM(3/8" X 100M)	100.0	19.9	100.0	1.93	11827	4.3			
100M X 0	2.1	17.2	2.2	2.51	12317	5.6			
TOTAL(3/8" X 0)	100.0	19.8	100.0	1.94	11837	4.3			

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU			
FLOAT 1.30	10.7	2.3	14.0	.19	15024	1.4			
FLOAT 1.40	36.8	5.7	46.1	.55	14406	1.9			
FLOAT 1.60	72.8	12.0	84.0	.88	13262	2.5			
CUM(14M X 0)	100.0	21.7	100.0	2.06	11500	4.7			

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %		MOISTURE, %	
SAMPLE CRUSHED TO PASS 1-1/2"			
1-1/2" X 3/8"	--	TOTAL	2.1
3/8" X 14M	--	AS RECEIVED	.8
14M X 100M	--		
100M X 0	--		

STATE: MARYLAND
COUNTY: ALLEGANY

BED: BAKERSTOWN
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 62
SAMPLE NO. 29

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.80	1.30	1.10	--	--	--	--	--	--
ASH	22.22	12.24	47.27	22.40	12.40	47.80	--	--	--
VOLATILE MATTER	16.67	17.47	--	16.80	17.70	--	21.65	20.21	--
FIXED CARBON	60.31	68.99	--	60.80	69.90	--	78.35	79.79	--
BTU/LB	11785	13295	--	11880	13470	--	15309	15377	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.73	1.54	5.53	2.75	1.56	5.59	3.54	1.78	10.72
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	22.22	12.24	47.27	22.40	12.40	47.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.14	.83	5.16	2.16	.84	5.22	2.78	.96	10.00
SULFATIC	.02	.01	.03	.02	.01	.03	.03	.01	.06
ORGANIC	.57	.70	.34	.57	.71	.35	.73	.81	.66
TOTAL	2.73	1.54	5.53	2.75	1.56	5.59	3.54	1.78	10.72

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE	
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60
OXIDES	--	--	SK 1.60	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE	
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE	
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60
FREE SWELLING	--	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--

STATE: MARYLAND
COUNTY: GARRETT

BED: ELK LICK
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 55
SAMPLE NO. 30

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.1	3.4	.02	14855	.7
FLOAT 1.40	31.9	4.4	.02	14673	.6
FLOAT 1.60	88.9	10.1	.03	13635	.6
CUM(1-1/2" X 100M)	100.0	13.7	.03	12980	.6
100M X 0	4.0	15.3	.13	12689	.8
TOTAL(1-1/2" X 0)	100.0	13.8	.03	12968	.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.4	3.6	.01	14819	.6
FLOAT 1.40	35.8	4.1	.01	14728	.6
FLOAT 1.60	88.4	10.0	.01	13654	.5
CUM(3/8" X 100M)	100.0	13.7	.02	12980	.5
100M X 0	3.0	15.1	.08	12725	.7
TOTAL(3/8" X 0)	100.0	13.7	.02	12972	.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	---	---	---	15073	---
FLOAT 1.40	32.1	3.3	.01	14873	.7
FLOAT 1.60	84.5	8.9	.01	13854	.6
CUM(14M X 0)	100.0	13.8	.02	12962	.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
3/8" X 14M ---
14M X 100M ---
100M X 0 ---

--- MOISTURE, % ---

TOTAL
AS RECEIVED
6.4
5.5

STATE: MARYLAND
COUNTY: GARRETT

BED: ELK LICK
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 55
SAMPLE NO. 30

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.50	4.30	1.70	--	--	--	--	--	--
ASH	13.42	8.71	39.52	14.20	9.10	40.20	--	--	--
VOLATILE MATTER	17.89	18.05	19.07	18.94	18.86	19.40	22.07	20.75	32.44
FIXED CARBON	63.19	68.94	39.71	66.86	72.04	40.40	77.93	79.25	67.56
BTU/LB	11538	12451	7274	12210	13010	7400	14231	14312	12375

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	.36	.41	.38	.38	.43	.39	.44	.47	.65
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	13.42	8.71	39.52	14.20	9.10	40.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.02	.01	.07	.02	.01	.07	.03	.01	.12
SULFATIC	.00	.00	.00	.00	.00	.00	.00	.00	.00
ORGANIC	.34	.40	.31	.36	.42	.32	.42	.46	.53
TOTAL	.36	.41	.38	.38	.43	.39	.44	.47	.65

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	0	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	2290	2470	2520
SOFTENING TEMPERATURE (ST)	--	--	--	2340	2520	2570
FLUID TEMPERATURE (FT)	--	--	--	2390	2570	2620
MISCELLANEOUS DATA, %						
CL (CHLORINE) (ANALYZED)	--	--	--	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	15.55	10.08	43.63

STATE: MARYLAND
COUNTY: GARRETT

BED: ELK LICK
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 55
SAMPLE NO. 31

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	3.8	2.1	.20	15132	1.4
FLOAT 1.40	60.0	6.3	.30	14386	1.5
FLOAT 1.60	94.1	10.7	.62	13603	2.0
CUM(1-1/2" X 100M)	100.0	12.8	.88	13230	2.5
100M X 0	.7	17.6	1.11	12377	3.5
TOTAL(1-1/2" X 0)	100.0	12.8	.88	13224	2.5

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	6.7	2.3	.19	15097	1.4
FLOAT 1.40	62.5	6.0	.23	14439	1.5
FLOAT 1.60	92.1	10.1	.40	13710	1.7
CUM(3/8" X 100M)	100.0	12.7	.85	13248	2.5
100M X 0	1.1	17.6	1.35	12377	3.7
TOTAL(3/8" X 0)	100.0	12.8	.86	13238	2.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	6.7	2.2	.18	15114	1.5
FLOAT 1.40	61.3	5.1	.21	14599	1.4
FLOAT 1.60	88.7	9.0	.33	13906	1.6
CUM(14M X 0)	100.0	13.2	.94	13159	2.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	2.0
3/8" X 14M	1.1
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	

STATE: MARYLAND
COUNTY: GARRETT

BED: ELK LICK
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 55
SAMPLE NO. 31

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.10	1.30	--	--	--	--
ASH	13.15	9.08	13.30	9.20	21.95	21.33
VOLATILE MATTER	18.82	19.12	19.03	16.50	78.05	78.67
FIXED CARBON	66.92	70.50	67.67	71.43	15248	15198
BTU/LB	13075	13621	13220	13800	15248	15198

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.68	1.21	1.70	1.23	1.96	1.35
OXYGEN	--	--	--	--	--	--
ASH	13.15	9.08	13.30	9.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.87	.33	.88	.33	1.01	.36
SULFATIC	.03	.02	.03	.02	.03	.02
ORGANIC	.78	.87	.79	.88	.91	.97
TOTAL	1.68	1.21	1.70	1.23	1.96	1.35

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES (SILICON OXIDE)	--	--	2040	2460
AL2O3 (ALUMINUM OXIDE)	--	--	2090	2560
FE2O3 (IRON OXIDE)	--	--	2270	2680
TiO2 (TITANIUM OXIDE)	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--
SO3 (SULFITES)	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	--	--	--	--
OXYGEN/CARBON	--	--	--	--
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	--	--	3	3 1/2
HARDGROVE GRINDABILITY (HGI)	--	--	--	--

STATE: MARYLAND
COUNTY: ALLEGANY
BED: FRANKLIN
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 42
SAMPLE NO. 32

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	3.9	2.1	.04	15170	1.4
FLOAT 1.40	76.0	8.6	.06	14012	1.5
FLOAT 1.60	97.0	10.7	.17	13638	1.7
CUM(1-1/2" X 100M)	100.0	12.0	.23	13407	1.8
100M X 0	.2	18.4	.35	12267	1.7
TOTAL(1-1/2" X 0)	100.0	12.0	.23	13404	1.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	5.9	2.2	.05	15152	1.8
FLOAT 1.40	77.9	8.6	.07	14012	1.4
FLOAT 1.60	96.8	10.6	.17	13656	1.6
CUM(3/8" X 100M)	100.0	11.9	.24	13424	1.7
100M X 0	.4	16.6	.34	12587	2.2
TOTAL(3/8" X 0)	100.0	11.9	.24	13421	1.7

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	4.9	1.4	.03	15295	1.4
FLOAT 1.40	61.6	6.3	.08	14422	1.4
FLOAT 1.60	92.8	9.4	.13	13870	1.6
CUM(14M X 0)	100.0	11.9	.26	13424	1.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

MOISTURE, %

TOTAL AS RECEIVED
2.8
1.3

STATE: MARYLAND
COUNTY: ALLEGANY

BED: FRANKLIN
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 42
SAMPLE NO. 32

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.30	1.40	.80	--	--	--
ASH	11.65	9.47	43.05	11.80	43.40	--
VOLATILE MATTER	17.91	18.10	15.28	18.15	15.40	20.57
FIXED CARBON	69.14	71.04	40.87	70.05	41.20	79.43
BTU/LB	13324	13587	7748	13500	7810	15306

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.04	1.11	2.47	1.05	1.13	2.49
OXYGEN	--	--	--	--	--	1.19
ASH	11.65	9.47	43.05	11.80	9.60	43.40

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.25	.14	1.92	.26	.14	1.94
SULFATIC	.02	.02	.03	.03	.02	.03
ORGANIC	.76	.95	.52	.77	.97	.53
TOTAL	1.04	1.11	2.47	1.05	1.13	2.49

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES (SILICON OXIDE)	--	--	--
AL2O3 (ALUMINUM OXIDE)	--	--	--
FE2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2600	2700	2410
SOFTENING TEMPERATURE (ST)	2650	2750	2510
FLUID TEMPERATURE (FT)	2700	2820	2630

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (FARR)	13.28	10.99	48.24

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3	2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

BED CODE: 42
SAMPLE NO. 33

BED: FRANKLIN
RANK: LOW VOLATILE BITUMINOUS

STATE: MARYLAND
COUNTY: ALLEGANY

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.1	9.2	3.3	.59	14977	2.0
FLOAT 1.40	88.3	92.3	9.8	1.37	13831	3.2
FLOAT 1.60	92.7	96.4	10.2	1.50	13760	3.4
CUM(1-1/2" X 100M)	100.0	100.0	13.2	2.03	13231	4.2
100M X 0	1.3	1.3	13.9	2.99	13107	7.0
TOTAL(1-1/2" X 0)	100.0	100.0	13.2	2.04	13229	4.3

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	11.6	13.3	3.2	.51	14995	1.9
FLOAT 1.40	70.2	75.2	9.0	1.02	13972	2.8
FLOAT 1.60	92.9	96.4	11.5	1.63	13531	3.7
CUM(3/8" X 100M)	100.0	100.0	14.3	2.18	13037	4.6
100M X 0	1.0	1.0	13.9	3.15	13107	6.8
TOTAL(3/8" X 0)	100.0	100.0	14.3	2.19	13037	4.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	17.3	19.9	2.9	.35	15048	1.7
FLOAT 1.40	64.9	70.9	7.1	.71	14307	2.2
FLOAT 1.60	89.3	93.9	10.2	1.14	13760	2.8
CUM(14M X 0)	100.0	100.0	14.0	2.27	13090	4.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

--- MOISTURE, % ---

TOTAL
AS RECEIVED
2.0
.5

STATE: MARYLAND
COUNTY: ALLEGANY

BED: FRANKLIN
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 42
SAMPLE NO. 33

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.50	1.10	.80	--	--	--	--	--	--
ASH	14.03	10.09	45.04	14.10	10.20	45.40	--	--	--
VOLATILE MATTER	18.81	19.38	--	18.90	19.60	--	22.00	21.83	--
FIXED CARBON	66.67	69.43	--	67.00	70.20	--	78.00	78.17	--
BTU/LB	13007	13609	--	13072	13760	--	15218	15323	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.05	1.92	12.16	3.07	1.94	12.26	3.57	2.16	22.45
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	14.03	10.09	45.04	14.10	10.20	45.40	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.29	1.10	11.61	2.30	1.11	11.70	2.68	1.24	21.43
SULFATIC	.06	.04	.08	.06	.04	.08	.07	.04	.15
ORGANIC	.71	.78	.48	.71	.79	.48	.83	.88	.88
TOTAL	3.05	1.92	12.16	3.07	1.94	12.26	3.57	2.16	22.45

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING	--	--	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--	16.92	12.08	55.78

STATE: MARYLAND
COUNTY: ALLEGANY

BED: FRANKLIN
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 42
SAMPLE NO. 34

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	5.5	6.4	2.7	.55	1.59	15257	2.1
FLOAT 1.40	69.2	74.5	8.9	1.42	2.28	14096	3.2
FLOAT 1.60	91.1	95.4	11.0	2.01	2.85	13703	4.2
CUM(1-1/2" X 100M)	100.0	100.0	14.3	2.97	3.80	13085	5.8
100M X 0	.6	.6	14.7	1.99	3.48	13010	5.3
TOTAL(1-1/2" X 0)	100.0	100.0	14.3	2.96	3.80	13084	5.8

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.3	10.8	2.9	.49	1.50	15219	2.0
FLOAT 1.40	70.8	76.6	8.1	1.21	2.10	14246	2.9
FLOAT 1.60	90.6	95.1	10.4	1.73	2.56	13815	3.7
CUM(3/8" X 100M)	100.0	100.0	13.9	2.87	3.74	13160	5.7
100M X 0	1.1	1.1	13.9	2.87	4.12	13160	6.3
TOTAL(3/8" X 0)	100.0	100.0	13.9	2.87	3.74	13160	5.7

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	11.4	13.4	2.0	.20	1.23	15388	1.6
FLOAT 1.40	61.5	68.7	6.2	.71	1.70	14601	2.3
FLOAT 1.60	87.3	92.9	9.9	1.44	2.40	13909	3.5
CUM(14M X 0)	100.0	100.0	14.4	2.95	4.01	13066	6.1

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	---

--- MOISTURE, % ---
TOTAL
AS RECEIVED 2.2

STATE: MARYLAND	BED: FRANKLIN	BED CODE: 42
COUNTY: ALLEGANY	RANK: LOW VOLATILE BITUMINOUS	SAMPLE NO. 34
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	.70	---
ASH	13.72	13.82
VOLATILE MATTER	17.71	17.83
FIXED CARBON	67.87	68.35
BTU/LB	13143	13236
	7271	7330
	13831	13929
	15359	15391
	13327	
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	---	---
HYDROGEN	---	---
NITROGEN	---	---
SULFUR	3.73	3.76
OXYGEN	13.73	13.82
ASH	44.64	45.00
	44.64	45.00
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	2.73	2.75
SULFATIC	.03	.04
ORGANIC	.83	.97
TOTAL	3.73	3.76
	2.14	2.16
	14.96	15.08
	14.96	15.08
----- MINERAL ANALYSIS OF ASH, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	---	---
SiO2 (SILICON OXIDE)	---	---
Al2O3 (ALUMINUM OXIDE)	---	---
Fe2O3 (IRON OXIDE)	---	---
TiO2 (TITANIUM OXIDE)	---	---
CaO (CALCIUM OXIDE)	---	---
MgO (MAGNESIUM OXIDE)	---	---
Na2O (SODIUM OXIDE)	---	---
K2O (POTASSIUM OXIDE)	---	---
SO3 (SULFITES)	---	---
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2100	2520
SOFTENING TEMPERATURE (ST)	2190	2610
FLUID TEMPERATURE (FT)	2430	2700
	2100	2520
	2190	2610
	2430	2700
----- MISCELLANEOUS DATA, % -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	---	---
NA (SODIUM) (CALCULATED)	---	---
MINERAL MATTER (PARR)	17.00	11.35
	56.90	
----- PHYSICAL PARAMETERS, INDEX -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)	9	9
HARDGROVE GRINDABILITY (HGI)	---	---
----- COAL UTILIZATION RATIOS -----		
	RAW FL 1.60	RAW FL 1.60
BASE/ACID	---	---
DOLomite	---	---
HYDROGEN/CARBON	---	---
OXYGEN/CARBON	---	---
R250	---	---
SILICA	---	---
SILICA/ALUMINA	---	---

STATE: MARYLAND
COUNTY: GARRETT
BED: FRANKLIN
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 42
SAMPLE NO. 35

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"									
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)									
PRODUCT	RECOVERY, %	BTU	ASH, %	SULFUR, %	PYRITIC	TOTAL	HEATING VALUE	BTU/LB	SO2 EMISSION
	WEIGHT								LB/MM BTU
FLOAT 1.30	2.2	2.9	2.9	.54	1.60	1.60	15148	2.1	2.1
FLOAT 1.40	22.0	26.2	11.7	1.21	2.11	2.11	13597	3.1	3.1
FLOAT 1.60	80.5	87.5	18.4	1.94	2.79	2.79	12416	4.5	4.5
CUM(1-1/2" X 100M)	100.0	100.0	24.0	2.23	3.13	3.13	11428	5.5	5.5
100M X 0	.3	.3	16.5	3.05	4.54	4.54	12733	7.1	7.1
TOTAL(1-1/2" X 0)	100.0	100.0	24.0	2.23	3.13	3.13	11432	5.5	5.5

SAMPLE CRUSHED TO PASS 3/8"									
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)									
PRODUCT	RECOVERY, %	BTU	ASH, %	SULFUR, %	PYRITIC	TOTAL	HEATING VALUE	BTU/LB	SO2 EMISSION
	WEIGHT								LB/MM BTU
FLOAT 1.30	5.0	6.6	3.2	.55	1.79	1.79	15095	2.4	2.4
FLOAT 1.40	31.5	38.2	10.2	1.13	2.09	2.09	13861	3.0	3.0
FLOAT 1.60	77.1	85.4	17.0	1.72	2.54	2.54	12662	4.0	4.0
CUM(3/8" X 100M)	100.0	100.0	24.0	2.15	2.99	2.99	11428	5.2	5.2
100M X 0	.7	.8	18.3	3.18	4.33	4.33	12433	7.0	7.0
TOTAL(3/8" X 0)	100.0	100.0	24.0	2.16	3.00	3.00	11435	5.2	5.2

SAMPLE CRUSHED TO PASS 14M									
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)									
PRODUCT	RECOVERY, %	BTU	ASH, %	SULFUR, %	PYRITIC	TOTAL	HEATING VALUE	BTU/LB	SO2 EMISSION
	WEIGHT								LB/MM BTU
FLOAT 1.30	6.4	8.4	3.8	.42	1.41	1.41	14989	1.9	1.9
FLOAT 1.40	35.5	44.6	7.8	.65	1.66	1.66	14284	2.3	2.3
FLOAT 1.60	70.7	81.7	14.4	.97	1.76	1.76	13121	2.7	2.7
CUM(14M X 0)	100.0	100.0	24.4	2.13	2.95	2.95	11358	5.2	5.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %		MOISTURE, %	
SAMPLE CRUSHED TO PASS 1-1/2"			
1-1/2" X 3/8"	--	TOTAL	2.3
3/8" X 14M	--	AS RECEIVED	.8
14M X 100M	--		
100M X 0	--		

STATE: MARYLAND
COUNTY: GARRETT

BED: FRANKLIN
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 42
SAMPLE NO. 36

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)									
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU				
	WEIGHT	BTU	PYRITIC						
FLOAT 1.30	7.6	8.6	.62	15136	1.9				
FLOAT 1.40	70.9	74.7	1.49	14080	3.2				
FLOAT 1.60	95.2	97.0	2.06	13617	4.2				
CUM(1-1/2" X 100M)	100.0	100.0	2.60	13357	5.0				
100M X 0	.5	.5	4.60	13135	8.2				
TOTAL(1-1/2" X 0)	100.0	100.0	2.61	13356	5.0				

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)									
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU				
	WEIGHT	BTU	PYRITIC						
FLOAT 1.30	10.9	12.4	.54	15192	1.8				
FLOAT 1.40	72.7	77.1	1.19	14173	2.9				
FLOAT 1.60	93.7	96.3	1.68	13728	3.6				
CUM(3/8" X 100M)	100.0	100.0	2.46	13357	4.8				
100M X 0	2.1	2.1	3.05	13246	5.8				
TOTAL(3/8" X 0)	100.0	100.0	2.47	13355	4.8				

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)									
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU				
	WEIGHT	BTU	PYRITIC						
FLOAT 1.30	12.1	13.8	.45	15210	1.8				
FLOAT 1.40	63.5	68.3	.71	14376	2.2				
FLOAT 1.60	91.5	95.3	1.14	13932	2.8				
CUM(14M X 0)	100.0	100.0	2.58	13376	5.0				

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

MOISTURE, %

TOTAL AS RECEIVED

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

BED CODE:	42
SAMPLE NO.	36

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

ULTIMATE ANALYSIS, %

SULFUR FORMS ANALYSIS, %

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

COAL UTILIZATION RATIOS

	RAW	FL 1.60		----- PHYSICAL PARAMETERS, INDEX -----		
BASE/ACID	--	--				
DOLOMITE	--	--				
HYDROGEN/CARBON	--	--				
OXYGEN/CARBON	--	--				
R250	--	--				
SILICA	--	--				
SILICA/ALUMINA	--	--				
			FREE SWELLING	RAW	FL 1.60	SK 1.60
			HARDGROVE GRINDABILITY (HGI)	9	9	2 1/2

EED CODE: 42
SAMPLE NO. 37

BED: FRANKLIN
RANK: LOW VOLATILE BITUMINOUS

STATE: MARYLAND
COUNTY: GARRETT

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	5.1	5.9	3.1	.58	1.49	15095	2.0
FLOAT 1.40	72.0	77.0	10.0	1.46	2.33	13847	3.4
FLOAT 1.60	91.6	95.7	11.8	1.98	2.83	13521	4.2
CUM(1-1/2" X 100M)	100.0	100.0	15.0	2.50	3.34	12942	5.2
100M X 0	.5	.5	17.4	3.63	5.03	12508	8.0
TOTAL(1-1/2" X 0)	100.0	100.0	15.0	2.51	3.35	12940	5.2

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.1	10.5	3.4	.56	1.50	15041	2.0
FLOAT 1.40	69.0	73.9	9.2	1.30	2.15	13992	3.1
FLOAT 1.60	90.8	95.6	10.5	1.82	2.54	13756	3.7
CUM(3/8" X 100M)	100.0	100.0	14.3	2.67	3.32	13069	5.1
100M X 0	.7	.7	16.1	4.02	5.01	12743	7.9
TOTAL(3/8" X 0)	100.0	100.0	14.3	2.68	3.33	13066	5.1

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	14.2	16.7	2.4	.26	1.14	15222	1.5
FLOAT 1.40	61.3	67.7	7.3	.76	1.59	14335	2.2
FLOAT 1.60	87.9	93.7	10.1	1.20	1.86	13829	2.7
CUM(14M X 0)	100.0	100.0	14.8	2.73	3.36	12978	5.2

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

--- MOISTURE, % ---
TOTAL
AS RECEIVED
2.3
.8

STATE: MARYLAND BED: FRANKLIN BED CODE: 42
COUNTY: GARRETT RANK: LOW VOLATILE BITUMINOUS SAMPLE NO. 37

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	.80	SK 1.60	15.00	10.40	21.79	21.51
ASH	14.88	10.32	18.52	19.28	78.21	78.49
VOLATILE MATTER	18.38	19.12	66.48	70.32		
FIXED CARBON	65.94	69.76				
BTU/LB	12866	13640	12970	13750	15259	15346

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	--	SK 1.60	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.43	1.97	3.46	1.99	4.07	2.22
OXYGEN	--	14.12	--	14.27	--	26.91
ASH	14.88	10.32	15.00	10.40	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	2.83	1.14	2.85	1.15	3.35	1.28
SULFATIC	.03	SK 1.60	.03	SK 1.60	.04	SK 1.60
ORGANIC	.58	13.71	.82	13.84	.68	13.84
TOTAL	3.43	.04	3.46	.04	4.07	.02

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2130	2520	1990
SOFTENING TEMPERATURE (ST)	2180	2570	2090
FLUID TEMPERATURE (FT)	2370	2620	2190
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	18.10	12.33	58.59

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	1 1/2
HARDGROVE GRINDABILITY (HGI)	--	--	--

BED CODE: 42
SAMPLE NO. 38

BED: FRANKLIN
RANK: LOW VOLATILE BITUMINOUS

STATE: MARYLAND
COUNTY: GARRETT

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.0	2.8	.52	15233	2.1
FLOAT 1.40	21.5	12.1	2.00	13549	4.1
FLOAT 1.60	30.7	19.3	3.21	12245	6.3
CUM(1-1/2" X 100M)	100.0	27.4	3.37	10779	7.4
100M X 0	.6	20.6	3.59	12010	8.2
TOTAL(1-1/2" X 0)	100.0	27.4	3.37	10786	7.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	3.9	3.1	.58	15179	2.1
FLOAT 1.40	28.2	10.9	1.54	13766	3.5
FLOAT 1.60	77.1	18.3	2.77	12426	5.6
CUM(3/8" X 100M)	100.0	27.2	3.47	10815	7.6
100M X 0	1.2	21.3	3.91	11883	9.0
TOTAL(3/8" X 0)	100.0	27.1	3.48	10828	7.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	7.4	3.0	.38	15197	1.8
FLOAT 1.40	30.4	8.6	.92	14183	2.7
FLOAT 1.60	70.3	15.1	1.26	13006	3.1
CUM(14M X 0)	100.0	26.1	3.32	11014	7.2

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
3/8" X 14M ---
14M X 100M ---
100M X 0 ---

--- MOISTURE, % ---

TOTAL 2.2
AS RECEIVED .7

STATE: MARYLAND
COUNTY: GARRETT

BED: FRANKLIN
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 42
SAMPLE NO. 38

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.70	1.10	--	--	--	--
ASH	26.95	15.53	27.14	15.70	23.19	21.61
VOLATILE MATTER	16.77	18.01	16.89	18.21	76.82	78.40
FIXED CARBON	55.57	65.36	55.96	66.09		
BTU/LB	10832	12699	10908	12840	14972	15231

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.09	2.08	4.12	2.10	5.65	2.49
OXYGEN	--	--	--	--	--	--
ASH	26.95	15.53	27.14	15.70	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.41	1.27	3.43	1.28	4.71	1.52
SULFATIC	.08	.06	.09	.06	.12	.07
ORGANIC	.60	.75	.60	.76	.82	.90
TOTAL	4.09	2.08	4.12	2.10	5.65	2.49

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

STATE: MARYLAND
COUNTY: GARRETT

BED: HARLEM
RANK: LOW VOLATILE BITUMINOUS

RED CODE: 60
SAMPLE NO. 39

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.0	2.9	.47	15253	1.8
FLOAT 1.40	59.8	8.1	1.19	14310	2.9
FLOAT 1.60	85.3	11.0	1.66	13784	3.8
CUM(1-1/2" X 100M)	100.0	16.2	2.28	12840	4.9
100M X 0	1.0	14.3	2.18	13185	5.3
TOTAL(1-1/2" X 0)	100.0	16.2	2.28	12844	4.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.6	2.9	.41	15253	1.7
FLOAT 1.40	57.9	7.6	1.00	14400	2.5
FLOAT 1.60	78.9	10.5	1.61	13874	3.2
CUM(3/8" X 100M)	100.0	17.8	2.46	12550	5.0
100M X 0	1.4	15.0	2.29	13058	5.4
TOTAL(3/8" X 0)	100.0	17.8	2.46	12557	5.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	15.7	2.9	.35	15253	1.6
FLOAT 1.40	57.0	6.0	.64	14691	2.0
FLOAT 1.60	82.7	9.6	1.05	14038	2.5
CUM(14M X 0)	100.0	16.2	2.33	12840	4.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	2.2
3/8" X 14M	
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	.7

BED CODE:	60
SAMPLE NO.	39

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.70	1.20	1.20	--	--	--	--	--	--
ASH	15.79	9.12	47.03	15.90	9.20	47.60	--	--	--
VOLATILE MATTER	18.60	19.39	14.23	18.73	19.57	14.40	22.27	21.55	27.48
FIXED CARBON	64.91	70.59	37.54	65.37	71.23	38.00	77.73	78.45	72.52
BTU/LB	12889	13914	7044	12980	14040	7130	15434	15463	13607

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.04	1.77 9.09	3.07	1.79 9.20	3.64	1.97 17.56
OXYGEN	--	--	--	--	--	--
ASH	15.79	9.12 47.03	15.90	9.20 47.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60	SK 1.60	RAW FL 1.60	SK 1.60	RAW FL 1.60	SK 1.60
PYRITIC	2.30	.98	2.32	.99	2.76	1.09
SULFATIC	.05	.03	.06	.03	.07	.03
ORGANIC	.69	.76	.69	.77	.82	.85
TOTAL	3.04	1.77	3.07	1.79	3.64	1.97
		9.09		9.20		17.56

MINERAL ANALYSIS OF ASH, %

OXIDES	RAW	FL 1.60	SK 1.60						
SiO ₂	--	--	--		RAW	FL 1.60	SK 1.60		
(SILICON OXIDE)	--	--	--						
AL ₂ O ₃	--	--	--						
(ALUMINUM OXIDE)	--	--	--		INITIAL DEFORMATION (ID)	2120	2190	2080	
FeFe ₂ O ₃	--	--	--		SOFTENING TEMPERATURE (ST)	2180	2140	2140	
TiO ₂	--	--	--		FLUID TEMPERATURE (FT)	2400	2560	2390	
CaO	--	--	--						
(CALCIUM OXIDE)	--	--	--		----- MISCELLANEOUS DATA, % -----				
MgO	--	--	--						
(MAGNESIUM OXIDE)	--	--	--						
Na ₂ O	--	--	--						
(SODIUM OXIDE)	--	--	--						
K ₂ O	--	--	--						
(POTASSIUM OXIDE)	--	--	--		CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60	
SO ₃	--	--	--						
(SULFITES)	--	--	--						

COAL UTILIZATION RATIOS

[illegible]

STATE: MARYLAND
COUNTY: ALLEGANY
BED: LITTLE PITTSBURGH
RANK: MED VOLATILE BITUMINOUS
BED CODE: 38
SAMPLE NO. 40

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.1	5.1	.02	15042	1.5
FLOAT 1.40	82.5	14.1	.12	14841	1.6
FLOAT 1.60	100.0	21.1	.24	13198	1.9
CUM(1-1/2" X 100M)				11920	
100M X 0	1.6	17.0	.55	12669	2.3
TOTAL(1-1/2" X 0)	100.0	21.0	.24	11932	1.9

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	1.1	3.6	.14	15115	1.7
FLOAT 1.40	18.2	5.2	.04	14823	1.5
FLOAT 1.60	81.3	13.1	.09	13381	1.6
CUM(3/8" X 100M)	100.0	20.3	.23	12066	1.9
100M X 0	.3	15.9	.24	12869	1.9
TOTAL(3/8" X 0)	100.0	20.3	.23	12069	1.9

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.6	3.8	.04	15078	1.6
FLOAT 1.40	80.6	13.2	.07	13362	1.5
FLOAT 1.60	100.0	20.3	.26	12066	1.9
CUM(14M X 0)					

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

--- MOISTURE, % ---

TOTAL
AS RECEIVED
10.8
9.5

STATE: MARYLAND

COUNTY: ALLEGANY

BED: LITTLE PITTSBURGH

RANK: MED VOLATILE BITUMINOUS

BED CODE: 38

SAMPLE NO. 40

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW

FL 1.60

SK 1.60

MOISTURE

9.50

8.50

1.50

ASH

18.55

11.71

47.09

VOLATILE MATTER

20.35

21.52

18.12

FIXED CARBON

51.60

58.27

33.29

BTU/LB

9783

10834

6478

MOISTURE FREE

RAW

FL 1.60

SK 1.60

20.50

12.80

47.81

22.48

23.52

18.39

57.02

63.68

33.80

10810

11840

6576

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

28.28

26.97

35.24

71.72

73.03

64.76

13597

13578

12600

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

CARBON

1.00

.98

1.73

HYDROGEN

18.55

11.71

47.09

NITROGEN

SULFUR

OXYGEN

ASH

MOISTURE FREE

RAW

FL 1.60

SK 1.60

1.10

1.07

1.75

20.50

12.80

47.81

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

1.39

1.22

3.36

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

PYRITIC

.21

.07

1.03

SULFATIC

.01

.01

.01

ORGANIC

.78

.90

.68

TOTAL

1.00

.98

1.73

MOISTURE FREE

RAW

FL 1.60

SK 1.60

.23

.08

1.05

.01

.01

.01

.86

.69

1.75

1.10

1.07

1.75

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

.09

.01

1.12

.01

.02

1.33

1.22

1.22

3.36

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

RAW

FL 1.60

SK 1.60

2300

2350

2410

2530

2620

2730

MISCELLANEOUS DATA, %

RAW

FL 1.60

SK 1.60

2300

2350

2410

2530

2620

2730

CL (CHLORINE) (ANALYZED)

RAW

FL 1.60

SK 1.60

NA (SODIUM) (CALCULATED)

RAW

FL 1.60

SK 1.60

MINERAL MATTER (PARR)

RAW

FL 1.60

SK 1.60

22.75

14.41

52.59

PHYSICAL PARAMETERS, INDEX

RAW

FL 1.60

SK 1.60

0

0

0

FREE SWELLING (FSI)

RAW

FL 1.60

SK 1.60

0

0

0

HARDGROVE GRINDABILITY (HGI)

RAW

FL 1.60

SK 1.60

COAL UTILIZATION RATIOS

RAW

FL 1.60

SK 1.60

<

STATE: MARYLAND
 COUNTY: GARRETT
 BED: LOWER BAKERSTOWN
 RANK: LOW VOLATILE BITUMINOUS
 BED CODE: 63
 SAMPLE NO. 41

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.3	1.9	.10	15415	.9
FLOAT 1.40	75.7	5.3	.66	14786	1.6
FLOAT 1.60	92.9	7.4	1.15	14398	2.3
CUM(1-1/2" X 100M)	100.0	9.8	2.17	13954	3.8
10CM X 0	.8	11.3	2.35	13677	4.7
TOTAL(1-1/2" X 0)	100.0	9.8	2.17	13952	3.8

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	14.4	1.7	.09	15452	.9
FLOAT 1.40	77.2	4.7	.37	14897	1.5
FLOAT 1.60	91.7	6.5	.69	14564	2.0
CUM(3/8" X 100M)	100.0	9.4	2.10	14028	4.1
100M X 0	1.9	11.1	2.70	13714	5.6
TOTAL(3/8" X 0)	100.0	9.4	2.11	14022	4.1

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	11.1	1.4	.04	15507	.8
FLOAT 1.40	73.9	3.9	.22	15045	1.1
FLOAT 1.60	91.3	5.8	.44	14694	1.4
CUM(14M X 0)	100.0	9.4	2.20	14028	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
 3/8" X 14M ---
 14M X 100M ---
 100M X 0 ---

TOTAL AS RECEIVED
 2.7
 .9

--- MOISTURE, % ---

STATE: MARYLAND
COUNTY: GARRETT
BED: LOWER BAKERSTOWN
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 63
SAMPLE NO.: 41

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	9.90	1.10	1.00	--	--	--	--	--	--
ASH	9.51	5.74	45.34	9.60	5.80	45.80	--	--	--
VOLATILE MATTER	16.05	15.83	18.61	16.20	16.01	18.80	17.91	16.99	34.69
FIXED CARBON	73.54	77.33	35.05	74.21	78.19	35.40	82.09	83.01	65.31
BTU/LB	13757	14630	7236	13882	14793	7309	15356	15704	13486

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.69	.91	21.05	2.71	.92	21.26	3.00	.97	39.22
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	9.51	5.74	45.34	9.60	5.80	45.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.11	.39	20.46	2.13	.40	20.67	2.36	.42	38.14
SULFATIC	.05	.03	.07	.05	.03	.07	.06	.03	.13
ORGANIC	.53	.49	.51	.53	.49	.52	.59	.52	.96
TOTAL	2.69	.91	21.05	2.71	.92	21.26	3.00	.97	39.22

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60	
OXIDES	--	--	SK 1.60	--	--	SK 1.60	--	--	SK 1.60
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60	
BASE/ACID	--	--	SK 1.60	--	--	SK 1.60	--	--	SK 1.60
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60	
INITIAL DEFORMATION (ID)	--	--	SK 1.60	--	--	SK 1.60	--	--	SK 1.60
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--	--	--	--
MISCELLANEOUS DATA, %	--	--	--	--	--	--	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--	--	--	--
FREE SWELLING (FSI)	--	--	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--

STATE: MARYLAND
COUNTY: GARRETT

BED: LOWER BAKERSTOWN
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 63
SAMPLE NO. 42

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	11.4	2.2	.24	15325	1.3
FLOAT 1.40	50.5	5.9	.65	14641	1.7
FLOAT 1.60	74.4	9.6	2.38	13957	4.2
CUM(1-1/2" X 100M)	100.0	16.3	5.44	12719	9.7
100M X 0	.7	13.1	3.64	13310	6.9
TOTAL(1-1/2" X 0)	100.0	16.3	5.43	12723	9.7

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	18.6	2.1	.24	15343	1.1
FLOAT 1.40	62.7	5.3	.61	14752	1.7
FLOAT 1.60	76.4	7.6	1.29	14327	2.7
CUM(3/8" X 100M)	100.0	15.5	5.30	12867	9.5
100M X 0	1.0	14.1	4.89	13125	8.8
TOTAL(3/8" X 0)	100.0	15.5	5.30	12869	9.5

SAMPLE CRUSHED TO PASS 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.5	1.7	.12	15417	.9
FLOAT 1.40	62.5	4.3	.45	14937	1.4
FLOAT 1.60	79.0	6.2	.73	14586	1.8
CUM(14M X 0)	100.0	15.7	5.45	12830	9.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	2.6
3/8" X 14M	.8
14M X 100M	
100M X 0	

TOTAL
AS RECEIVED

STATE: MARYLAND
COUNTY: GARRETT

BED: LOWER BAKERSTOWN
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 63
SAMPLE NO. 42

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.80	1.00	16.33	6.30	20.50	17.72
ASH	16.20	6.24	17.15	16.61	79.50	82.28
VOLATILE MATTER	17.01	16.44	66.52	77.09	14914	15741
FIXED CARBON	65.99	76.32	12479	14749	6301	12939
BTU/LB	12379	14602	6251			

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	80.00	80.00	80.00	80.00	80.00	80.00
HYDROGEN	6.36	1.27	6.41	1.28	7.66	1.37
NITROGEN	1.27	6.24	1.28	6.30	51.30	
SULFUR	1.27	6.24	1.28	6.30	51.30	
OXYGEN	1.27	6.24	1.28	6.30	51.30	
ASH	16.20	6.24	1.27	24.08	50.89	

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	5.73	.70	5.78	.71	6.91	.76
SULFATIC	.02	.00	.02	.00	.02	.00
ORGANIC	.61	.56	.61	.57	.73	.61
TOTAL	6.36	1.27	6.41	1.28	7.66	1.37

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES						
SiO2 (SILICON OXIDE)	57.3	70	57.8	71	69.1	76
Al2O3 (ALUMINUM OXIDE)	0.2	0.0	0.2	0.0	0.2	0.0
Fe2O3 (IRON OXIDE)	0.61	0.56	0.61	0.57	0.73	0.61
TiO2 (TITANIUM OXIDE)	6.36	1.27	6.41	1.28	7.66	1.37
CaO (CALCIUM OXIDE)						
MgO (MAGNESIUM OXIDE)						
Na2O (SODIUM OXIDE)						
K2O (POTASSIUM OXIDE)						
SO3 (SULFITES)						

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID						
DOLomite						
HYDROGEN/CARBON						
OXYGEN/CARBON						
R250						
SILICA						
SILICA/ALUMINA						

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
INITIAL DEFORMATION (ID)						
SOFTENING TEMPERATURE (ST)						
FLUID TEMPERATURE (FT)						
MISCELLANEOUS DATA, %						
CL (CHLORINE) (ANALYZED)						
NA (SODIUM) (CALCULATED)						
MINERAL MATTER (FARR)						
PHYSICAL PARAMETERS, INDEX						
FREE SWELLING (FSI)						
HARDGROVE GRINDABILITY (HGI)						

STATE: MARYLAND
COUNTY: GARRETT
BED: LOWER FREEPORT
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 74
SAMPLE NO. 43

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	4.2	3.3	.34	15213	1.4
FLOAT 1.40	64.4	7.6	.61	14407	1.8
FLOAT 1.60	80.2	9.7	1.21	14013	2.7
CUM(1-1/2" X 100M)	100.0	17.5	3.57	12551	6.7
100M X 0	1.0	14.7	2.66	13076	6.1
TOTAL(1-1/2" X 0)	100.0	17.5	3.56	12557	6.7

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	4.7	2.5	.22	15363	1.1
FLOAT 1.40	69.4	7.4	.58	14445	1.7
FLOAT 1.60	79.6	8.9	.81	14163	2.0
CUM(3/8" X 100M)	100.0	17.6	3.52	12533	6.4
100M X 0	1.2	17.7	3.98	12514	8.1
TOTAL(3/8" X 0)	100.0	17.6	3.53	12532	6.4

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.5	2.3	.23	15401	1.3
FLOAT 1.40	60.0	6.0	.40	14707	1.4
FLOAT 1.60	80.6	8.4	.61	14257	1.8
CUM(14M X 0)	100.0	17.8	3.67	12495	6.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	2.6
3/8" X 14M	.6
14M X 100M	
100M X 0	

TOTAL AS RECEIVED

STATE: MARYLAND
COUNTY: GARRETT

BED: LOWER FREEPORT
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 74
SAMPLE NO. 43

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.60	.70	---	---	---	---
ASH	16.99	8.04	17.09	8.10	---	---
VOLATILE MATTER	16.02	16.41	16.12	16.53	19.44	17.99
FIXED CARBON	66.39	74.84	66.79	75.37	80.56	82.01
BTU/LB	12594	14180	12670	14280	15281	15539

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	---	---	---	---	---	---
HYDROGEN	---	---	---	---	---	---
NITROGEN	---	---	---	---	---	---
SULFUR	3.79	1.37	3.81	1.38	4.60	1.50
OXYGEN	---	---	---	---	---	---
ASH	16.99	8.04	17.09	8.10	---	---

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.21	.55	3.23	.55	3.90	.60
SULFATIC	.10	.10	.10	.10	.12	.11
ORGANIC	.48	.72	.48	.73	.58	.79
TOTAL	3.79	1.37	3.81	1.38	4.60	1.50

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	---	---
SiO2 (SILICON OXIDE)	---	---
Al2O3 (ALUMINUM OXIDE)	---	---
Fe2O3 (IRON OXIDE)	---	---
TiO2 (TITANIUM OXIDE)	---	---
CaO (CALCIUM OXIDE)	---	---
MgO (MAGNESIUM OXIDE)	---	---
Na2O (SODIUM OXIDE)	---	---
K2O (POTASSIUM OXIDE)	---	---
SO3 (SULFITES)	---	---

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	---	---
DOLOMITE	---	---
HYDROGEN/CARBON	---	---
OXYGEN/CARBON	---	---
R250	---	---
SILICA	---	---
SILICA/ALUMINA	---	---

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2080	2680
SOFTENING TEMPERATURE (ST)	2140	2730
FLUID TEMPERATURE (FT)	2200	2840

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	---	---
NA (SODIUM) (CALCULATED)	---	---
MINERAL MATTER (PARR)	20.55	9.52
PHYSICAL PARAMETERS, INDEX	---	---

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	4 1/2	4 1/2
HARDGROVE GRINDABILITY (HGI)	---	---

STATE: MARYLAND
COUNTY: GARRETT
BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS
BED CODE: 84
SAMPLE NO. 44

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.7	3.1	.01	13529	-.7
FLOAT 1.40	87.2	10.7	.01	13646	-.7
FLOAT 1.60	100.0	13.9	.01	12373	-.7
CUM(1-1/2" X 100M)				11837	-.7
100M X 0	1.2	14.7	.19	11703	-.8
TOTAL(1-1/2" X 0)	100.0	13.9	.01	11836	-.7

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.5	2.7	.01	13512	-.8
FLOAT 1.40	84.7	9.2	.02	13713	-.6
FLOAT 1.60	100.0	13.3	.02	12624	-.7
CUM(3/8" X 100M)				11938	-.7
100M X 0	2.2	14.0	.10	11920	-.9
TOTAL(3/8" X 0)	100.0	13.3	.02	11935	-.7

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	19.3	2.3	.01	13696	-.8
FLOAT 1.40	79.9	7.9	.01	13780	-.7
FLOAT 1.60	100.0	13.2	.02	12842	-.7
CUM(14M X 0)				11954	-.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

--- MOISTURE, % ---

TOTAL 7.5
AS RECEIVED 6.0

STATE: MARYLAND
COUNTY: GARRETT
BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS
BED CODE: 84
SAMPLE NO. 44

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	6.00	4.00	.80	--	--	--
ASH	12.60	7.68	34.72	13.40	8.00	35.00
VOLATILE MATTER	19.43	20.28	18.85	20.67	21.13	19.00
FIXED CARBON	61.97	68.04	45.63	65.93	70.87	46.00
BTU/LB	11271	12259	8224	11990	12770	8290
					13845	13880
						12754

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.40	.44	.34	.43	.46	.34
OXYGEN	--	--	--	--	--	--
ASH	12.60	7.68	34.72	13.40	8.00	35.00

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.02	.01	.06	.02	.01	.06
SULFATIC	--	--	--	--	--	--
ORGANIC	.39	.43	.28	.41	.45	.28
TOTAL	.40	.44	.34	.43	.46	.34

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--
MISCELLANEOUS DATA, %	--	--	--	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--
PHYSICAL PARAMETERS, INDEX	--	--	--	--	--	--
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: MARYLAND
COUNTY: GARRETT

BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE:	84
SAMPLE NO.	45

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
	--	--	--	--	14163	--
FLOAT 1.30	27.1	5.4	.01	.55	13867	.8
FLOAT 1.40	88.7	11.7	.01	.49	12702	.8
FLOAT 1.60	100.0	14.4	.02	.46	12203	.8
CUM (1-1/2" X 100M)						
100M X 0	1.6	23.6	.57	1.04	10502	2.0
TOTAL (1-1/2" X 0)	100.0	14.5	.03	.47	12176	.8

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
	--	--	--	14144	--
FLOAT 1.30	32.8	5.0	.01	13941	.8
FLOAT 1.40	85.4	10.8	.49	12868	.8
FLOAT 1.60	100.0	14.4	.03	12203	.7
CUM (3/8" X 100M)					
100M x 0	1.7	22.8	.35	10650	1.4
TOTAL (3/8" X 0)	100.0	14.5	.04	12177	.7

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
	--	--	--	14347	--
FLOAT 1.30	29.7	3.6	.01	14200	.7
FLOAT 1.40	81.4	9.5	.01	13109	.8
FLOAT 1.60	100.0	14.7	.03	12147	.8
CUM (14M X 0)					

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

----- MOISTURE, %

DATE	DESCRIPTION	AMOUNT	CHECK NO.	DEPOSITED	BALANCE
12-1-20	RECEIVED	100.00			100.00
12-5-20	PAYROLL	50.00			50.00
12-10-20	RECEIVED	75.00			125.00
12-15-20	PAYROLL	25.00			100.00
12-20-20	RECEIVED	150.00			250.00
12-25-20	PAYROLL	75.00			175.00
12-30-20	RECEIVED	100.00			275.00
1-5-21	PAYROLL	50.00			225.00
1-10-21	RECEIVED	125.00			350.00
1-15-21	PAYROLL	75.00			275.00
 			

STATE: MARYLAND
COUNTY: GARRETT

BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 45

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.00	4.10	1.30	--	--	--
ASH	14.16	9.49	36.52	14.90	9.90	37.00
VOLATILE MATTER	18.30	18.06	21.12	19.26	18.84	21.40
FIXED CARBON	62.54	68.34	41.06	65.84	71.26	41.60
BTU/LB	11580	12438	7906	12190	12970	8010
				14324	14395	12714

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.43	.47	.46	.45	.49	.47
OXYGEN	--	--	--	--	--	--
ASH	14.16	9.49	36.52	14.90	9.90	37.00

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.03	.01	.12	.03	.01	.12
SULFATIC	.00	.00	.00	.00	.00	.00
ORGANIC	.40	.46	.34	.42	.48	.35
TOTAL	.43	.47	.46	.45	.49	.47

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2070	2620	2140
SOFTENING TEMPERATURE (ST)	2120	2680	2190
FLUID TEMPERATURE (FT)	2170	2730	2260

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	16.34	10.96	40.22

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	0	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: MARYLAND
COUNTY: GARRETT

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 46

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.1	23.0	4.1	.09	14822	1.1
FLOAT 1.40	76.1	83.5	7.6	.39	14195	1.5
FLOAT 1.60	88.8	94.8	9.7	.63	13819	1.9
CUM(1-1/2" X 100M)	100.0	100.0	14.6	1.20	12940	2.9
100M X 0	1.1	1.0	18.2	2.26	12295	4.8
TOTAL(1-1/2" X 0)	100.0	100.0	14.6	1.21	12933	2.9

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.6	36.4	3.9	.09	14858	1.0
FLOAT 1.40	76.4	85.0	6.7	.24	14356	1.3
FLOAT 1.60	87.2	94.7	8.6	.43	14016	1.6
CUM(3/8" X 100M)	100.0	100.0	14.8	1.18	12905	2.8
100M X 0	1.5	1.5	17.1	2.59	12492	5.3
TOTAL(3/8" X 0)	100.0	100.0	14.8	1.20	12898	2.8

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.4	36.6	3.2	.09	14984	1.0
FLOAT 1.40	71.6	81.1	5.5	.12	14571	1.1
FLOAT 1.60	86.1	94.4	8.1	.33	14105	1.5
CUM(14M X 0)	100.0	100.0	15.0	1.23	12869	3.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	42.7
3/8" X 14M	44.8
14M X 100M	11.4
100M X 0	1.1

TOTAL AS RECEIVED
2.7
1.1

STATE: MARYLAND
COUNTY: GARRETT
BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS
BED CODE: 84
SAMPLE NO. 46

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	FAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.10	.80	1.00	--	--	--	--	--	--
ASH	14.64	8.33	57.02	14.80	8.40	57.60	--	--	--
VOLATILE MATTER	24.30	25.62	15.84	24.57	25.83	16.00	28.84	28.20	37.74
FIXED CARBON	59.96	65.24	26.14	60.63	65.77	26.40	71.16	71.80	62.26
BTU/LB	12867	13848	5168	13010	13960	5220	15270	15240	12311

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.82	.97	7.15	1.84	.98	7.23	2.16	1.07	17.04
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	14.64	8.33	57.02	14.80	8.40	57.60	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.19	.31	6.74	1.20	.31	6.80	1.41	.34	16.05
SULFATIC	.04	.04	.04	.04	.04	.04	.05	.04	.09
ORGANIC	.59	.62	.38	.60	.63	.38	.70	.69	.90
TOTAL	1.82	.97	7.15	1.84	.98	7.23	2.16	1.07	17.04

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			AS RECEIVED			AS RECEIVED		
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60	
OXIDES	--	--	SK 1.60	--	--	SK 1.60	--	--	SK 1.60
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			AS RECEIVED			AS RECEIVED		
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60	
BASE/ACID	--	--	SK 1.60	--	--	SK 1.60	--	--	SK 1.60
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			AS RECEIVED			AS RECEIVED		
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60	
FREE SWELLING	--	--	(FSI)	--	--	(FSI)	--	--	--
HARDGROVE GRINDABILITY	--	--	(HGI)	--	--	(HGI)	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED			AS RECEIVED			AS RECEIVED		
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60	
INITIAL DEFORMATION	--	--	(ID)	--	--	(ID)	--	--	--
SOFTENING TEMPERATURE	--	--	(ST)	--	--	(ST)	--	--	--
FLUID TEMPERATURE	--	--	(FT)	--	--	(FT)	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED			AS RECEIVED			AS RECEIVED		
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60	
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--	--	--	--

STATE: MARYLAND
COUNTY: GARRETT
BED: PITTSBURGH
RANK: MED VOLATILE BITUMINOUS
BED CODE: 36
SAMPLE NO. 47

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
100M X 0	1.0	12.9	.31	13225	2.8
TOTAL(1-1/2" X 0)	100.0	13.5	.03	13119	1.3
FLOAT 1.30	.9	4.8	.02	14670	1.5
FLOAT 1.40	3.8	5.4	.03	14563	1.5
FLOAT 1.60	49.7	5.7	.02	14510	1.2
CUM(1-1/2" X 100M)	100.0	13.5	.03	13118	1.3

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
100M X 0	1.5	13.7	.18	13082	2.5
TOTAL(3/8" X 0)	100.0	12.9	.01	13223	1.3
FLOAT 1.30	.5	4.9	.01	14652	1.9
FLOAT 1.40	3.2	5.6	.03	14528	1.6
FLOAT 1.60	50.8	6.2	.01	14420	1.3
CUM(3/8" X 100M)	100.0	12.9	.01	13225	1.3

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
100M X 0	1.3	2.4	.01	15027	1.5
TOTAL(14M X 0)	100.0	5.3	.01	14581	1.3
FLOAT 1.30	45.6	12.9	.02	13225	1.3

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

SIZE	PERCENT
1-1/2" X 3/8"	5.8
3/8" X 14M	4.4
14M X 100M	
100M X 0	

----- MOISTURE, % -----
TOTAL AS RECEIVED

STATE: MARYLAND
COUNTY: GARRETT

BED: PITTSBURGH
RANK: MED VOLATILE BITUMINOUS

BED CODE: 36
SAMPLE NO. 47

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	4.40	3.80	--	--	--	--
ASH	12.43	5.29	13.00	5.50	--	--
VOLATILE MATTER	22.36	28.28	23.39	19.40	26.89	31.11
FIXED CARBON	60.81	62.62	63.61	65.10	73.11	68.89
BTU/LB	11768	13047	12310	13563	14149	14352

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.79	.86	.83	.89	.95	.94
OXYGEN	--	--	--	--	--	--
ASH	12.43	5.29	13.00	5.50	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	.02	.01	.02	.01	.02	.01
SULFATIC	.08	.04	.08	.12	.09	.04
ORGANIC	.70	.81	.73	.84	.84	.89
TOTAL	.79	.86	.83	.89	.95	.94

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLomite	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2910+
SOFTENING TEMPERATURE (ST)	2910+	2910+	2910+
FLUID TEMPERATURE (FT)	2910+	2910+	2910+
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	14.50	6.43	19.43

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	0	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: MARYLAND
COUNTY: ALLEGANY

BED: REDSTONE
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 33
SAMPLE NO. 48

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	7.8	9.8	2.8	.10	15027	1.8
FLOAT 1.40	59.6	70.4	7.6	.16	14171	1.9
FLOAT 1.60	77.8	80.7	17.3	1.03	12439	3.3
CUM(1-1/2" X 100M)	100.0	100.0	19.8	1.74	11993	4.6
100M X 0	.5	.5	15.6	1.14	12743	3.8
TOTAL(1-1/2" X 0)	100.0	100.0	19.8	1.74	11997	4.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	9.4	11.7	2.9	.07	15009	1.8
FLOAT 1.40	60.9	70.8	8.4	.14	14028	1.9
FLOAT 1.60	79.5	88.7	11.6	.37	13457	2.2
CUM(3/8" X 100M)	100.0	100.0	19.4	1.75	12065	4.6
100M X 0	.9	.9	16.7	1.57	12547	5.1
TOTAL(3/8" X 0)	100.0	100.0	19.4	1.75	12069	4.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	9.4	11.7	2.4	.02	15099	1.8
FLOAT 1.40	50.8	59.8	7.1	.09	14260	1.8
FLOAT 1.60	79.3	89.0	10.8	.25	13600	2.1
CUM(14M X 0)	100.0	100.0	19.1	1.84	12118	4.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	
3/8" X 14M	
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	1.8
	.7

STATE: MARYLAND
COUNTY: ALLEGANY
BED: REDSTONE
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 33
SAMPLE NO. 48

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE						
ASH	.70	1.00				
VOLATILE MATTER	18.87	10.79	19.00	10.90	22.05	22.38
FIXED CARBON	62.70	68.47	63.14	69.16	77.95	79.78
BTU/LB	12054	13424	12139	13560	14986	15219

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON						
NITROGEN						
SULFUR						
OXYGEN	2.76	1.31	2.78	1.32	3.43	1.48
ASH	18.87	10.79	19.00	10.90		

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.80	.22	1.81	.23	2.23	.25
SULFATIC	.01	.01	.02	.02	.02	.01
ORGANIC	.94	1.07	.95	1.09	1.17	1.22
TOTAL	2.76	1.31	2.78	1.32	3.43	1.48

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES						
SiO2 (SILICON OXIDE)						
Al2O3 (ALUMINUM OXIDE)						
Fe2O3 (IRON OXIDE)						
TiO2 (TITANIUM OXIDE)						
CaO (CALCIUM OXIDE)						
MgO (MAGNESIUM OXIDE)						
Na2O (SODIUM OXIDE)						
K2O (POTASSIUM OXIDE)						
SO3 (SULFITES)						

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID						
DOLOMITE						
HYDROGEN/CARBON						
OXYGEN/CARBON						
R250						
SILICA						
SILICA/ALUMINA						

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)						
SOFTENING TEMPERATURE (ST)						
FLUID TEMPERATURE (FT)						

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)						
NA (SODIUM) (CALCULATED)						
MINERAL MATTER (PARR)						

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)						
HARDGROVE GRINDABILITY (HGI)						

STATE: MARYLAND
COUNTY: ALLEGANY

BED: REDSTONE
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 33
SAMPLE NO. 49

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.1	2.5	.26	15267	2.0
FLOAT 1.40	33.9	16.5	.84	13845	2.9
FLOAT 1.60	76.5	15.6	2.05	12939	4.8
CUM(1-1/2" X 100M)	100.0	24.1	2.96	11428	6.8
100M X 0	.8	19.7	2.70	12210	6.6
TOTAL(1-1/2" X 0)	100.0	24.1	2.96	11435	6.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.8	2.6	.24	15249	2.0
FLOAT 1.40	38.5	10.0	.80	13934	2.8
FLOAT 1.60	75.7	14.8	1.71	13081	4.3
CUM(3/8" X 100M)	100.0	24.4	2.97	11375	6.9
100M X 0	1.1	21.5	3.34	11891	7.7
TOTAL(3/8" X 0)	100.0	24.4	2.97	11381	6.9

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	3.5	2.3	.24	15303	2.0
FLOAT 1.40	35.8	8.1	.54	14272	2.5
FLOAT 1.60	72.1	13.2	1.06	13366	3.1
CUM(14M X 0)	100.0	24.2	2.99	11411	6.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	2.1
3/8" X 14M	1.0
14M X 100M	
100M X 0	

TOTAL
AS RECEIVED

STATE: MARYLAND
COUNTY: ALLEGANY

BED: REDSTONE
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 33
SAMPLE NO. 49

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.00	1.00	.70	--	--	--	--	--	--
ASH	23.96	13.17	50.17	24.20	13.30	50.52	--	--	--
VOLATILE MATTER	16.62	18.83	10.60	16.78	19.02	10.68	22.14	21.93	21.58
FIXED CARBON	58.43	67.01	38.53	59.02	67.68	38.80	77.86	78.07	78.42
BTU/LB	11335	13187	6674	11450	13320	6721	15106	15363	13585

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.71	2.06	8.45	3.75	2.09	8.50	4.94	2.40	17.19
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	23.96	13.17	50.17	24.20	13.30	50.52	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.93	1.15	7.92	2.96	1.17	7.98	3.91	1.34	16.12
SULFATIC	.04	.02	.07	.05	.02	.07	.06	.02	.14
ORGANIC	.73	.89	.45	.74	.90	.46	.98	1.04	.92
TOTAL	3.71	2.06	8.45	3.75	2.09	8.50	4.94	2.40	17.19

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING	--	--	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--

STATE: MARYLAND
COUNTY: ALLEGANY
BED: SEWICKLEY
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 29
SAMPLE NO. 50

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.0	2.7	.03	15045	1.3
FLOAT 1.40	85.3	4.8	.03	14670	1.3
FLOAT 1.60	95.5	6.6	.12	14349	1.5
CUM(1-1/2" X 100M)	100.0	8.3	.24	14046	1.7
100M X 0	.5	13.1	.62	13189	2.5
TOTAL(1-1/2" X 0)	100.0	8.3	.24	14041	1.7

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.5	2.7	.01	15045	1.4
FLOAT 1.40	87.8	4.8	.03	14670	1.4
FLOAT 1.60	96.8	6.1	.09	14438	1.5
CUM(3/8" X 100M)	100.0	7.3	.19	14224	1.6
100M X 0	.7	12.2	.59	13350	2.5
TOTAL(3/8" X 0)	100.0	7.3	.19	14218	1.7

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.6	2.8	.01	15027	1.4
FLOAT 1.40	86.2	4.5	.02	14724	1.4
FLOAT 1.60	93.3	5.7	.06	14510	1.4
CUM(14M X 0)	100.0	8.4	.26	14028	1.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" --
3/8" X 14M --
14M X 100M --
100M X 0 --

--- MOISTURE, % ---

TOTAL 2.4
AS RECEIVED 1.0

STATE: MARYLAND
COUNTY: ALLEGANY

BED: SEWICKLEY
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 29
SAMPLE NO. 50

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.00	1.10	1.10	--	--	--	--	--	--
ASH	7.98	5.54	43.67	8.06	5.60	44.16	22.13	22.24	18.88
VOLATILE MATTER	20.14	20.76	10.43	20.35	20.99	10.54	77.87	77.76	81.12
FIXED CARBON	70.88	72.60	44.80	71.59	73.41	45.30			
BTU/LB	14127	14420	7979	14269	14580	8068	15521	15445	14448

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.12	1.03	3.83	1.13	1.05	3.88	1.23	1.11	6.94
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	7.98	5.54	43.67	8.06	5.60	44.16	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.22	.07	3.01	.22	.07	3.05	.24	.07	5.45
SULFATIC	.00	.00	.00	.00	.00	.00	.00	.00	.00
ORGANIC	.90	.97	.82	.91	.98	.83	.99	1.04	1.49
TOTAL	1.12	1.03	3.83	1.13	1.05	3.88	1.23	1.11	6.94

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLomite	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--	9	9	1
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	91	93	--

STATE: MARYLAND
COUNTY: GARRETT

BED: SEWICKLEY
RANK: MED VOLATILE BITUMINOUS

BED CODE: 29
SAMPLE NO. 51

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.9	3.2	.05	14956	1.5
FLOAT 1.40	63.4	7.1	.31	14260	1.6
FLOAT 1.60	74.9	9.1	.42	13903	1.8
CUM(1-1/2" X 100M)	100.0	26.7	.73	10762	2.8
100M X 0	.4	26.8	1.54	10744	4.7
TOTAL(1-1/2" X 0)	100.0	26.7	.73	10762	2.8

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	17.6	3.0	.07	14992	1.6
FLOAT 1.40	65.6	6.6	.32	14349	1.8
FLOAT 1.60	77.8	8.5	.41	14310	2.0
CUM(3/8" X 100M)	100.0	24.2	.73	11208	2.8
100M X 0	1.1	30.2	1.63	10137	4.9
TOTAL(3/8" X 0)	100.0	24.3	.74	11196	2.8

SAMPLE CRUSHED TO PASS 14M

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	19.0	2.6	.08	15063	1.6
FLOAT 1.40	56.9	6.2	.29	14420	1.8
FLOAT 1.60	74.0	9.4	.43	13849	2.0
CUM(14M X 0)	100.0	26.6	.82	10780	2.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

1-1/2" X 3/8"	2.8
3/8" X 14M	1.4
14M X 100M	
100M X 0	

TOTAL
AS RECEIVED

STATE: MARYLAND
COUNTY: GARRETT
BED: SEWICKLEY
RANK: MED VOLATILE BITUMINOUS
BED CODE: 29
SAMPLE NO. 51

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.40	1.20	1.20	--	--	--	--	--	--
ASH	25.14	8.92	71.63	25.50	9.02	72.50	--	--	--
VOLATILE MATTER	19.17	22.16	10.67	19.45	22.42	10.80	26.10	24.65	39.27
FIXED CARBON	54.28	67.73	16.50	55.05	68.55	16.70	73.90	75.35	60.73
BTU/LB	10793	13831	3181	10946	13999	3220	14693	15388	11709

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.69	1.24	2.35	1.71	1.25	2.38	2.30	1.38	8.64
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	25.14	8.92	71.63	25.50	9.02	72.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.83	.40	2.10	.84	.40	2.12	1.13	.44	7.72
SULFATIC	.00	.00	.02	.01	.00	.02	.01	.00	.07
ORGANIC	.85	.84	.23	.86	.85	.23	1.16	.94	.85
TOTAL	1.69	1.24	2.35	1.71	1.25	2.38	2.30	1.38	8.64

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2910+
SOFTENING TEMPERATURE (ST)	2910+	2910+	2910+
FLUID TEMPERATURE (FT)	2910+	2910+	2910+
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	28.68	10.35	81.46
----- PHYSICAL PARAMETERS, INDEX -----			
FREE SWELLING (FSI)	RAW	FL 1.60	SK 1.60
HARDGROVE GRINDABILITY (HGI)	9	9	--

BED CODE: 71
SAMPLE NO. 52

BED: UPPER FREEPORT
RANK: LOW VOLATILE BITUMINOUS

STATE: MARYLAND
COUNTY: ALLEGANY

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.2	2.6	.24	15267	1.5
FLOAT 1.40	33.8	9.6	.87	13980	2.4
FLOAT 1.60	94.4	15.9	1.50	12821	3.5
CUM(1-1/2" X 100M)	100.0	17.5	1.98	12527	4.3
100M X 0	2.0	13.9	1.93	13189	4.4
TOTAL(1-1/2" X 0)	100.0	17.4	1.98	12540	4.3

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.5	3.1	.20	15175	1.5
FLOAT 1.40	43.3	9.4	.52	14016	1.9
FLOAT 1.60	88.7	15.3	1.03	12932	2.8
CUM(3/8" X 100M)	100.0	18.4	2.13	12362	4.6
100M X 0	6.8	14.8	1.89	13024	4.4
TOTAL(3/8" X 0)	100.0	18.2	2.11	12407	4.5

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.3	2.9	.24	15211	1.5
FLOAT 1.40	46.5	7.5	.31	14366	1.7
FLOAT 1.60	87.1	13.5	.50	12263	2.0
CUM(14M X 0)	100.0	17.3	1.99	12564	4.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %		MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"		
1-1/2" X 3/8"	65.3	1.9
3/8" X 14M	21.6	.3
14M X 100M	11.1	
100M X 0	2.0	
TOTAL AS RECEIVED		

STATE: MARYLAND
COUNTY: ALLEGANY
BED: UPPER FREEPORT
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 71
SAMPLE NO. 52

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.30	.60	.80	--	--	--
ASH	17.85	13.32	43.65	17.90	13.40	44.00
VOLATILE MATTER	16.24	16.61	13.59	16.29	16.71	13.70
FIXED CARBON	65.61	69.47	41.96	65.81	69.89	42.30
BTU/LB	12453	13170	7589	12490	13250	7650
				15213	15300	13661

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.72	1.28	12.60	2.73	1.29	12.71
OXYGEN	--	--	--	--	--	--
ASH	17.85	13.32	43.65	17.90	13.40	44.00

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.98	.47	11.95	1.99	.47	12.05
SULFATIC	.03	.03	.03	.03	.03	.03
ORGANIC	.71	.79	.62	.71	.79	.62
TOTAL	2.72	1.28	12.60	2.73	1.29	12.71

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: MARYLAND
COUNTY: GARRETT
BED: UPPER FREEPORT
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 71
SAMPLE NO. 53

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.6	23.4	2.8	.03	.54	15209	.7
FLOAT 1.40	70.6	77.6	5.6	.19	.69	14716	.9
FLOAT 1.60	88.9	94.4	8.4	.25	.73	14223	1.0
CUM(1-1/2" X 100M)	100.0	100.0	13.1	.49	.95	13395	1.4
100M X 0	.9	.9	11.6	.77	1.78	13659	2.6
TOTAL(1-1/2" X 0)	100.0	100.0	13.1	.49	.96	13398	1.4

--- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.3	27.3	2.5	.03	.59	15261	.8
FLOAT 1.40	73.4	79.8	5.3	.09	.61	14769	.8
FLOAT 1.60	90.4	95.1	8.0	.13	.64	14293	.9
CUM(3/8" X 100M)	100.0	100.0	12.0	.47	.96	13589	1.4
100M X 0	.7	.7	11.9	.73	1.71	13607	2.5
TOTAL(3/8" X 0)	100.0	100.0	12.0	.47	.97	13589	1.4

--- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.1	29.3	2.4	.03	.54	15279	.7
FLOAT 1.40	67.5	73.9	4.7	.03	.61	14874	.8
FLOAT 1.60	90.0	95.1	7.6	.04	.57	14364	.8
CUM(14M X 0)	100.0	100.0	12.0	.50	1.00	13589	1.5

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
--- MOISTURE, % ---

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---	TOTAL	2.3
3/8" X 14M	---	AS RECEIVED	.7
14M X 100M	---		
100M X 0	---		

STATE: MARYLAND
COUNTY: GARRETT

BED: UPPER FREEPORT
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 53

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.70	.90	1.00	--	--	--	--	--	--
ASH	12.02	7.83	50.29	12.10	7.90	50.80	--	--	--
VOLATILE MATTER	16.79	17.14	13.37	16.90	17.30	13.50	19.23	18.78	27.44
FIXED CARBON	70.50	74.13	35.34	71.00	74.80	35.70	80.77	81.22	72.56
BTU/LB	13455	14201	6692	13550	14330	6760	15415	15559	13740

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	.93	.55	4.82	.94	.55	4.87	1.07	.60	9.90
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	12.02	7.83	50.29	12.10	7.90	50.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.44	.04	4.59	.44	.04	4.64	.50	.04	9.43
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.49	.50	.22	.49	.50	.22	.56	.55	.45
TOTAL	.93	.55	4.82	.94	.55	4.87	1.07	.60	9.90

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2600
SOFTENING TEMPERATURE (ST)	2910+	2910+	2650
FLUID TEMPERATURE (FT)	2910+	2910+	2700

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	13.59	8.83	57.54

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7 1/2	9	1
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: MARYLAND
COUNTY: GARRETT
BED: UPPER FREEPORT
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 71
SAMPLE NO. 54

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	7.3	2.0	.03	15351	.9
FLOAT 1.40	67.8	7.2	.16	14405	1.0
FLOAT 1.60	89.3	10.3	.31	13940	1.3
CUM(1-1/2" X 100M)	100.0	14.8	.55	13021	1.7
100M X 0	.7	12.5	1.37	13440	4.3
TOTAL(1-1/2" X 0)	100.0	14.8	.56	13024	1.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.5	3.0	.15	15169	1.0
FLOAT 1.40	69.0	6.7	.16	14496	1.0
FLOAT 1.60	88.6	9.6	.23	13968	1.2
CUM(3/8" X 100M)	100.0	14.4	.56	13094	1.7
100M X 0	.9	12.6	1.11	13422	3.7
TOTAL(3/8" X 0)	100.0	14.4	.56	13097	1.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.7	1.6	.03	15424	.8
FLOAT 1.40	62.4	5.4	.09	14732	.9
FLOAT 1.60	86.8	8.7	.13	14132	1.0
CUM(14M X 0)	100.0	14.2	.55	13130	1.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	2.4
3/8" X 14M	.8
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	

STATE: MARYLAND
COUNTY: GARRETT

BED: UPPER FREEPORT
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 54

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE									
ASH	.80	.80	1.10						
VOLATILE MATTER	14.09	8.63	50.14	14.20	8.70	50.70			
FIXED CARBON	14.78	15.17	12.26	14.90	15.30	12.40	17.37	16.75	25.15
	70.33	75.40	36.49	70.90	76.00	36.90	82.63	83.25	74.85
BTU/LB	13075	13967	6755	13180	14080	6830	15361	15422	13854

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON									
HYDROGEN									
NITROGEN									
SULFUR									
OXYGEN	1.13	.69	3.50	1.13	.70	3.54	1.32	.77	7.19
ASH	14.09	8.63	50.14	14.20	8.70	50.70			

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.58	.12	3.28	.58	.12	3.31	.68	.13	6.72
SULFATIC	.04	.02	.06	.04	.02	.06	.05	.02	.12
ORGANIC	.51	.56	.17	.51	.56	.17	.59	.62	.35
TOTAL	1.13	.69	3.50	1.13	.70	3.54	1.32	.77	7.19

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)			
Al2O3 (ALUMINUM OXIDE)			
Fe2O3 (IRON OXIDE)			
TiO2 (TITANIUM OXIDE)			
CaO (CALCIUM OXIDE)			
MgO (MAGNESIUM OXIDE)			
Na2O (SODIUM OXIDE)			
K2O (POTASSIUM OXIDE)			
SO3 (SULFITES)			

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID		
DOLOMITE		
HYDROGEN/CARBON		
OXYGEN/CARBON		
R250		
SILICA		
SILICA/ALUMINA		

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2730
SOFTENING TEMPERATURE (ST)	2910+	2910+	2780
FLUID TEMPERATURE (FT)	2910+	2910+	2830

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)			
NA (SODIUM) (CALCULATED)			
MINERAL MATTER (PARR)	15.96	9.78	56.70

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4	4	1/2
HARDGROVE GRINDABILITY (HGI)			

STATE: MARYLAND
COUNTY: GARRETT

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 55

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.3	3.4	.10	.61	15103	.8
FLOAT 1.40	77.4	6.6	.37	.89	14545	1.2
FLOAT 1.60	86.0	7.7	.69	1.20	14353	1.7
CUM(1-1/2" X 100M)	100.0	16.3	1.18	1.62	12852	2.5
100M X 0	1.4	14.2	1.68	2.34	13218	3.5
TOTAL(1-1/2" X 0)	100.0	16.3	1.19	1.63	12857	2.5

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.2	3.3	.08	.60	15121	.8
FLOAT 1.40	75.4	6.3	.29	.80	14597	1.1
FLOAT 1.60	84.1	7.6	.53	1.04	14370	1.4
CUM(3/8" X 100M)	100.0	17.6	1.15	1.57	12625	2.5
100M X 0	8.0	11.0	1.35	1.88	13777	2.7
TOTAL(3/8" X 0)	100.0	17.1	1.17	1.59	12717	2.5

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.6	3.0	.09	.64	15173	.8
FLOAT 1.40	74.3	5.7	.23	.77	14702	1.0
FLOAT 1.60	84.6	7.4	.50	.97	14405	1.3
CUM(14M X 0)	100.0	16.9	1.23	1.67	12747	2.6

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	52.7
3/8" X 14M	35.9
14M X 100M	10.0
100M X 0	1.4

TOTAL AS RECEIVED	3.5
	2.7

STATE: MARYLAND
COUNTY: GARRETT
BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS
BED CODE: 71
SAMPLE NO. 55

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.70	.60 1.10	--	--	--	--
ASH	16.44	7.36 69.92	16.90	7.40 70.70	--	--
VOLATILE MATTER	22.38	24.75 12.07	23.00	24.90 12.20	27.68	26.88 41.64
FIXED CARBON	58.47	67.30 16.91	60.10	67.70 17.10	72.32	73.12 58.36
BTU/LB	12454	14274 3313	12800	14360 3350	15403	15508 11433

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	71.22	81.43 18.95	73.20	81.92 19.16	88.09	88.47 65.39
HYDROGEN	4.40	4.72 1.61	4.22	4.68 1.50	5.08	5.06 5.12
NITROGEN	1.27	1.48 .30	1.31	1.49 .30	1.58	1.61 1.02
SULFUR	1.56	.97 5.45	1.60	.98 5.52	1.93	1.06 18.82
OXYGEN	5.10	4.04 3.77	2.77	3.53 2.82	3.34	3.81 9.64
ASH	16.44	7.36 69.92	16.90	7.40 70.70	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.11	.45 5.18	1.14	.45 5.24	1.37	.49 17.88
SULFATIC	.01	.01 .01	.01	.01	.01	.01
ORGANIC	.44	.52 .26	.45	.27	.54	.56 .91
TOTAL	1.56	.97 5.45	1.60	.98 5.52	1.93	1.06 18.82

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	2670	2850
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	2730	2910+
Fe2O3 (IRON OXIDE)	--	--	--	--	2780	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	2680
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	.20	.40 .20	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFATES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.69	.69	--	--	--	--
OXYGEN/CARBON	.03	.03	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	9	9	9	9	9	9
HARDGROVE GRINDABILITY (HGI)	84	84	84	84	84	84

STATE: MARYLAND
 COUNTY: GARRETT
 BED: UPPER FREEPORT
 RANK: LOW VOLATILE BITUMINOUS
 BED CODE: 71
 SAMPLE NO. 56

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.5	2.8	.19	15192	1.3
FLOAT 1.40	68.5	7.7	.79	14318	2.0
FLOAT 1.60	83.0	9.6	1.12	13979	2.6
CUM(1-1/2" X 100M)	100.0	18.0	1.49	12480	3.4
100M X 0	.9	14.7	2.59	13069	6.2
TOTAL(1-1/2" X 0)	100.0	18.0	1.50	12486	3.4

----- SAMPLE CRUSHED TO PASS 3/8" -----
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	11.7	3.1	.23	15139	1.3
FLOAT 1.40	69.8	7.5	.69	14354	1.8
FLOAT 1.60	83.7	9.3	.97	14032	2.3
CUM(3/8" X 100M)	100.0	17.9	1.40	12498	3.1
100M X 0	1.7	16.9	2.66	12677	6.1
TOTAL(3/8" X 0)	100.0	17.9	1.42	12501	3.2

----- SAMPLE CRUSHED TO PASS 14M -----
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	14.3	2.3	.15	15281	1.0
FLOAT 1.40	59.2	5.9	.37	14639	1.6
FLOAT 1.60	80.8	8.7	.71	14140	2.1
CUM(14M X 0)	100.0	17.9	1.45	12498	3.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %

SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	2.5
3/8" X 14M	.9
14M X 100M	
100M X 0	
TOTAL	
AS RECEIVED	

STATE: MARYLAND
COUNTY: GARRETT
BED: UPPER FREEPORT
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 71
SAMPLE NO. 56

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.90	.80	--	--	--	--
ASH	17.14	8.83	17.30	8.90	21.59	20.13
VOLATILE MATTER	17.70	18.20	17.86	18.34	78.41	79.87
FIXED CARBON	64.26	72.18	64.84	72.76	15320	15423
BTU/LB	12556	13938	12670	14050	5176	12589

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.09	1.48	2.11	1.49	2.55	1.64
OXYGEN	--	--	--	--	--	--
ASH	17.14	8.83	17.30	8.90	58.88	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.44	.73	1.45	.74	1.75	.81
SULFATIC	.04	.02	.04	.02	.05	.02
ORGANIC	.61	.72	.62	.73	.75	.80
TOTAL	2.09	1.48	2.11	1.49	2.55	1.64

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: MARYLAND
COUNTY: GARRETT

BED: UPPER FREEPORT
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 57

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.6	3.1	1.8	.06	15435	1.0
FLOAT 1.40	68.4	75.4	7.2	.69	14451	1.8
FLOAT 1.60	87.8	94.4	9.2	1.15	14086	2.5
CUM(1-1/2" X 100M)	100.0	100.0	14.6	1.83	13102	3.7
100M X 0	.7	.7	14.2	1.74	13175	4.4
TOTAL(1-1/2" X 0)	100.0	100.0	14.6	1.83	13102	3.7

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.3	10.9	1.6	.06	15472	1.0
FLOAT 1.40	71.4	78.8	6.3	.49	14615	1.6
FLOAT 1.60	87.7	94.5	8.2	.87	14269	2.2
CUM(3/8" X 100M)	100.0	100.0	13.8	1.78	13248	3.6
100M X 0	1.0	1.0	15.1	2.17	13011	4.9
TOTAL(3/8" X 0)	100.0	100.0	13.8	1.78	13245	3.6

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	11.9	14.0	1.9	.06	15417	1.0
FLOAT 1.40	67.2	75.8	5.6	.28	14743	1.3
FLOAT 1.60	85.4	93.3	8.2	.54	14269	1.8
CUM(14M X 0)	100.0	100.0	14.8	1.92	13065	3.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--	MOISTURE, %	2.4
3/8" X 14M	--		
14M X 100M	--		
100M X 0	--		

TOTAL AS RECEIVED

2.4

.8

STATE: MARYLAND
COUNTY: GARRETT

BED: UPPER FREEPORT
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 57

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	.80	.70	--	--	--
ASH	14.19	8.14	14.30	8.20	50.90
VOLATILE MATTER	19.92	20.77	20.08	20.92	15.10
FIXED CARBON	65.10	70.38	65.62	70.88	34.00
BTU/LB	13084	14140	13190	14240	6480

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	--	--	--	--	--
HYDROGEN	--	--	--	--	--
NITROGEN	--	--	--	--	--
SULFUR	2.27	1.28	2.29	1.29	10.12
OXYGEN	--	--	--	--	--
ASH	14.19	8.14	14.30	8.20	50.90

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	1.77	.54	1.78	.54	9.99
SULFATIC	.04	.02	.04	.02	.06
ORGANIC	.47	.72	.47	.73	.06
TOTAL	2.27	1.28	2.29	1.29	10.12

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION	--	--	--	--	--
SOFTENING TEMPERATURE (ID)	--	--	2530	2740	SK 1.60
SOFTENING TEMPERATURE (ST)	--	--	2580	2790	2140
FLUID TEMPERATURE (FT)	--	--	2680	2840	2190
----- MISCELLANEOUS DATA, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--
MINERAL MATTER (PARR)	16.70	9.57	--	--	60.54

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	8 1/2	9	--	--	--

STATE: MARYLAND
COUNTY: GARRETT
BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS
BED CODE: 71
SAMPLE NO. 58

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.1	3.5	.11	15200	.8
FLOAT 1.40	79.7	5.7	.26	14811	.8
FLOAT 1.60	88.4	7.1	.44	14577	1.1
CUM(1-1/2" X 100M)	100.0	11.9	2.33	13671	3.9
100M X 0	2.0	9.3	1.27	14104	2.6
TOTAL(1-1/2" X 0)	100.0	11.8	2.31	13680	3.9

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.5	3.2	.08	15220	.7
FLOAT 1.40	80.1	6.2	.15	14716	.8
FLOAT 1.60	87.9	7.4	.21	14485	.9
CUM(3/8" X 100M)	100.0	13.0	2.53	13421	4.4
100M X 0	7.2	7.7	.90	14413	2.5
TOTAL(3/8" X 0)	100.0	12.6	2.41	13493	4.2

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.9	2.6	.09	15330	.8
FLOAT 1.40	79.6	5.0	.12	14902	.8
FLOAT 1.60	88.2	6.6	.20	14630	.9
CUM(14M X 0)	100.0	12.6	2.20	13485	3.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	32.4
3/8" X 14M	48.2
14M X 100M	17.4
100M X 0	2.0
TOTAL AS RECEIVED	3.8

STATE: MARYLAND
COUNTY: GARRETT

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 58

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.80	.70	.60	--	--	--	--	--	--
ASH	12.00	6.75	54.97	12.10	6.80	55.30	--	--	--
VOLATILE MATTER	23.10	23.74	18.49	23.29	23.91	18.60	26.49	25.65	41.61
FIXED CARBON	64.10	68.80	25.94	64.62	69.29	26.10	73.51	74.34	58.39
BTU/LB	13454	14496	5148	13563	14598	5179	15429	15663	11586

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	76.43	82.34	26.32	77.05	82.92	26.48	87.65	88.97	59.23
HYDROGEN	4.46	4.81	1.37	4.40	4.76	1.31	5.01	5.11	2.93
NITROGEN	1.38	1.49	.46	1.39	1.50	.47	1.58	1.61	1.05
SULFUR	2.69	.68	16.35	2.71	.68	16.45	3.08	.73	36.79
OXYGEN	3.04	3.93	--	2.35	3.34	--	2.67	3.58	--
ASH	12.00	6.75	54.97	12.10	6.80	55.30	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.17	.18	15.95	2.19	.18	16.04	2.49	.19	35.89
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.51	.49	.39	.51	.49	.39	.58	.53	.88
TOTAL	2.69	.68	16.35	2.71	.68	16.45	3.08	.73	36.79

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO ₂ (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al ₂ O ₃ (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe ₂ O ₃ (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO ₂ (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na ₂ O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K ₂ O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO ₃ (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLomite	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	.69	.69	.69	--	--	--	--	--	--
OXYGEN/CARBON	.02	.03	.03	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING	9	9	9	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	93	93	92	--	--	--	--	--	--

STATE: MARYLAND
COUNTY: GARRETT

BED: UPPER FREEPORT
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 59

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	4.6	5.8	2.3	.09	.79	15310	1.0
FLOAT 1.40	44.8	52.5	8.1	.32	.97	14212	1.4
FLOAT 1.60	74.2	82.4	12.0	1.23	1.80	13473	2.7
CUM(1-1/2" X 100M)	100.0	100.0	19.1	4.93	5.50	12129	9.1
100M X 0	.7	.7	18.5	3.45	4.75	12242	7.8
TOTAL(1-1/2" X 0)	100.0	100.0	19.1	4.92	5.49	12129	9.1

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	5.4	6.6	5.3	.29	.96	14742	1.3
FLOAT 1.40	51.2	60.2	8.1	.44	1.07	14212	1.5
FLOAT 1.60	75.0	84.3	11.4	.81	1.42	13587	2.1
CUM(3/8" X 100M)	100.0	100.0	19.3	4.91	5.55	12091	9.2
100M X 0	.8	.8	20.2	4.52	5.66	11920	9.5
TOTAL(3/8" X 0)	100.0	100.0	19.3	4.91	5.55	12089	9.2

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.2	10.6	1.7	.03	.68	15424	.9
FLOAT 1.40	49.0	59.8	5.9	.18	.82	14629	1.1
FLOAT 1.60	76.2	87.9	10.2	.39	1.02	13814	1.5
CUM(14M X 0)	100.0	100.0	19.9	5.17	5.86	11977	9.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
3/8" X 14M ---
14M X 100M ---
100M X 0 ---

--- MOISTURE, % ---
TOTAL AS RECEIVED 2.5
.9

STATE: MARYLAND		BED: UPPER FREEPORT		BED CODE: 71	
COUNTY: GARRETT		RANK: LOW VOLATILE BITUMINOUS		SAMPLE NO. 59	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
	RAW	AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE	
	FL 1.60	SK 1.60	FL 1.60	RAW	FL 1.60
MOISTURE	.90	.80	---	---	---
ASH	18.93	9.71	50.84	19.10	51.20
VOLATILE MATTER	20.24	21.02	17.48	20.42	17.60
FIXED CARBON	59.93	68.47	30.98	60.48	69.02
BTU/LB	12015	13783	6008	12124	13894
				6050	14988
					15402
					12398
----- ULTIMATE ANALYSIS, % -----					
	RAW	AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE	
	FL 1.60	SK 1.60	FL 1.60	RAW	FL 1.60
CARBON	---	---	---	---	---
HYDROGEN	---	---	---	---	---
NITROGEN	---	---	---	---	---
SULFUR	5.86	.94	21.23	5.92	21.38
OXYGEN	---	---	---	---	---
ASH	18.93	9.71	50.84	19.10	51.20
----- SULFUR FORMS ANALYSIS, % -----					
	RAW	AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE	
	FL 1.60	SK 1.60	FL 1.60	RAW	FL 1.60
PYRITIC	5.14	.35	20.33	5.19	20.47
SULFATIC	.07	.05	.10	.08	.10
ORGANIC	.64	.54	.80	.65	.81
TOTAL	5.86	.94	21.23	5.92	21.38
					7.31
					1.05
					43.81
----- MINERAL ANALYSIS OF ASH, % -----					
	RAW	FL 1.60	SK 1.60	FUSIBILITY OF ASH, DEGREES F	
OXIDES	---	---	---	(IN OXIDIZING ATMOSPHERE)	
SiO2 (SILICON OXIDE)	---	---	---	RAW	FL 1.60
Al2O3 (ALUMINUM OXIDE)	---	---	---	2020	1940
Fe2O3 (IRON OXIDE)	---	---	---	2070	1980
TiO2 (TITANIUM OXIDE)	---	---	---	2140	2030
CaO (CALCIUM OXIDE)	---	---	---	---	---
MgO (MAGNESIUM OXIDE)	---	---	---	---	---
Na2O (SODIUM OXIDE)	---	---	---	---	---
K2O (POTASSIUM OXIDE)	---	---	---	---	---
SO3 (SULFITES)	---	---	---	---	---
----- COAL UTILIZATION RATIOS -----					
	RAW	FL 1.60	SK 1.60	MISCELLANEOUS DATA, %	
BASE/ACID	---	---	---	---	
DOLOMITE	---	---	---	CL (CHLORINE) (ANALYZED)	---
HYDROGEN/CARBON	---	---	---	NA (SODIUM) (CALCULATED)	---
OXYGEN/CARBON	---	---	---	MINERAL MATTER (PARR)	23.89
R250	---	---	---	---	11.10
SILICA	---	---	---	---	67.06
SILICA/ALUMINA	---	---	---	----- PHYSICAL PARAMETERS, INDEX -----	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
	---	---	---	8 1/2	9
	 		

STATE: MARYLAND
COUNTY: GARRETT
BED: UPPER KITTANNING
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 76
SAMPLE NO. 60

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" --- (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU			
FLOAT 1.30	12.7	3.1	.07	.67	15072	.9			
FLOAT 1.40	72.5	8.1	.09	.64	14125	.9			
FLOAT 1.60	90.4	11.0	.07	.66	13575	1.0			
FLOAT 1.90	95.4	12.7	.07	.66	13253	1.0			
CUM(1-1/2" X 100M)	100.0	15.6	.13	.70	12704	1.1			
100M X 0	.6	15.7	.14	.68	12694	1.1			
TOTAL(1-1/2" X 0)	100.0	15.6	.13	.70	12704	1.1			

--- SAMPLE CRUSHED TO PASS 3/8" --- (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU			
FLOAT 1.30	13.3	2.9	.10	.68	15110	.9			
FLOAT 1.40	64.0	6.8	.11	.68	14371	.9			
FLOAT 1.60	88.9	10.6	.08	.65	13651	1.0			
FLOAT 1.90	95.4	12.7	.07	.66	13253	1.0			
CUM(3/8" X 100M)	100.0	15.5	.14	.69	12723	1.1			
100M X 0	2.3	15.9	.14	.71	12657	1.1			
TOTAL(3/8" X 0)	100.0	15.5	.14	.69	12721	1.1			

--- SAMPLE CRUSHED TO PASS 14M --- (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU			
FLOAT 1.30	9.9	3.0	.14	.62	15091	.8			
FLOAT 1.40	55.9	5.6	.07	.69	14598	.9			
FLOAT 1.60	85.9	9.6	.07	.66	13840	1.0			
FLOAT 1.90	95.4	12.7	.07	.66	13253	1.0			
CUM(14M X 0)	100.0	15.6	.14	.73	12704	1.1			

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---		--- MOISTURE, % ---	
SAMPLE CRUSHED TO PASS 1-1/2"			
1-1/2" X 3/8"	---	TOTAL	3.8
3/8" X 14M	---	AS RECEIVED	2.1
14M X 100M	---		
100M X 0	.6		

STATE: MARYLAND
COUNTY: GARRETT

BED: UPPER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 76
SAMPLE NO. 60

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.10	--	--	--	--	--
ASH	15.88	--	16.22	--	--	--
VOLATILE MATTER	18.61	--	19.01	--	22.69	--
FIXED CARBON	63.41	--	64.77	--	77.31	--
BTU/LB	12674	--	12946	--	15453	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.75	--	.77	--	.92	--
OXYGEN	--	--	--	--	--	--
ASH	15.88	--	16.22	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.13	--	.13	--	.15	--
SULFATIC	.00	--	.00	--	.00	--
ORGANIC	.63	--	.64	--	.76	--
TOTAL	.75	--	.77	--	.92	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (FARR)	17.95	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

STATE: MARYLAND
COUNTY: GARRETT
BED: UPPER KITTANNING
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 76
SAMPLE NO. 61

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	5.4	1.8	6.4	.08	15318	1.0
FLOAT 1.40	69.1	6.6	76.9	.56	14408	1.7
FLOAT 1.60	87.2	8.5	94.6	1.22	14049	2.8
CUM(1-1/2" X 100M)	100.0	14.3	100.0	2.83	12950	5.5
100M X 0	1.4	13.0	1.4	3.08	13196	6.8
TOTAL(1-1/2" X 0)	100.0	14.3	100.0	2.83	12953	5.5

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.0	2.0	9.3	.06	15280	1.2
FLOAT 1.40	74.5	6.3	82.4	.44	14465	1.7
FLOAT 1.60	86.5	7.6	94.0	.83	14219	2.3
CUM(3/8" X 100M)	100.0	13.6	100.0	2.71	13082	5.4
100M X 0	2.1	13.4	2.1	3.26	13120	7.0
TOTAL(3/8" X 0)	100.0	13.6	100.0	2.72	13083	5.4

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	7.2	2.0	8.4	.06	15280	1.4
FLOAT 1.40	67.4	5.2	75.5	.32	14674	1.6
FLOAT 1.60	87.0	7.2	94.9	.66	14295	1.9
CUM(14M X 0)	100.0	13.5	100.0	2.96	13101	5.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

TOTAL
AS RECEIVED

MOISTURE, %

2.0
.9

STATE: MARYLAND
COUNTY: GARRETT
BED: UPPER KITTANNING
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 76
SAMPLE NO. 61

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.90	1.10	1.00	--	--	--
ASH	13.38	7.02	57.42	13.50	7.10	58.00
VOLATILE MATTER	17.53	17.42	18.22	17.69	17.61	18.40
FIXED CARBON	68.19	74.46	23.36	68.81	75.29	23.60
BTU/LB	12920	14212	4633	13037	14370	4680

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.57	1.20	19.30	3.61	1.21	19.50
OXYGEN	--	--	--	--	--	--
ASH	13.38	7.02	57.42	13.50	7.10	58.00

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.74	.59	18.17	2.76	.59	18.35
SULFATIC	.03	.02	.05	.04	.02	.05
ORGANIC	.80	.59	1.09	.81	.60	1.10
TOTAL	3.57	1.20	19.30	3.61	1.21	19.50

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2140	2570	1950	3.19	.64	43.70
SOFTENING TEMPERATURE (ST)	2400	2620	2000	.04	.02	.12
FLUID TEMPERATURE (FT)	2500	2670	2100	.94	.64	2.61
MISCELLANEOUS DATA, %	--	--	--	4.17	1.30	46.43
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	16.56	8.33	73.36	--	--	--
PHYSICAL PARAMETERS, INDEX	--	--	--	--	--	--
FREE SWELLING (FSI)	6	7	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: MARYLAND		BED: WAYNESBURG		BED CODE: 23	
COUNTY: ALLEGANY		RANK: LOW VOLATILE BITUMINOUS		SAMPLE NO. 62	
CUMULATIVE WASHABILITY DATA (DRY BASIS)					
----- SAMPLE CRUSHED TO PASS 1-1/2" -----					
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	10.2	3.5	.05	14905	1.5
FLOAT 1.40	50.8	8.2	.15	14091	1.7
FLOAT 1.60	75.1	12.0	.38	13433	2.1
CUM(1-1/2" X 100M)	100.0	22.3	1.29	11649	3.9
100M X 0	1.2	22.1	5.69	11683	12.3
TOTAL(1-1/2" X 0)	100.0	22.3	1.34	11649	4.0
----- SAMPLE CRUSHED TO PASS 3/8" -----					
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	12.4	3.3	.03	14939	1.5
FLOAT 1.40	52.2	7.6	.07	14195	1.5
FLOAT 1.60	74.2	11.5	.15	13519	1.6
CUM(3/8" X 100M)	100.0	22.9	1.38	11545	3.8
100M X 0	1.7	23.4	5.17	11458	10.6
TOTAL(3/8" X 0)	100.0	22.9	1.44	11543	3.9
----- SAMPLE CRUSHED TO PASS 14M -----					
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	8.7	2.3	.01	15112	1.4
FLOAT 1.40	43.3	6.2	.04	14437	1.5
FLOAT 1.60	74.9	10.3	.11	13727	1.5
CUM(14M X 0)	100.0	21.7	1.37	11753	3.7
RAW COAL SIZE AND MOISTURE ANALYSES					
----- SIZE DISTRIBUTION, % -----					
SAMPLE CRUSHED TO PASS 1-1/2"					
1-1/2" X 3/8"	--	----- MOISTURE, % -----			
3/8" X 14M	--	TOTAL			
14M X 100M	--	AS RECEIVED			
100M X 0	--	3.4			
		1.4			

STATE: MARYLAND
COUNTY: ALLEGANY

BED: WAYNESBURG
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 23
SAMPLE NO. 62

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.40	1.50	1.60	--	--	--	--	--	--
ASH	22.28	10.24	52.63	22.60	10.40	53.49	--	--	--
VOLATILE MATTER	16.92	18.95	11.42	17.16	19.14	11.61	22.17	21.36	24.96
FIXED CARBON	59.40	69.40	34.34	60.24	70.46	34.90	77.83	78.64	75.04
BTU/LB	11516	13445	6124	11680	13650	6224	15090	15234	13381

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.19	.99	5.36	2.23	1.00	5.45	2.87	1.12	11.71
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	22.28	10.24	52.63	22.60	10.40	53.49	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.36	.10	5.05	1.38	.10	5.13	1.78	.11	11.03
SULFATIC	.04	.03	.06	.05	.03	.06	.06	.03	.13
ORGANIC	.79	.86	.25	.80	.87	.26	1.03	.97	.55
TOTAL	2.19	.99	5.36	2.23	1.00	5.45	2.87	1.12	11.71

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
--	-----	---------

BASE/ACID

DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2730	2910+	2570
SOFTENING TEMPERATURE (ST)	2780	2910+	2620
FLUID TEMPERATURE (FT)	2840	2910+	2700
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	25.63	11.78	60.76

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSL)	6 1/2	9	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: MARYLAND
COUNTY: ALLEGANY

BED: WAYNESBURG
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 23
SAMPLE NO. 63

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.9	3.2	.23	15097	1.9
FLOAT 1.40	71.3	8.8	.67	14118	2.6
FLOAT 1.60	83.4	10.6	1.05	13803	3.2
CUM(1-1/2" X 100M)	100.0	17.5	1.41	12597	4.0
100M X 0	.7	13.6	1.76	13279	5.1
TOTAL(1-1/2" X 0)	100.0	17.5	1.41	12602	4.0

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	14.4	3.2	.27	15097	2.0
FLOAT 1.40	69.6	8.0	.70	14258	2.7
FLOAT 1.60	84.2	10.2	1.06	13873	3.2
CUM(3/8" X 100M)	100.0	17.2	1.54	12650	4.1
100M X 0	1.4	14.4	1.57	13139	4.7
TOTAL(3/8" X 0)	100.0	17.2	1.54	12657	4.1

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	17.0	2.4	.19	15236	1.8
FLOAT 1.40	55.1	6.5	.60	14520	2.5
FLOAT 1.60	82.8	10.9	1.01	13751	3.0
CUM(14M X 0)	100.0	18.1	1.52	12492	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"
1-1/2" X 3/8" --
3/8" X 14M --
14M X 100M --
100M X 0 --

----- MOISTURE, % -----
TOTAL
AS RECEIVED 2.9
2.9

STATE: MARYLAND
COUNTY: ALLEGANY

BED: WAYNESBURG
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 23
SAMPLE NO. 63

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.90	.90	1.20	--	--	--
ASH	17.22	10.37	53.15	17.38	10.46	53.80
VOLATILE MATTER	18.55	19.43	13.83	18.72	19.61	14.00
FIXED CARBON	63.33	69.30	31.81	63.90	69.93	32.20
BTU/LB	12524	13687	6175	12638	13811	6250

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.54	2.03	4.56	2.56	2.05	4.62
OXYGEN	--	--	--	--	--	--
ASH	17.22	10.37	53.15	17.38	10.46	53.80

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.44	.90	3.93	1.45	.91	3.98
SULFATIC	.02	.01	.03	.02	.01	.03
ORGANIC	1.08	1.12	.61	1.09	1.13	.61
TOTAL	2.54	2.03	4.56	2.56	2.05	4.62

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (IL)	2630	2630	2580
SOFTENING TEMPERATURE (ST)	2680	2680	2680
FLUID TEMPERATURE (FT)	2770	2730	2780

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	20.17	12.43	60.64

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	1
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: OHIO
COUNTY: TUSCARAWAS
BED: BAKERSTOWN
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 62
SAMPLE NO.: 64

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	18.6	21.0	4.4	.76	14092	2.9
FLOAT 1.40	82.1	87.1	9.0	1.62	13257	4.6
FLOAT 1.60	92.2	96.3	10.1	2.27	13062	5.8
CUM(1-1/2" X 100M)	100.0	100.0	13.2	3.36	12500	7.8
100M X 0	1.1	.9	24.0	7.79	10450	18.8
TOTAL(1-1/2" X 0)	100.0	100.0	13.3	3.41	12478	7.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.0	33.9	4.1	.50	14090	2.5
FLOAT 1.40	79.4	85.6	8.0	1.10	13450	3.3
FLOAT 1.60	90.3	95.7	9.3	1.71	13214	4.4
CUM(3/8" X 100M)	100.0	100.0	13.3	3.33	12471	7.4
100M X 0	5.6	4.7	23.4	7.54	10562	17.6
TOTAL(3/8" X 0)	100.0	100.0	13.9	3.57	12364	7.9

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.9	30.9	3.5	.41	14217	1.9
FLOAT 1.40	73.8	81.1	6.9	.85	13601	2.9
FLOAT 1.60	87.9	94.6	8.6	1.39	13312	3.9
CUM(14M X 0)	100.0	100.0	13.6	3.56	12376	8.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	79.9
3/8" X 14M	14.0
14M X 100M	5.0
100M X 0	1.1

TOTAL AS RECEIVED	3.8
	2.6

STATE: OHIO	BED: BAKERSTOWN	BED CODE: 62
COUNTY: TUSCARAWAS	RANK: HIGH VOLATILE A BITUMINOUS	SAMPLE NO. 64
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE AND ASH FREE
MOISTURE	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
ASH	2.60 2.10 .70	-- --
VOLATILE MATTER	13.34 8.62 50.05	-- --
FIXED CARBON	41.15 43.71 24.92	48.96 48.96 50.60
	42.91 45.57 24.33	51.04 51.04 49.40
BTU/LB	12040 13004 5480	14324 14565 11127
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
CARBON	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
HYDROGEN	65.53 70.78 --	77.96 79.28 --
NITROGEN	5.16 5.62 --	5.79 6.03 --
SULFUR	1.34 1.49 .30	1.60 1.67 .60
OXYGEN	4.83 2.78 22.16	5.74 3.11 44.99
ASH	9.80 10.72 --	8.91 9.91 --
	13.34 8.62 50.05	-- --
----- SULEUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
PYRITIC	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
SULFATIC	3.35 1.46 19.19	3.99 1.63 38.96
ORGANIC	.17 .11 .24	.20 .12 .48
TOTAL	1.31 1.21 2.73	1.55 1.36 5.55
	4.83 2.78 22.16	5.74 3.11 44.99
----- MINERAL ANALYSIS OF ASH, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
OXIDES	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
SiO2 (SILICON OXIDE)	34.09 39.63 24.72	1950 2050 --
Al2O3 (ALUMINUM OXIDE)	19.99 26.02 12.07	2080 2250 --
Fe2O3 (IRON OXIDE)	37.75 24.88 58.91	2170 2450 --
TiO2 (TITANIUM OXIDE)	1.00 1.67 .67	-- --
CaO (CALCIUM OXIDE)	.67 1.18 .06	-- --
MgO (MAGNESIUM OXIDE)	.56 .53	-- --
Na2O (SODIUM OXIDE)	.30 .40 .05	RAW FL 1.60 SK 1.60
K2O (POTASSIUM OXIDE)	1.78 1.90 1.45	.09 --
SO3 (SULFITES)	.11 .19 .07	.03 .03 .02
----- COAL UTILIZATION RATIOS -----		
	RAW FL 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	.75 .43	17.52 11.10 66.70
DOLOMITE	.03 .06	-- --
HYDROGEN/CARBON	.89 .91	RAW FL 1.60 SK 1.60
OXYGEN/CARBON	.09 .09	3 1/2 2 1/2 --
R250	.58 .72	43 --
SILICA	.47 .60	-- --
SILICA/ALUMINA	1.71 1.52	-- --
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	1950 2050 --	1950 2050 --
SOFTENING TEMPERATURE (ST)	2080 2250 --	2080 2250 --
FLUID TEMPERATURE (FT)	2170 2450 --	2170 2450 --
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.09 --	.09 --
MINERAL MATTER (FARR)	.03 .03 .02	.03 .03 .02
----- PHYSICAL PARAMETERS, INDEX -----		
FREE SWELLING (FSI)	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
HARDGROVE GRINDABILITY (HGI)	3 1/2 2 1/2 --	3 1/2 2 1/2 --

STATE: OHIO
COUNTY: JACKSON
BED: BROOKVILLE
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 95
SAMPLE NO. 65

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	72.7	3.5	.57	14110	3.8
FLOAT 1.40	84.5	4.0	.75	14021	4.1
FLOAT 1.60	90.5	4.9	1.04	13861	4.6
FLOAT 1.90	93.0	5.8	1.18	13700	4.9
CUM(1-1/2" X 100M)	100.0	10.3	1.91	12898	6.2
100M X 0	.1	20.1	2.43	11151	8.1
TOTAL(1-1/2" X 0)	100.0	10.3	1.91	12896	6.3

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.7	2.6	.32	14271	3.4
FLOAT 1.40	84.4	3.4	.58	14128	3.7
FLOAT 1.60	90.0	4.2	.75	13985	4.1
FLOAT 1.90	93.0	5.8	1.18	13700	4.9
CUM(3/8" X 100M)	100.0	9.7	1.70	13005	5.9
100M X 0	.8	18.9	2.86	11365	8.2
TOTAL(3/8" X 0)	100.0	9.8	1.71	12992	5.9

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.9	2.4	.26	14306	3.3
FLOAT 1.40	79.4	3.3	.44	14146	3.5
FLOAT 1.60	89.4	4.5	.66	13932	3.9
FLOAT 1.90	93.0	5.8	1.18	13700	4.9
CUM(14M X 0)	100.0	10.0	1.65	12951	5.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	
3/8" X 14M	
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	5.3
	3.1

STATE: OHIO
COUNTY: JACKSON

BED: BROOKVILLE
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 95
SAMPLE NO. 65

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.10	--	--	--	--	--
ASH	9.69	--	--	--	--	--
VOLATILE MATTER	40.89	--	10.00	--	--	--
FIXED CARBON	46.32	--	42.20	--	46.89	--
		--	47.80	--	53.11	--
BTU/LB	12574	--	12976	--	14418	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.76	--	3.88	--	4.31	--
OXYGEN	--	--	--	--	--	--
ASH	9.69	--	10.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.87	--	1.93	--	2.14	--
SULFATIC	.18	--	.19	--	.21	--
ORGANIC	1.71	--	1.76	--	1.96	--
TOTAL	3.76	--	3.88	--	4.31	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: OHIO
COUNTY: MAHONING
BED: BROOKVILLE
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 95
SAMPLE NO. 66

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.6	2.1	.45	14360	1.6
FLOAT 1.40	86.2	4.0	.70	14021	2.0
FLOAT 1.60	95.3	5.4	1.04	13771	2.7
FLOAT 1.90	96.7	5.7	1.19	13718	3.0
CUM(1-1/2" X 100M)	100.0	7.7	1.65	13361	3.9
100M X 0	.1	16.5	2.71	11793	6.1
TOTAL(1-1/2" X 0)	100.0	7.7	1.65	13360	3.9

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.5	1.5	.18	14467	1.2
FLOAT 1.40	86.1	3.2	.34	14164	1.5
FLOAT 1.60	93.5	4.3	.61	13967	1.9
FLOAT 1.90	96.7	5.7	1.19	13718	3.0
CUM(3/8" X 100M)	100.0	7.6	1.72	13379	4.0
100M X 0	.7	11.1	2.35	12755	5.3
TOTAL(3/8" X 0)	100.0	7.6	1.72	13375	4.0

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.7	1.5	.18	14467	1.2
FLOAT 1.40	85.8	2.9	.26	14217	1.3
FLOAT 1.60	92.9	3.9	.39	14039	1.5
FLOAT 1.90	96.7	5.7	1.19	13718	3.0
CUM(14M X 0)	100.0	7.7	1.72	13361	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---	MOISTURE, %	---
3/8" X 14M	---	TOTAL	5.1
14M X 100M	---	AS RECEIVED	3.2
100M X 0	.1		

STATE: OHIO
COUNTY: MAHONING

BED: BROOKVILLE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 95
SAMPLE NO. 66

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	3.20	--	--
ASH	7.36	7.60	--
VOLATILE MATTER	37.75	39.00	42.21
FIXED CARBON	51.69	53.40	57.79
BTU/LB	13644	14095	15254

ULTIMATE ANALYSIS, %

	AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	--	--	--
HYDROGEN	--	--	--
NITROGEN	--	--	--
SULFUR	2.46	2.54	2.75
OXYGEN	--	--	--
ASH	7.36	7.60	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	1.74	1.80	1.95
SULFATIC	.04	.04	.04
ORGANIC	.68	.70	.76
TOTAL	2.46	2.54	2.75

MINERAL ANALYSIS OF ASH, %

	RAW FL 1.60 SK 1.60
OXIDES	--
SiO2 (SILICON OXIDE)	--
Al2O3 (ALUMINUM OXIDE)	--
Fe2O3 (IRON OXIDE)	--
TiO2 (TITANIUM OXIDE)	--
CaO (CALCIUM OXIDE)	--
MgO (MAGNESIUM OXIDE)	--
Na2O (SODIUM OXIDE)	--
K2O (POTASSIUM OXIDE)	--
SO3 (SULFITES)	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--
SOFTENING TEMPERATURE (ST)	--
FLUID TEMPERATURE (FT)	--

MISCELLANEOUS DATA, %

	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--
NA (SODIUM) (CALCULATED)	--
MINERAL MATTER (PARR)	9.61

COAL UTILIZATION RATIOS

	RAW FL 1.60
BASE/ACID	--
DOLomite	--
HYDROGEN/CARBON	--
OXYGEN/CARBON	--
R250	--
SILICA	--
SILICA/ALUMINA	--

PHYSICAL PARAMETERS, INDEX

	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)	--
HARDGROVE GRINDABILITY (HGI)	--

STATE: OHIO
COUNTY: STARK
BED: BROOKVILLE
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 95
SAMPLE NO. 67

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	80.5	2.4	.79	14198	3.6
FLOAT 1.40	90.2	3.2	.99	14068	3.9
FLOAT 1.60	95.8	4.3	1.33	13881	4.4
CUM(1-1/2" X 100M)	100.0	6.4	1.79	13549	5.1
100M X 0	1.2	24.3	3.77	10464	9.9
TOTAL(1-1/2" X 0)	100.0	6.6	1.81	13512	5.2

--- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	80.6	1.8	.72	14296	3.4
FLOAT 1.40	89.7	2.5	.92	14173	3.7
FLOAT 1.60	95.0	3.5	1.19	14009	4.1
CUM(3/8" X 100M)	100.0	5.9	1.67	13615	4.8
100M X 0	4.6	14.6	3.02	12123	7.4
TOTAL(3/8" X 0)	100.0	6.3	1.73	13546	4.9

--- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	77.4	1.5	.55	14363	3.6
FLOAT 1.40	87.4	2.1	.74	14261	3.9
FLOAT 1.60	93.9	3.2	1.05	14074	4.3
CUM(14M X 0)	100.0	6.3	1.77	13551	5.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	74.3
3/8" X 14M	19.3
14M X 100M	5.2
100M X 0	1.2
TOTAL AS RECEIVED	6.7
	4.6

STATE: OHIO
COUNTY: STARK

BED: BROOKVILLE
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 95
SAMPLE NO. 67

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.60	2.20 2.20	--	--	--	--
ASH	6.25	3.23 50.72	6.55	3.30 51.86	--	--
VOLATILE MATTER	42.27	44.46 27.13	44.31	45.46 27.74	47.41	47.01 57.62
FIXED CARBON	46.88	50.12 19.95	49.14	51.24 20.40	52.59	52.99 42.38
BTU/LB	12892	13750 5623	13514	14060 5749	14462	14539 11942

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	70.78	75.72 28.05	74.19	77.42 28.68	79.39	89.06 59.57
HYDROGEN	5.53	5.62 2.30	5.26	5.50 2.10	5.63	5.69 4.36
NITROGEN	1.36	1.46 1.49	1.43	1.49 1.50	1.52	1.54 1.04
SULFUR	3.07	2.77 12.73	3.22	2.83 13.02	3.45	2.93 27.05
OXYGEN	13.01	11.21 5.71	9.35	9.46 3.84	10.01	9.78 7.98
ASH	6.25	3.23 50.72	6.55	3.30 51.86	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.77	1.11 12.57	1.86	1.14 12.85	1.99	1.18 26.70
SULFATIC	.01	.01 .01	.01	.01 .01	.01	.01 .02
ORGANIC	1.29	1.64 .15	1.35	1.68 .16	1.44	1.74 .33
TOTAL	3.07	2.77 12.73	3.22	2.83 13.02	3.45	2.93 27.05

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	25.57	30.04 23.01
Al2O3 (ALUMINUM OXIDE)	19.04	26.59 15.08
Fe2O3 (IRON OXIDE)	28.31	28.02 30.31
TiO2 (TITANIUM OXIDE)	.83	.83 .67
CaO (CALCIUM OXIDE)	13.57	5.02 20.15
MgO (MAGNESIUM OXIDE)	.63	.73 .46
Na2O (SODIUM OXIDE)	.51	1.11 .05
K2O (POTASSIUM OXIDE)	.94	.99 .87
SO3 (SULFITES)	5.04	4.30 4.67

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.97	.62
DOLOMITE	.32	.16
HYDROGEN/CARBON	.85	.85
OXYGEN/CARBON	.09	.09
R250	.52	.63
SILICA	.38	.47
SILICA/ALUMINA	1.34	1.13

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2060	2060
SOFTENING TEMPERATURE (ST)	2170	2150
FLUID TEMPERATURE (FT)	2260	2250

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	.02	.03
MINERAL MATTER (PARR)	8.85	5.12 63.17

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	4	5 1/2
HARDGROVE GRINDABILITY (HGI)	47	--

STATE: OHIO
 COUNTY: MEIGS
 BED: CLARION
 RANK: HIGH VOLATILE B BITUMINOUS
 BED CODE: 87
 SAMPLE NO.: 68

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL) ---

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.1	3.5	.41	14110	2.7
FLOAT 1.40	66.5	8.5	.92	13219	3.7
FLOAT 1.60	75.2	10.4	1.18	12880	4.1
FLOAT 1.90	79.6	12.1	1.28	12577	4.3
CUM(1-1/2" X 100M)	100.0	25.5	2.14	10188	6.9
100M X 0	.4	24.6	1.86	10349	6.3
TOTAL(1-1/2" X 0)	100.0	25.5	2.14	10189	6.9

--- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL) ---

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.0	3.7	.39	14074	3.0
FLOAT 1.40	66.8	8.3	.91	13254	3.8
FLOAT 1.60	76.8	10.9	1.23	12791	4.4
FLOAT 1.90	79.6	12.1	1.28	12577	4.3
CUM(3/8" X 100M)	100.0	24.8	2.18	10313	6.7
100M X 0	.7	30.3	2.01	9333	7.1
TOTAL(3/8" X 0)	100.0	24.8	2.18	10306	6.7

--- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL) ---

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.2	4.0	.23	14021	2.9
FLOAT 1.40	60.8	9.0	.59	13130	3.7
FLOAT 1.60	75.7	11.0	.90	12773	4.2
FLOAT 1.90	79.6	12.1	1.28	12577	4.3
CUM(14M X 0)	100.0	24.1	1.98	10438	6.4

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	.4

--- MOISTURE, % ---

TOTAL	7.2
AS RECEIVED	4.8

STATE: OHIO
COUNTY: MEIGS

BED: CLARION
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 87
SAMPLE NO. 68

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	4.80	--	--	--	--	--
ASH	23.86	--	25.06	--	--	--
VOLATILE MATTER	33.92	--	35.63	--	47.55	--
FIXED CARBON	37.42	--	39.31	--	52.46	--
BTU/LB	10460	--	10987	--	14662	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.55	--	3.73	--	4.98	--
OXYGEN	--	--	--	--	--	--
ASH	23.86	--	25.06	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	2.08	--	2.19	--	2.92	--
SULFATIC	.06	--	.06	--	.08	--
ORGANIC	1.41	--	1.48	--	1.98	--
TOTAL	3.55	--	3.73	--	4.98	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	29.12	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: OHIO

COUNTY: VINTON

BED: CLARION

RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 87

SAMPLE NO. 69

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC, %	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.5	4.5	.96	2.28	13851	3.3
FLOAT 1.40	65.7	7.3	2.23	3.58	13371	5.4
FLOAT 1.60	82.0	9.9	3.00	4.31	12933	6.7
CUM(1-1/2" X 100M)	100.0	18.3	4.86	6.03	11468	10.5
100M X 0	1.1	29.8	14.32	14.54	9371	31.0
TOTAL(1-1/2" X 0)	100.0	18.4	4.96	6.12	11445	10.7

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC, %	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.6	3.8	.60	1.90	14000	2.7
FLOAT 1.40	68.4	6.1	1.36	2.70	13611	4.0
FLOAT 1.60	81.2	8.1	2.02	3.32	13256	5.0
CUM(3/8" X 100M)	100.0	17.4	4.50	5.95	11604	10.3
100M X 0	6.1	28.8	12.76	12.82	9549	26.9
TOTAL(3/8" X 0)	100.0	18.1	5.00	6.37	11479	11.1

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC, %	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.4	3.4	.49	1.80	14028	2.6
FLOAT 1.40	61.0	4.9	.91	2.25	13778	3.3
FLOAT 1.60	75.5	7.0	1.57	2.86	13406	4.3
CUM(14M X 0)	100.0	18.3	4.95	6.61	11391	11.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.9
3/8" X 14M	17.0
14M X 100M	4.0
100M X 0	1.1

MOISTURE, %

TOTAL AS RECEIVED

7.4
4.1

STATE: OHIO
COUNTY: VINTON

BED: CLARION
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 87
SAMPLE NO. 69

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.10	3.90	3.90	--	--	--	--	--	--
ASH	18.25	7.00	51.41	19.03	7.28	53.50	--	--	--
VOLATILE MATTER	39.73	45.83	21.53	41.43	47.69	22.40	51.17	51.43	48.17
FIXED CARBON	37.92	43.28	23.16	39.54	45.03	24.10	48.83	48.57	51.83
BTU/LB	10826	12845	4937	11288	13366	5137	13942	14415	11048

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	59.31	71.05	25.73	61.84	73.93	26.77	76.38	79.74	57.57
HYDROGEN	4.86	5.66	2.27	4.59	5.44	1.91	5.67	5.87	4.10
NITROGEN	1.10	1.33	.46	1.15	1.38	.48	1.42	1.49	1.02
SULFUR	6.27	2.56	16.66	6.54	2.66	17.34	8.08	2.87	37.29
OXYGEN	10.20	12.41	3.47	6.84	9.31	.01	8.45	10.04	.02
ASH	18.25	7.00	51.41	19.03	7.28	53.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	5.01	1.62	14.07	5.22	1.68	14.65	6.45	1.81	31.50
SULFATIC	.10	.08	.12	.10	.08	.12	.12	.09	.26
ORGANIC	1.17	.86	2.47	1.22	.90	2.57	1.51	.97	5.53
TOTAL	6.27	2.56	16.66	6.54	2.66	17.34	8.08	2.87	37.29

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	32.81	33.67	31.53	INITIAL DEFORMATION (ID)	1950	2040	RAW	FL 1.60	SK 1.60
SiO2 (SILICON OXIDE)	18.48	23.76	15.84	SOFTENING TEMPERATURE (ST)	2000	2140	1950	2040	--
Al2O3 (ALUMINUM OXIDE)	41.18	31.17	46.04	FLUID TEMPERATURE (FT)	2460	2460	2000	2140	--
Fe2O3 (IRON OXIDE)	1.00	1.00	1.00	MISCELLANEOUS DATA, %					
TiO2 (TITANIUM OXIDE)	.73	1.96	.25	CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60	SK 1.60	SK 1.60
CaO (CALCIUM OXIDE)	.63	.60	.63	NA (SODIUM) (CALCULATED)	.05	--	--	--	--
MgO (MAGNESIUM OXIDE)	.16	.30	.11	MINERAL MATTER (PARR)	.02	.02	.02	.02	.04
Na2O (SODIUM OXIDE)	1.49	1.23	1.57	PHYSICAL PARAMETERS, INDEX					
K2O (POTASSIUM OXIDE)	1.13	2.44	.29	FREE SWELLING (FSL)	RAW	FL 1.60	SK 1.60	SK 1.60	SK 1.60
SO3 (SULFITES)	--	--	--	HARD-GROVE GRINDABILITY (HGL)	1 1/2	43	3	37	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.85	.60
DOLOMITE	.03	.07
HYDROGEN/CARBON	.89	.88
OXYGEN/CARBON	.08	.09
R250	.55	.63
SILICA	.44	.50
SILICA/ALUMINA	1.78	1.42

STATE: OHIO
COUNTY: COLUMBIANA

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 70

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	50.0	3.3	.20	14507	.9
FLOAT 1.40	72.8	5.1	.33	14205	1.1
FLOAT 1.60	79.1	6.5	.42	13970	1.2
CUM(1-1/2" X 100M)	100.0	19.3	1.01	11822	2.4
100M X 0	1.4	22.5	2.40	11285	6.1
TOTAL(1-1/2" X 0)	100.0	19.3	1.03	11815	2.5

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	53.8	2.5	.08	14642	.8
FLOAT 1.40	71.9	4.2	.12	14356	.8
FLOAT 1.60	77.8	5.6	.16	14121	.9
CUM(3/8" X 100M)	100.0	19.5	1.04	11789	2.6
100M X 0	4.9	19.5	1.64	11789	4.1
TOTAL(3/8" X 0)	100.0	19.5	1.07	11789	2.7

SAMPLE CRUSHED TO PASS 14M X 0 MATERIAL

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	55.3	3.0	.06	14558	.7
FLOAT 1.40	71.4	4.4	.08	14323	.7
FLOAT 1.60	78.6	5.9	.11	14071	.8
CUM(14M X 0)	100.0	19.2	1.13	11839	2.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"	MOISTURE, %
1-1/2" X 3/8"	70.0
3/8" X 14M	23.1
14M X 100M	5.5
100M X 0	1.4

TOTAL AS RECEIVED 4.8 1.8

STATE: OHIO	BED: LOWER FREEPORT	BED CODE: 74
COUNTY: COLUMBIANA	RANK: HIGH VOLATILE A BITUMINOUS	SAMPLE NO. 70
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE AND ASH FREE
MOISTURE	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
ASH	1.80 1.50 1.30	-- --
VOLATILE MATTER	19.61 5.91 67.12	-- --
FIXED CARBON	33.28 38.37 15.59	42.34 41.44 49.38
	45.31 54.22 15.99	57.65 58.55 50.63
BTU/LB	11543 13810 3593	14687 14915 11375
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
CARBON	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
HYDROGEN	64.96 77.36 20.74	82.65 83.55 65.67
NITROGEN	4.59 5.32 1.92	5.58 5.57 5.63
SULFUR	1.31 1.58 .39	1.66 1.70 1.25
OXYGEN	1.59 .55 5.18	2.02 .60 16.39
ASH	7.95 9.28 4.65	8.08 8.58 11.06
	19.61 5.91 67.12	-- --
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
PYRITIC	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
SULFATIC	1.11 .10 4.81	1.41 .11 15.24
ORGANIC	.03 .01 .05	.04 .01 .16
TOTAL	.45 .44 .32	.57 .48 1.00
	1.59 .55 5.18	2.02 .60 16.39
----- MINERAL ANALYSIS OF ASH, % -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	-- --	-- --
SiO2 (SILICON OXIDE)	-- --	2420 2910+
Al2O3 (ALUMINUM OXIDE)	-- --	2520 2910+
Fe2O3 (IRON OXIDE)	-- --	2620 2910+
TiO2 (TITANIUM OXIDE)	-- --	-- --
CaO (CALCIUM OXIDE)	-- --	-- --
MgO (MAGNESIUM OXIDE)	-- --	-- --
Na2O (SODIUM OXIDE)	-- --	RAW FL 1.60 SK 1.60
K2O (POTASSIUM OXIDE)	-- --	.16 --
SO3 (SULFITES)	-- --	-- --
----- COAL UTILIZATION RATIOS -----		
	RAW FL 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	-- --	-- --
DOLOMITE	-- --	-- --
HYDROGEN/CARBON	.81 --	22.45 6.79 76.33
OXYGEN/CARBON	.07 --	-- --
R250	-- --	-- --
SILICA	-- --	-- --
SILICA/ALUMINA	-- --	-- --
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2420 2910+	2420 2910+
SOFTENING TEMPERATURE (ST)	2520 2910+	2520 2910+
FLUID TEMPERATURE (FT)	2620 2910+	2620 2910+
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.16 --	-- --
MINERAL MATTER (PARR)	22.45 6.79 76.33	-- --
----- PHYSICAL PARAMETERS, INDEX -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)	6 5	6 5
HARDGROVE GRINDABILITY (HGI)	50 --	50 --

STATE: OHIO
COUNTY: HARRISON

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 71

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.0	57.6	3.5	.44	14491	1.7
FLOAT 1.40	86.8	92.0	5.5	.80	14133	2.5
FLOAT 1.60	93.5	97.9	6.5	.95	13955	2.8
FLOAT 1.90	95.8	99.4	7.2	1.04	13830	3.0
CUM(1-1/2" X 100M)	100.0	100.0	10.0	1.37	13330	3.5
100M X 0	.2	.2	16.2	3.20	12222	6.8
TOTAL(1-1/2" X 0)	100.0	100.0	10.0	1.37	13327	3.5

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.6	72.5	2.9	.37	14598	1.5
FLOAT 1.40	84.9	91.0	4.1	.53	14384	1.9
FLOAT 1.60	92.3	97.5	5.3	.71	14169	2.2
FLOAT 1.90	95.8	99.4	7.2	1.04	13830	3.0
CUM(3/8" X 100M)	100.0	100.0	9.5	1.39	13419	3.3
100M X 0	.8	.7	15.0	3.24	12436	7.0
TOTAL(3/8" X 0)	100.0	100.0	9.5	1.40	13411	3.4

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.3	64.2	2.4	.16	14687	1.4
FLOAT 1.40	82.2	89.0	3.8	.27	14437	1.6
FLOAT 1.60	90.9	96.9	5.1	.42	14205	1.9
FLOAT 1.90	95.8	99.4	7.2	1.04	13830	3.0
CUM(14M X 0)	100.0	100.0	10.0	1.45	13330	3.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"
1-1/2" X 3/8" ---
3/8" X 14M ---
14M X 100M ---
100M X 0 .2

MOISTURE, %
TOTAL
AS RECEIVED
3.7
2.3

STATE: OHIO	BED: LOWER FREEPORT	BED CODE: 74
COUNTY: HARRISON	RANK: HIGH VOLATILE A BITUMINOUS	SAMPLE NO. 71
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	2.30	---
ASH	9.38	---
VOLATILE MATTER	36.95	---
FIXED CARBON	51.37	---
		41.83
		58.17
BTU/LB	13365	15132
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	---	---
HYDROGEN	---	---
NITROGEN	---	---
SULFUR	2.13	2.41
OXYGEN	---	---
ASH	9.38	---
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	1.39	1.57
SULFATIC	.01	---
ORGANIC	.73	.01
TOTAL	2.13	.83
		2.41
----- MINERAL ANALYSIS OF ASH, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	---	---
SiO2 (SILICON OXIDE)	---	---
Al2O3 (ALUMINUM OXIDE)	---	---
Fe2O3 (IRON OXIDE)	---	---
TiO2 (TITANIUM OXIDE)	---	---
CaO (CALCIUM OXIDE)	---	---
MgO (MAGNESIUM OXIDE)	---	---
Na2O (SODIUM OXIDE)	---	---
K2O (POTASSIUM OXIDE)	---	---
SO3 (SULFITES)	---	---
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----		
	AS RECEIVED	MOISTURE AND ASH FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	---	---
SOFTENING TEMPERATURE (ST)	---	---
FLUID TEMPERATURE (FT)	---	---
----- MISCELLANEOUS DATA, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	---	---
NA (SODIUM) (CALCULATED)	---	---
MINERAL MATTER (PARR)	---	11.57
----- PHYSICAL PARAMETERS, INDEX -----		
	AS RECEIVED	MOISTURE AND ASH FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)	---	---
HARDGROVE GRINDABILITY (HGI)	---	---
----- COAL UTILIZATION RATIOS -----		
	AS RECEIVED	MOISTURE AND ASH FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	---	---
DOLOMITE	---	---
HYDROGEN/CARBON	---	---
OXYGEN/CARBON	---	---
R250	---	---
SILICA	---	---
SILICA/ALUMINA	---	---

STATE: OHIO
COUNTY: HARRISON
BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 74
SAMPLE NO. 72

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.8	3.9	.41	14347	1.7
FLOAT 1.40	63.7	5.7	.79	14062	2.4
FLOAT 1.60	93.3	6.3	.92	13947	2.6
CUM(1-1/2" X 100M)	100.0	10.0	1.32	13347	3.4
100M X 0	1.7	18.8	6.25	11857	12.4
TOTAL(1-1/2" X 0)	100.0	10.1	1.40	13321	3.5

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.4	3.5	.23	14439	1.4
FLOAT 1.40	87.4	5.2	.44	14171	1.7
FLOAT 1.60	93.4	6.0	.68	14030	2.1
CUM(3/8" X 100M)	100.0	9.5	1.25	13445	3.1
100M X 0	4.9	14.8	4.74	12532	9.4
TOTAL(3/8" X 0)	100.0	9.8	1.42	13400	3.4

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.3	2.9	.15	14548	1.3
FLOAT 1.40	85.4	4.4	.23	14292	1.5
FLOAT 1.60	91.2	5.2	.37	14151	1.7
CUM(14M X 0)	100.0	10.1	1.45	13319	3.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	67.3
3/8" X 14M	24.5
14M X 100M	6.5
100M X 0	1.7

MOISTURE, %

TOTAL	3.5
AS RECEIVED	2.4

STATE: OHIO
COUNTY: HARRISON
BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 74
SAMPLE NO. 72

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.40	1.50 1.50	--	--	--	--
ASH	10.05	5.32 61.07	10.30	5.40 62.00	42.07	41.72
VOLATILE MATTER	36.83	38.87 19.31	37.73	39.47 19.60	57.93	51.58
FIXED CARBON	50.72	54.31 18.12	51.97	55.13 18.40	58.28	48.42
BTU/LB	12970	13909 4496	13289	14121 4565	14815	14927
					12012	

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	72.45	77.51 20.29	74.23	78.69 20.60	82.75	83.18
HYDROGEN	5.30	5.57 1.90	5.16	5.48 1.76	5.75	5.79
NITROGEN	1.47	1.58 .38	1.50	1.61 .39	1.68	1.70
SULFUR	2.13	1.13 15.02	2.19	1.14 15.25	2.44	1.21
OXYGEN	8.60	8.89 --	6.62	7.67 --	7.38	8.11
ASH	10.05	5.32 61.07	10.30	5.40 62.00	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.46	.40 12.16	1.50	.41 12.34	1.67	.43
SULFATIC	.02	.01 .03	.02	.01 .03	.02	.01
ORGANIC	.65	.72 2.84	.67	.73 2.88	.75	.77
TOTAL	2.13	1.13 15.02	2.19	1.14 15.25	2.44	1.21

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		SK 1.60	
	RAW	FL 1.60	RAW	FL 1.60
OXIDES				
SiO2 (SILICON OXIDE)	38.57	44.75	30.68	
Al2O3 (ALUMINUM OXIDE)	27.91	33.56	23.38	
Fe2O3 (IRON OXIDE)	22.02	10.44	35.46	
TiO2 (TITANIUM OXIDE)	1.33	1.67	.67	
CaO (CALCIUM OXIDE)	2.87	2.06	3.08	
MgO (MAGNESIUM OXIDE)	.68	.51	.86	
Na2O (SODIUM OXIDE)	.46	.51	.65	
K2O (POTASSIUM OXIDE)	2.57	1.89	3.04	
SO3 (SULFITES)	1.38	.60	2.06	

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.42	.19
DOLOMITE	.12	.17
HYDROGEN/CARBON	.83	.84
OXYGEN/CARBON	.07	.07
R250	.73	.86
SILICA	.60	.77
SILICA/ALUMINA	1.38	1.33

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW		SK 1.60	
	FL 1.60	FL 1.60	FL 1.60	FL 1.60
INITIAL DEFORMATION (ID)	2300	2740	2300	2740
SOFTENING TEMPERATURE (ST)	2410	2800	2410	2800
FLUID TEMPERATURE (FT)	2510	2800	2510	2800

MISCELLANEOUS DATA, %

	RAW		SK 1.60	
	FL 1.60	FL 1.60	FL 1.60	FL 1.60
CL (CHLORINE) (ANALYZED)	.20	--	.20	--
NA (SODIUM) (CALCULATED)	.04	.02	.04	.30
MINERAL MATTER (PARR)	12.33	6.46	12.33	75.35

PHYSICAL PARAMETERS, INDEX

	RAW		SK 1.60	
	FL 1.60	FL 1.60	FL 1.60	FL 1.60
FREE SWELLING (FSI)	5	5 1/2	5	5 1/2
HARDGROVE GRINDABILITY (HGI)	53	--	53	--

STATE: OHIO
COUNTY: HARRISON

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 73

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.0	3.5	.40	14491	1.5
FLOAT 1.40	86.1	5.3	.82	14169	2.3
FLOAT 1.60	92.1	6.1	1.01	14026	2.6
FLOAT 1.90	93.9	6.6	1.14	13937	2.8
CUM(1-1/2" X 100M)	100.0	10.8	1.64	13187	3.7
100M X 0	.4	14.6	3.81	12508	7.6
TOTAL(1-1/2" X 0)	100.0	10.8	1.65	13184	3.7

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.6	2.8	.16	14616	1.2
FLOAT 1.40	85.2	4.1	.38	14384	1.5
FLOAT 1.60	90.9	4.9	.57	14241	1.8
FLOAT 1.90	93.9	6.6	1.14	13937	2.8
CUM(3/8" X 100M)	100.0	10.4	1.56	13258	3.5
100M X 0	.9	14.5	3.72	12526	7.1
TOTAL(3/8" X 0)	100.0	10.4	1.58	13252	3.5

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.7	2.2	.11	14723	1.1
FLOAT 1.40	81.4	3.9	.24	14419	1.3
FLOAT 1.60	89.7	5.1	.39	14205	1.5
FLOAT 1.90	93.9	6.6	1.14	13937	2.8
CUM(14M X 0)	100.0	11.0	1.73	13151	3.7

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--	TOTAL	3.2
3/8" X 14M	--	AS RECEIVED	1.9
14M X 100M	--		
100M X 0	.4		

----- MOISTURE, % -----

STATE: OHIO
COUNTY: HARRISON

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 73

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.90	--	--	--	--	--
ASH	10.36	--	--	10.56	--	--
VOLATILE MATTER	37.60	--	--	38.33	--	--
FIXED CARBON	50.14	--	--	51.11	--	--
				42.86	--	--
				57.14	--	--
BTU/LB	13210	--	--	13466	--	--
				15056	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.33	--	--	2.38	--	--
OXYGEN	--	--	--	--	--	--
ASH	10.36	--	--	10.56	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.70	--	--	1.74	--	--
SULFATIC	.01	--	--	.01	--	--
ORGANIC	.62	--	--	.63	--	--
TOTAL	2.33	--	--	2.38	--	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES (SILICON OXIDE)	--	--	--	--	--	--
SiO2	--	--	--	--	--	--
AL2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--
----- MISCELLANEOUS DATA, % -----						
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	12.71	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: OHIO
COUNTY: HARRISON

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 74

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.1	3.6	.37	14337	1.4
FLOAT 1.40	87.4	5.8	1.00	14016	2.6
FLOAT 1.60	95.5	6.8	1.37	13842	3.2
CUM(1-1/2" X 100M)	100.0	8.5	1.68	13549	3.9
100M X 0	1.5	17.4	4.01	11833	10.0
TOTAL(1-1/2" X 0)	100.0	8.6	1.71	13523	4.0

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	67.9	3.2	.28	14504	1.1
FLOAT 1.40	85.5	4.6	.58	14242	1.5
FLOAT 1.60	92.6	5.6	.86	14060	2.0
CUM(3/8" X 100M)	100.0	8.5	1.77	13530	3.8
100M X 0	5.3	13.4	4.07	12573	8.3
TOTAL(3/8" X 0)	100.0	8.8	1.89	13479	4.0

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.0	2.3	.15	14540	.9
FLOAT 1.40	84.2	3.6	.25	14340	1.1
FLOAT 1.60	91.6	4.7	.43	14150	1.4
CUM(14M X 0)	100.0	8.7	1.92	13405	4.1

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	71.5
3/8" X 14M	21.0
14M X 100M	6.0
100M X 0	1.5

----- MOISTURE, % -----

TOTAL	3.9
AS RECEIVED	2.7

STATE: OHIO
COUNTY: HARRISON

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 74

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	2.70	1.50	--	--	--	--
ASH	8.47	4.63	8.70	53.40	--	--
VOLATILE MATTER	37.78	39.38	39.97	26.00	42.52	55.79
FIXED CARBON	51.06	54.50	52.47	20.60	57.48	44.21
BTU/LB	13043	13938	13405	5162	14682	11078

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	73.34	78.23	75.38	22.58	82.56	49.19
HYDROGEN	5.40	5.64	5.24	1.79	5.74	3.54
NITROGEN	1.46	1.58	1.50	.38	1.64	.83
SULFUR	2.65	.96	2.72	21.31	2.98	46.44
OXYGEN	8.69	8.96	6.46	--	7.08	--
ASH	8.47	4.63	8.70	53.40	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	1.84	.46	1.89	17.38	2.07	37.87
SULFATIC	.01	.01	.01	.01	.01	.02
ORGANIC	.80	.49	.82	3.92	.90	8.55
TOTAL	2.65	.96	2.72	21.31	2.98	46.44

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	27.70	40.91	11.51
Al2O3 (ALUMINUM OXIDE)	22.63	32.81	10.56
Fe2O3 (IRON OXIDE)	40.32	13.01	66.91
TiO2 (TITANIUM OXIDE)	1.67	2.16	.33
CaO (CALCIUM OXIDE)	3.64	2.48	5.04
MgO (MAGNESIUM OXIDE)	.43	.36	.33
Na2O (SODIUM OXIDE)	.24	.34	.32
K2O (POTASSIUM OXIDE)	.87	1.32	.27
SO3 (SULFITES)	2.35	1.10	3.19

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.88	.23
DOLOMITE	.09	.16
HYDROGEN/CARBON	.83	.84
OXYGEN/CARBON	.06	.07
R250	.53	.83
SILICA	.38	.72
SILICA/ALUMINA	1.22	1.25

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2060	2610	--
SOFTENING TEMPERATURE (ST)	2150	2720	--
FLUID TEMPERATURE (FT)	2260	2800	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.17	--	--
NA (SODIUM) (CALCULATED)	.02	.01	.13
MINERAL MATTER (PARR)	10.89	5.61	69.57

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4	1/2	5
HARDGROVE GRINDABILITY (HGI)	52	--	--

STATE: OHIO
COUNTY: HARRISON
BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 74
SAMPLE NO.: 75

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	WEIGHT	ASH, %	BTU	RECOVERY, %	BTU	ASH, %	BTU	HEATING VALUE	SO2 EMISSION
									BTU/LB	LB/MM BTU
FLOAT 1.30	47.3	51.2	4.4	45	1.80	14323	3.7	14012	3.7	2.5
FLOAT 1.40	81.0	85.8	6.2	1.47	2.62	14012	3.7	13732	4.7	4.7
FLOAT 1.60	92.8	96.3	7.8	2.16	3.20	13732	4.7	13235	7.0	7.0
CUM(1-1/2" X 100M)	100.0	100.0	10.6	3.63	4.61					
100M X 0	1.6	1.3	22.6	8.74	8.78	11051	15.9			
TOTAL(1-1/2" X 0)	100.0	100.0	10.8	3.71	4.68	13200	7.1			

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	WEIGHT	ASH, %	BTU	RECOVERY, %	BTU	ASH, %	BTU	HEATING VALUE	SO2 EMISSION
									BTU/LB	LB/MM BTU
FLOAT 1.30	60.2	65.7	3.3	.51	1.36	14479	1.9	14211	2.4	2.4
FLOAT 1.40	81.4	87.2	4.9	.88	1.72	14211	2.4	13973	3.0	3.0
FLOAT 1.60	90.6	95.4	6.4	1.23	2.11	13973	3.0	13271	6.5	6.5
CUM(3/8" X 100M)	100.0	100.0	10.3	3.47	4.29					
100M X 0	5.8	5.4	14.9	6.97	7.10	12430	11.4	13222	6.7	6.7
TOTAL(3/8" X 0)	100.0	100.0	10.6	3.67	4.45					

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	WEIGHT	ASH, %	BTU	RECOVERY, %	BTU	ASH, %	BTU	HEATING VALUE	SO2 EMISSION
									BTU/LB	LB/MM BTU
FLOAT 1.30	63.7	70.6	2.8	.37	1.25	14561	1.7	14356	1.9	1.9
FLOAT 1.40	81.0	88.6	4.0	.48	1.38	14356	1.9	14121	2.2	2.2
FLOAT 1.60	89.4	96.1	5.4	.66	1.57	14121	2.2	13130	7.3	7.3
CUM(14M X 0)	100.0	100.0	10.9	3.57	4.79					

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	2.9
3/8" X 14M	2.0
14M X 100M	
100M X 0	

TOTAL AS RECEIVED

STATE: OHIO
COUNTY: HARRISON

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 75

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE

2.00 1.60 1.20

ASH

11.11 5.53 57.40

VOLATILE MATTER

39.33 41.51 23.42

FIXED CARBON

47.56 51.37 17.98

BTU/LB

12805 13863 4629

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

11.34 5.62 58.10

45.26 44.69 56.56

54.74 55.31 43.44

14756 14927 11182

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

CARBON

70.66 76.38 14.16

HYDROGEN

5.41 5.86 1.27

NITROGEN

1.41 1.56 .24

SULFUR

4.51 1.51 28.41

OXYGEN

6.89 9.16 --

ASH

11.11 5.53 57.40

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

72.10 14.34

81.32 82.24 34.21

5.30 6.12 2.74

1.44 1.58 .25

4.60 1.54 28.75

5.19 1.63 68.62

5.89 8.33 --

5.62 58.10

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

PYRITIC

3.76 .71 25.00

SULFATIC

.01 .01 .01

ORGANIC

.74 .79 3.40

TOTAL

4.51 1.51 28.41

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

3.83 25.30

4.32 .77 60.39

.01 .01 .02

.76 .80 3.44

5.19 1.63 68.62

1.54 28.75

1.63 68.62

MINERAL ANALYSIS OF ASH, %

RAW FL 1.60 SK 1.60

OXIDES

31.53 44.53 14.92

SiO2 (SILICON OXIDE)

19.61 28.66 9.05

AL2O3 (ALUMINUM OXIDE)

41.18 15.01 70.63

Fe2O3 (IRON OXIDE)

1.00 1.83 .33

TiO2 (TITANIUM OXIDE)

2.13 2.07 2.10

CaO (CALCIUM OXIDE)

.40 .36 .23

MgO (MAGNESIUM OXIDE)

.43 .49 .43

Na2O (SODIUM OXIDE)

1.08 1.35 .53

K2O (POTASSIUM OXIDE)

2.44 .60 1.70

SO3 (SULFITES)

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

RAW FL 1.60 SK 1.60

INITIAL DEFORMATION (ID)

2055 2450

SOFTENING TEMPERATURE (ST)

2165 2560

FLUID TEMPERATURE (FT)

2250 2650

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)

.18 --

NA (SODIUM) (CALCULATED)

.04 .02

MINERAL MATTER (PARR)

14.78 6.91 77.14

PHYSICAL PARAMETERS, INDEX

RAW FL 1.60 SK 1.60

FREE SWELLING (FSI)

4 1/2

HARDGROVE GRINDABILITY (HGI)

50

COAL UTILIZATION RATIOS

RAW FL 1.60

BASE/ACID

.87 .26

DOLOMITE

.06 .13

HYDROGEN/CARBON

.88 .89

OXYGEN/CARBON

.05 .08

R250

.54 .81

SILICA

.42 .72

SILICA/ALUMINA

1.61 1.55

BED CODE: 74
SAMPLE NO. 76

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

STATE: OHIO
COUNTY: HARRISON

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.9	4.0	.88	15001	2.4
FLOAT 1.40	82.6	6.3	1.65	14288	3.6
FLOAT 1.60	95.2	8.1	2.06	13970	4.2
CUM(1-1/2" X 100M)	100.0	9.7	2.85	13656	5.8
100M X 0	1.4	16.6	6.54	12141	13.3
TOTAL(1-1/2" X 0)	100.0	9.8	2.90	13634	5.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.6	3.3	1.05	14495	2.0
FLOAT 1.40	81.9	5.5	1.34	14151	2.7
FLOAT 1.60	92.5	7.1	1.69	13880	3.3
CUM(3/8" X 100M)	100.0	10.0	2.94	13340	6.2
100M X 0	5.7	13.4	4.20	12758	10.9
TOTAL(3/8" X 0)	100.0	10.2	3.01	13306	6.5

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.0	2.7	1.22	14633	1.8
FLOAT 1.40	79.7	4.4	1.24	14341	2.2
FLOAT 1.60	91.4	6.2	1.49	14036	2.6
CUM(14M X 0)	100.0	10.1	2.94	13294	6.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	70.6
3/8" X 14M	22.0
14M X 100M	6.0
100M X 0	1.4

TOTAL AS RECEIVED
3.5
2.4

STATE: OHIO
COUNTY: HARRISON

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 76

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.40	1.20 1.40	--	--	--	--
ASH	10.35	6.42 50.38	10.60	6.50 51.10	--	--
VOLATILE MATTER	38.62	40.64 24.26	39.57	41.13 24.60	44.26	43.99 50.31
FIXED CARBON	48.64	51.74 23.96	49.83	52.37 24.30	55.74	56.01 49.69
BTU/LB	13186	13823 5378	13510	13991 5454	15112	14964 11153

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	70.94	76.06 --	72.68	76.98 --	81.30	82.33 --
HYDROGEN	5.24	5.57 --	5.10	5.50 --	5.70	5.88 --
NITROGEN	1.37	1.58 --	1.40	1.60 --	1.57	1.71 --
SULFUR	4.54	1.80 33.28	4.65	1.82 33.76	5.20	1.95 69.03
OXYGEN	7.57	8.58 --	5.57	7.60 --	6.23	8.13 --
ASH	10.35	6.42 50.38	10.60	6.50 51.10	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.81	1.37 16.66	2.88	1.39 16.89	3.22	1.49 34.55
SULFATIC	.05	.04 .20	.06	.04 .20	.06	.04 .42
ORGANIC	1.67	.39 16.43	1.71	.39 16.66	1.92	.42 34.07
TOTAL	4.54	1.80 33.28	4.65	1.82 33.76	5.20	1.95 69.03

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO ₂ (SILICON OXIDE)	31.96	47.73 19.51
Al ₂ O ₃ (ALUMINUM OXIDE)	18.86	27.91 19.99
Fe ₂ O ₃ (IRON OXIDE)	42.04	17.44 76.64
TiO ₂ (TITANIUM OXIDE)	1.33	2.33 1.20
CaO (CALCIUM OXIDE)	1.71	1.24 1.74
MgO (MAGNESIUM OXIDE)	.40	.46 .13
Na ₂ O (SODIUM OXIDE)	.70	.57 .22
K ₂ O (POTASSIUM OXIDE)	1.30	1.42 .36
SO ₃ (SULFITES)	.63	.69 1.76

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.88	.27
DOLOMITE	.05	.08
HYDROGEN/CARBON	.84	.86
OXYGEN/CARBON	.05	.07
R ₂ S ₀	.54	.80
SILICA	.42	.71
SILICA/ALUMINA	1.69	1.71

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2010	2315
SOFTENING TEMPERATURE (ST)	2120	2415
FLUID TEMPERATURE (FT)	2210	2505

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.33	--
NA (SODIUM) (CALCULATED)	.06	.03 .08
MINERAL MATTER (PARR)	14.26	8.02 75.78

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	4 1/2	5 --
HARDGROVE GRINDABILITY (HGI)	51	--

STATE: OHIO
COUNTY: CARROLL

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 77

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.7	3.6	1.43	14108	4.0
FLOAT 1.40	86.1	6.0	2.07	13696	4.8
FLOAT 1.60	92.0	6.9	2.42	13545	5.3
CUM(1-1/2" X 100M)	100.0	10.2	4.30	12954	8.6
100M X 0	1.1	21.0	6.23	11145	13.1
TOTAL(1-1/2" X 0)	100.0	10.3	4.32	12935	8.6

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.3	3.4	1.23	14061	3.8
FLOAT 1.40	84.2	5.4	1.74	13731	4.5
FLOAT 1.60	91.6	6.6	2.12	13547	5.0
CUM(3/8" X 100M)	100.0	10.1	4.05	12928	8.4
100M X 0	6.2	12.8	5.08	12526	9.1
TOTAL(3/8" X 0)	100.0	10.3	4.11	12903	8.4

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.0	3.0	1.26	14190	3.8
FLOAT 1.40	81.2	4.6	1.53	13917	4.4
FLOAT 1.60	90.9	5.9	1.72	13701	4.8
CUM(14M X 0)	100.0	10.2	4.18	12977	8.7

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	78.2
3/8" X 14M	16.4
14M X 100M	4.3
100M X 0	1.1

----- MOISTURE, % -----

TOTAL	4.8
AS RECEIVED	2.6

STATE: OHIO
COUNTY: CARROLL

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 77

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.60	2.30 1.30	--	--	--	--
ASH	10.33	5.96 52.01	10.61	6.10 52.70	--	--
VOLATILE MATTER	42.12	43.96 26.75	43.24	45.00 27.10	48.38	47.92 57.29
FIXED CARBON	44.95	47.78 19.94	46.15	48.90 20.20	51.62	52.08 42.71
BTU/LB	12583	13357 5731	12918	13672 5807	14452	14560 12276

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	69.47	73.31 --	71.32	75.04 --	79.78	79.91 --
HYDROGEN	5.62	5.53 --	5.48	5.40 --	6.13	5.75 --
NITROGEN	1.28	1.47 --	1.32	1.50 --	1.48	1.60 --
SULFUR	4.90	3.19 28.50	5.04	3.26 28.88	5.63	3.47 61.05
OXYGEN	8.39	10.54 --	6.24	8.70 --	6.98	9.27 --
ASH	10.33	5.96 52.01	10.61	6.10 52.70	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	4.30	1.63 28.47	4.42	1.67 28.85	4.94	1.78 60.99
SULFATIC	.01	.01 .01	.01	.01 .01	.01	.01 .02
ORGANIC	.59	1.54 .02	.61	1.58 .02	.68	1.68 .04
TOTAL	4.90	3.19 28.50	5.04	3.26 28.88	5.63	3.47 61.05

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	25.57	36.22 14.49
Al2O3 (ALUMINUM OXIDE)	17.35	25.83 6.79
Fe2O3 (IRON OXIDE)	47.76	27.45 70.35
TiO2 (TITANIUM OXIDE)	.67	1.33 .67
CaO (CALCIUM OXIDE)	3.22	2.84 3.13
MgO (MAGNESIUM OXIDE)	.40	.55 .20
Na2O (SODIUM OXIDE)	.30	.51 .05
K2O (POTASSIUM OXIDE)	.77	1.02 .48
SO3 (SULFITES)	3.26	2.37 2.66

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	1.20	.51
DOLomite	.07	.10
HYDROGEN/CARBON	.92	.86
OXYGEN/CARBON	.07	.09
R250	.46	.67
SILICA	.33	.54
SILICA/ALUMINA	1.47	1.40

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	1955	2160
SOFTENING TEMPERATURE (ST)	2050	2250
FLUID TEMPERATURE (FT)	2155	2360
MISCELLANEOUS DATA, %		
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	.02	.02
MINERAL MATTER (PARR)	14.23	8.38
		72.80

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	4	--
HARDGROVE GRINDABILITY (HGI)	51	--

STATE: OHIO
COUNTY: COSHOCTON

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 78

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	72.5	4.0	1.35	13888	4.4
FLOAT 1.40	90.1	5.0	2.05	13709	5.4
FLOAT 1.60	94.5	5.5	2.39	13612	5.9
CUM(1-1/2" X 100M)	100.0	7.8	3.40	13198	7.7
100M X 0	.6	14.8	3.86	11900	12.1
TOTAL(1-1/2" X 0)	100.0	7.8	3.40	13191	7.7

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.4	3.6	.98	13971	4.1
FLOAT 1.40	88.3	4.6	1.67	13778	5.1
FLOAT 1.60	93.1	5.3	2.02	13661	5.7
CUM(3/8" X 100M)	100.0	8.2	3.29	13136	7.9
100M X 0	3.6	10.0	3.53	12773	9.3
TOTAL(3/8" X 0)	100.0	8.3	3.30	13123	7.9

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.8	3.2	1.05	13956	3.9
FLOAT 1.40	85.1	4.1	1.50	13816	4.4
FLOAT 1.60	92.4	5.0	2.08	13652	5.3
CUM(14M X 0)	100.0	8.3	3.51	13045	7.7

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.3
3/8" X 14M	17.7
14M X 100M	4.4
100M X 0	.6

----- MOISTURE, % -----

TOTAL	6.3
AS RECEIVED	3.4

STATE: OHIO
COUNTY: COSHOCTON

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 78

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.40	2.40	2.80	--	--	--	--	--	--
ASH	8.21	4.78	48.70	8.50	4.90	50.10	--	--	--
VOLATILE MATTER	42.72	44.63	25.76	44.22	45.72	26.50	48.33	48.08	53.11
FIXED CARBON	45.67	48.19	22.74	47.28	49.38	23.40	51.67	51.92	46.89
BTU/LB	12574	13339	5324	13016	13667	5478	14226	14371	10977

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	68.56	73.50	19.73	70.98	75.31	20.30	77.57	79.19	40.68
HYDROGEN	5.40	5.64	1.87	5.20	5.51	1.60	5.68	5.79	3.21
NITROGEN	1.28	1.37	.38	1.32	1.40	.39	1.45	1.48	.78
SULFUR	4.97	3.27	22.04	5.14	3.35	22.68	5.62	3.52	45.45
OXYGEN	11.58	11.43	7.28	8.85	9.53	4.93	9.68	10.02	9.88
ASH	8.21	4.78	48.70	8.50	4.90	50.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.45	1.98	20.31	3.57	2.03	20.90	3.91	2.13	41.88
SULFATIC	.06	.05	.07	.06	.05	.07	.07	.05	.14
ORGANIC	1.46	1.24	1.67	1.51	1.27	1.71	1.65	1.34	3.43
TOTAL	4.97	3.27	22.04	5.14	3.35	22.68	5.62	3.52	45.45

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.88	.88
OXYGEN/CARBON	.09	.09
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2155	2145	2405
SOFTENING TEMPERATURE (ST)	2265	2235	2505
FLUID TEMPERATURE (FT)	2350	2330	2590

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.31	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PAPP)	12.01	7.13	66.58

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	5	4 1/2	0
HARDGROVE GRINDABILITY (HGI)	57	--	--

STATE: OHIO

COUNTY: HOLMES

BED: LOWER KITTANNING

RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84

SAMPLE NO. 79

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	42.6	2.9	1.29	14111	4.4
FLOAT 1.40	77.1	4.8	2.23	13772	5.9
FLOAT 1.60	87.3	6.2	2.64	13524	6.8
CUM(1-1/2" X 100M)	100.0	11.0	4.83	12630	11.0
100M X 0	1.3	27.0	4.95	9515	20.1
TOTAL(1-1/2" X 0)	100.0	11.2	4.83	12590	11.1

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	56.7	2.6	.88	14177	3.9
FLOAT 1.40	78.8	3.9	1.60	13930	5.2
FLOAT 1.60	86.6	5.0	2.03	13736	6.0
CUM(3/8" X 100M)	100.0	10.9	5.21	12630	11.3
100M X 0	4.8	20.8	5.38	10693	17.8
TOTAL(3/8" X 0)	100.0	11.4	5.22	12537	11.6

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	49.2	2.1	.53	14192	3.6
FLOAT 1.40	75.6	3.1	1.20	13955	4.4
FLOAT 1.60	87.0	4.8	1.74	13667	5.5
CUM(14M X 0)	100.0	11.0	4.76	12520	11.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	75.2	TOTAL AS RECEIVED
3/8" X 14M	18.3	
14M X 100M	5.2	
100M X 0	1.3	

MOISTURE, %

	5.7
	4.5

STATE: OHIO
COUNTY: HOLMES

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 79

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.50	2.10 2.10	--	--	--	--
ASH	10.93	4.60 49.24	11.44	4.70 50.30	--	--
VOLATILE MATTER	42.70	46.97 25.45	44.71	47.97 26.00	50.48	50.34 52.31
FIXED CARBON	41.88	46.33 23.20	43.85	47.33 23.70	45.52	49.66 47.69
BTU/LB	11898	13394 4965	12459	13681 5072	14068	14356 10205

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	68.33	73.72 --	71.55	75.30 --	80.80	79.01 --
HYDROGEN	5.51	5.72 --	5.25	5.60 --	5.92	5.88 --
NITROGEN	1.59	1.27 4.01	1.67	1.30 4.10	1.88	1.36 8.25
SULFUR	6.09	3.62 25.23	6.38	3.69 25.77	7.20	3.88 51.86
OXYGEN	7.55	11.08 --	3.72	9.41 --	4.20	9.87 --
ASH	10.93	4.60 49.24	11.44	4.70 50.30	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	4.24	1.59 22.00	4.44	1.62 22.47	5.02	1.70 45.22
SULFATIC	.21	.12 .29	.22	.12 .29	.25	.13 .59
ORGANIC	1.64	1.91 2.94	1.72	1.95 3.00	1.94	2.05 6.05
TOTAL	6.09	3.62 25.23	6.38	3.69 25.77	7.20	3.88 51.86

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	INITIAL DEFORMATION (ID)	2050 2060
Al2O3 (ALUMINUM OXIDE)	--	--	SOFTENING TEMPERATURE (ST)	2090 2100
Fe2O3 (IRON OXIDE)	--	--	FLUID TEMPERATURE (FT)	2130 2140
TiO2 (TITANIUM OXIDE)	--	--	----- MISCELLANEOUS DATA, % -----	
CaO (CALCIUM OXIDE)	--	--	CL (CHLORINE) (ANALYZED)	RAW FL 1.60 SK 1.60
MgO (MAGNESIUM OXIDE)	--	--	NA (SODIUM) (CALCULATED)	.13 --
Na2O (SODIUM OXIDE)	--	--	MINERAL MATTER (PARR)	14.50 7.11 57.11
K2O (POTASSIUM OXIDE)	--	--	----- PHYSICAL PARAMETERS, INDEX -----	
SO3 (SULFITES)	--	--	FREE SWELLING (FSI)	RAW FL 1.60 SK 1.60

COAL UTILIZATION RATIOS

	AS RECEIVED			
	RAW	FL 1.60		
BASE/ACID	--	--	HARDGROVE GRINDABILITY (HGI)	RAW FL 1.60 SK 1.60
DOLOMITE	--	--	3 1/2 49	--
HYDROGEN/CARBON	.88	.89		
OXYGEN/CARBON	.06	.09		
R250	--	--		
SILICA	--	--		
SILICA/ALUMINA	--	--		

STATE: OHIO
COUNTY: HOLMES

BED: LOWER KITANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 80

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	65.8	2.4	47	2.15	14130	3.0
FLOAT 1.40	89.8	3.5	77	2.46	13962	3.5
FLOAT 1.60	93.8	4.2	88	2.57	13844	3.7
CUM(1-1/2" X 100M)	100.0	7.3	2.04	3.68	13284	5.5
100M X 0	1.4	18.6	2.32	4.59	11163	8.2
TOTAL(1-1/2" X 0)	100.0	7.5	2.04	3.69	13254	5.6

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	66.9	1.9	30	1.89	14240	2.7
FLOAT 1.40	88.1	3.0	57	2.22	14045	3.2
FLOAT 1.60	92.8	3.7	71	2.37	13915	3.4
CUM(3/8" X 100M)	100.0	7.4	1.96	3.59	13262	5.4
100M X 0	5.1	14.6	2.19	4.49	11895	7.5
TOTAL(3/8" X 0)	100.0	7.8	1.97	3.64	13192	5.5

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	71.4	1.8	24	2.08	14190	2.9
FLOAT 1.40	86.9	2.6	42	2.25	14054	3.2
FLOAT 1.60	92.0	3.3	59	2.41	13921	3.5
CUM(14M X 0)	100.0	7.4	2.13	3.82	13162	5.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %		MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"		
1-1/2" X 3/8"	76.0	7.0
3/8" X 14M	17.7	5.2
14M X 100M	4.9	
100M X 0	1.4	
TOTAL AS RECEIVED		

STATE: OHIO
COUNTY: HOLMES

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 80

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	5.20	4.90 4.90	--	--	--	--
ASH	7.30	3.26 53.54	7.70	3.43 56.30	--	--
VOLATILE MATTER	42.75	44.68 22.63	45.09	46.98 23.80	48.85	48.65 54.46
FIXED CARBON	44.75	47.15 18.92	47.21	49.58 19.90	51.14	51.34 45.54
BTU/LB	12438	13221 4051	13120	13902 4259	14214	14396 9747

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	69.24	72.94 --	73.04	76.70 --	79.13	79.42 --
HYDROGEN	5.53	5.78 --	5.22	5.50 --	5.66	5.70 --
NITROGEN	1.81	1.43 --	1.91	1.50 --	2.07	1.55 --
SULFUR	3.78	2.29 19.11	3.99	2.41 20.09	4.32	2.50 45.97
OXYGEN	12.34	14.30 --	8.14	10.46 --	8.82	10.83 --
ASH	7.30	3.26 53.54	7.70	3.43 56.30	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.04	.55 18.87	2.15	.58 19.84	2.33	.60 45.40
SULFATIC	.11	.06 .02	.12	.06 .03	.12	.06 .05
ORGANIC	1.63	1.68 .21	1.72	1.77 .23	1.86	1.83 .51
TOTAL	3.78	2.29 19.11	3.99	2.41 20.09	4.32	2.50 45.97

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.86	.86	--	--	--	--
OXYGEN/CARBON	.08	.10	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--

STATE: OHIO
COUNTY: HOLMES

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 81

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.7	3.0	.84	14015	3.3
FLOAT 1.40	74.7	5.3	1.60	13656	4.6
FLOAT 1.60	88.3	7.2	2.24	13315	5.9
CUM(1-1/2" X 100M)	100.0	11.9	4.30	12524	9.5
100M X 0	1.5	28.6	3.91	9642	9.7
TOTAL(1-1/2" X 0)	100.0	12.2	4.29	12481	9.6

--- SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.7	2.5	.60	14090	4.1
FLOAT 1.40	74.5	4.6	1.32	13727	5.0
FLOAT 1.60	87.5	6.5	2.04	13397	6.2
CUM(3/8" X 100M)	100.0	11.8	4.30	12488	10.0
100M X 0	4.5	25.5	5.12	10172	13.8
TOTAL(3/8" X 0)	100.0	12.4	4.34	12384	10.2

--- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.6	2.3	.48	14147	3.3
FLOAT 1.40	72.0	3.7	.93	13900	4.0
FLOAT 1.60	85.1	5.5	1.58	13595	5.0
CUM(14M X 0)	100.0	12.2	4.35	12444	9.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	75.5
3/8" X 14M	18.0
14M X 100M	5.0
100M X 0	1.5

--- MOISTURE, %

TOTAL	6.9
AS RECEIVED	4.7

STATE: OHIO

COUNTY: HOLMES

BED: LOWER KITTANNING

RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84

SAMPLE NO. 81

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW

FL 1.60

SK 1.60

MOISTURE

ASH

VOLATILE MATTER

FIXED CARBON

BTU/LB

11793

12888

5680

12375

13566

5808

14173

14386

11853

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

CARBON

HYDROGEN

NITROGEN

SULFUR

OXYGEN

ASH

12.09

5.42

49.88

12.69

5.70

51.00

47.56

46.88

55.51

52.44

53.12

44.49

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

PYRITIC

SULFATIC

ORGANIC

TOTAL

6.13

3.34

19.97

6.43

3.52

20.42

7.36

3.73

41.67

8.06

10.02

.02

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

OXIDES

SiO2 (SILICON OXIDE)

Al2O3 (ALUMINUM OXIDE)

Fe2O3 (IRON OXIDE)

TiO2 (TITANIUM OXIDE)

CaO (CALCIUM OXIDE)

MgO (MAGNESIUM OXIDE)

Na2O (SODIUM OXIDE)

K2O (POTASSIUM OXIDE)

SO3 (SULFITES)

1.94

2.20

.33

.77

1.18

.87

.16

.57

.63

.43

.40

4.51

2.41

.20

.33

61.48

40.61

20.36

30.68

22.16

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

AS RECEIVED

RAW

FL 1.60

SK 1.60

INITIAL DEFORMATION (ID)

SOFTENING TEMPERATURE (ST)

FLUID TEMPERATURE (FT)

2360

2000

1950

1940

5.20

1.77

38.97

.02

.07

2.08

1.94

2.48

7.36

3.73

41.67

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

FL 1.60

SK 1.60

COAL UTILIZATION RATIOS

AS RECEIVED

RAW

FL 1.60

BASE/ACID

DOLomite

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

1.84

.27

.36

.08

.87

.07

.08

1.77

FL 1.60

FL 1.60

FL 1.60

FL 1.60

FL 1.60

FL 1.60

FL 1.60

FL 1.60

PHYSICAL PARAMETERS, INDEX

AS RECEIVED

RAW

FL 1.60

FREE SWELLING

HARDGROVE GRINDABILITY (HGI)

49

3

2 1/2

1.60

FL 1.60

FL 1.60

FL 1.60

FL 1.60

FL 1.60

FL 1.60

FL 1.60

FL 1.60

STATE: OHIO
COUNTY: JEFFERSON
BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 84
SAMPLE NO. 82

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	TOTAL SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.9	41.1	4.2	.62	1.65	13906	2.4
FLOAT 1.40	70.5	82.4	6.9	1.23	2.44	13404	3.6
FLOAT 1.60	84.4	95.5	9.2	1.63	2.95	12976	4.5
FLOAT 1.90	88.9	98.6	10.6	1.85	3.19	12715	5.0
CUM(1-1/2" X 100M)	100.0	100.0	17.3	2.51	3.80	11468	6.6
100M X 0	.3	.3	18.4	4.65	6.18	11264	11.0
TOTAL(1-1/2" X 0)	100.0	100.0	17.3	2.52	3.81	11468	6.6

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	TOTAL SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.3	56.3	3.9	.49	1.49	13962	2.1
FLOAT 1.40	71.5	84.9	5.6	.85	1.95	13646	2.9
FLOAT 1.60	82.8	95.8	7.5	1.20	2.39	13292	3.6
FLOAT 1.90	88.9	98.6	10.6	1.85	3.19	12715	5.0
CUM(3/8" X 100M)	100.0	100.0	17.2	2.51	3.82	11487	6.7
100M X 0	1.0	1.0	19.5	4.26	5.74	11059	10.4
TOTAL(3/8" X 0)	100.0	100.0	17.2	2.53	3.84	11483	6.7

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	TOTAL SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.2	36.9	3.8	.43	1.41	13981	2.0
FLOAT 1.40	68.7	81.9	5.6	.59	1.66	13646	2.4
FLOAT 1.60	83.1	96.2	7.7	.88	2.02	13255	3.0
FLOAT 1.90	88.9	98.6	10.6	1.85	3.19	12715	5.0
CUM(14M X 0)	100.0	100.0	17.4	2.69	3.93	11450	6.9

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--		
3/8" X 14M	--		
14M X 100M	--		
100M X 0	.3		
		TOTAL	2.7
		AS RECEIVED	1.8

----- MOISTURE, % -----

STATE: OHIO	BED: LOWER KITTANNING	BED CODE: 84
COUNTY: JEFFERSON	RANK: HIGH VOLATILE A BITUMINOUS	SAMPLE NO. 82
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
RAW	FL 1.60 SK 1.60	FL 1.60 SK 1.60
MOISTURE	1.80	17.20
ASH	16.89	37.50
VOLATILE MATTER	36.92	45.41
FIXED CARBON	44.39	54.59
BTU/LB	12232	15043
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
RAW	FL 1.60 SK 1.60	FL 1.60 SK 1.60
CARBON	--	--
HYDROGEN	--	--
NITROGEN	--	--
SULFUR	3.46	4.26
OXYGEN	--	--
ASH	16.89	--
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
RAW	FL 1.60 SK 1.60	FL 1.60 SK 1.60
PYRITIC	2.66	3.27
SULFATIC	.16	.19
ORGANIC	.65	.80
TOTAL	3.46	4.26
----- MINERAL ANALYSIS OF ASH, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
RAW	FL 1.60 SK 1.60	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--
----- COAL UTILIZATION RATIOS -----		
	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--
----- FUSIBILITY OF ASH, DEGREES F -----		
	(IN OXIDIZING ATMOSPHERE)	
RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--
SOFTENING TEMPERATURE (ST)	--	--
FLUID TEMPERATURE (FT)	--	--
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	20.52	--
----- PHYSICAL PARAMETERS, INDEX -----		
	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--
HARDGROVE GRINDABILITY (HGI)	--	--

STATE: OHIO
COUNTY: LAWRENCE

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 83

CUMULATIVE WASHABILITY DATA (DRY BASIS)

1-1/2" X 100M MATERIAL

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.5	4.0	.70	1.38	13944	2.0
FLOAT 1.40	74.8	7.2	1.83	2.78	13348	4.2
FLOAT 1.60	88.1	9.4	2.31	3.35	12939	5.2
FLOAT 1.90	93.0	10.9	2.56	3.64	12659	5.8
CUM(1-1/2" X 100M)	100.0	14.4	3.54	4.72	12008	7.9
100M X 0	.1	31.1	7.87	9.11	8900	20.5
TOTAL(1-1/2" X 0)	100.0	14.4	3.54	4.72	12005	7.9

3/8" X 100M MATERIAL

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.0	3.1	.41	1.03	14111	1.5
FLOAT 1.40	76.6	4.7	.83	1.56	13813	2.3
FLOAT 1.60	85.8	6.4	1.18	1.95	13497	2.9
FLOAT 1.90	93.0	10.9	2.56	3.64	12659	5.8
CUM(3/8" X 100M)	100.0	13.3	3.28	4.44	12213	7.3
100M X 0	.7	27.7	7.24	8.97	9533	18.8
TOTAL(3/8" X 0)	100.0	13.4	3.31	4.47	12194	7.3

14M X 0 MATERIAL

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.6	2.5	.26	.91	14223	1.3
FLOAT 1.40	66.6	4.3	.62	1.39	13888	2.0
FLOAT 1.60	83.9	7.1	1.08	1.92	13367	2.9
FLOAT 1.90	93.0	10.9	2.56	3.64	12659	5.8
CUM(14M X 0)	100.0	14.6	3.54	4.73	11971	7.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

1-1/2" X 3/8" -- 7.7

3/8" X 14M -- 4.8

14M X 100M --

100M X 0 .1

TOTAL AS RECEIVED

STATE: OHIO
COUNTY: LAWRENCE

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 83

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.80	--	--	--	--	--
ASH	13.52	--	14.20	--	--	--
VOLATILE MATTER	41.32	--	43.40	--	50.58	--
FIXED CARBON	40.36	--	42.40	--	49.42	--
BTU/LB	12125	--	12736	--	14844	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.13	--	4.34	--	5.06	--
OXYGEN	--	--	--	--	--	--
ASH	13.52	--	14.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.46	--	3.64	--	4.24	--
SULFATIC	.15	--	.16	--	.19	--
ORGANIC	.51	--	.54	--	.63	--
TOTAL	4.13	--	4.34	--	5.06	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
--	-----	---------

BASE/ACID

DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)	--
HARDGROVE GRINDABILITY (HGI)	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

INITIAL DEFORMATION (ID)	--
SOFTENING TEMPERATURE (ST)	--
FLUID TEMPERATURE (FT)	--

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)	--
NA (SODIUM) (CALCULATED)	--
MINERAL MATTER (PARR)	17.72

STATE: OHIO
COUNTY: MAHONING

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 84

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	78.9	2.0	.42	14530	1.3
FLOAT 1.40	95.5	2.9	.69	14364	1.8
FLOAT 1.60	97.4	3.1	.76	14327	1.9
CUM(1-1/2" X 100M)	100.0	4.4	1.17	14088	2.5
100M X 0	.3	18.1	2.11	11562	6.2
TOTAL(1-1/2" X 0)	100.0	4.5	1.18	14068	2.6

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	87.4	1.5	.15	14622	.9
FLOAT 1.40	94.0	2.0	.25	14530	1.0
FLOAT 1.60	95.9	2.2	.31	14493	1.1
CUM(3/8" X 100M)	100.0	4.3	1.17	14106	2.4
100M X 0	3.8	9.4	1.52	13166	3.2
TOTAL(3/8" X 0)	100.0	4.5	1.18	14070	2.5

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	83.5	1.0	.05	14715	.8
FLOAT 1.40	92.7	1.4	.06	14641	.8
FLOAT 1.60	95.6	1.9	.09	14549	.9
CUM(14M X 0)	100.0	4.4	1.13	14088	2.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	78.8
3/8" X 14M	15.5
14M X 100M	4.9
100M X 0	.8

TOTAL
AS RECEIVED

5.6
3.7

STATE: OHIO
COUNTY: MAHONING
BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 84
SAMPLE NO. 84

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.70	1.90	1.40	--	--	--	--	--	--
ASH	4.41	1.94	60.05	4.58	1.98	60.90	--	--	--
VOLATILE MATTER	38.05	39.58	21.00	39.52	40.35	21.30	41.41	41.16	54.48
FIXED CARBON	53.84	56.58	17.55	55.91	57.68	17.80	58.59	58.84	45.52
BTU/LB	13577	14218	3619	14098	14494	3670	14774	14786	9386

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	76.01	80.26	14.05	78.93	81.82	14.25	82.71	83.47	36.44
NITROGEN	5.43	5.50	1.31	5.21	5.39	1.17	5.46	5.50	3.00
SULFUR	1.66	1.75	.36	1.72	1.78	.36	1.80	1.82	.92
OXYGEN	10.78	9.96	--	10.78	9.96	--	10.78	9.96	--
ASH	4.41	1.94	60.05	4.58	1.98	60.90	8.15	8.60	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.15	.08	21.10	1.19	.08	21.40	1.25	.08	54.72
SULFATIC	.00	.00	.00	.00	.00	.00	.00	.00	.00
ORGANIC	.57	.51	1.89	.59	.52	1.92	.62	.53	4.91
TOTAL	1.71	.59	22.99	1.78	.60	23.32	1.87	.61	59.64

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO ₂ (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al ₂ O ₃ (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe ₂ O ₃ (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO ₂ (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na ₂ O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K ₂ O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO ₃ (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	.79	.79	.79	.79	.79	.79	.79	.79	.79
OXYGEN/CARBON	.07	.07	.07	.07	.07	.07	.07	.07	.07
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING	--	--	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--

STATE: OHIO
COUNTY: MAHONING
BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 84
SAMPLE NO. 85

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	76.0	2.2	.63	14431	1.4
FLOAT 1.40	97.6	3.1	1.10	14274	2.0
FLOAT 1.60	98.9	3.2	1.18	14256	2.1
CUM(1-1/2" X 100M)	100.0	3.7	1.40	14169	2.4
100M X 0	1.0	14.0	1.44	12367	5.4
TOTAL(1-1/2" X 0)	100.0	3.8	1.40	14151	2.5

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	85.4	1.5	.32	14553	.9
FLOAT 1.40	95.2	2.0	.53	14466	1.2
FLOAT 1.60	97.4	2.3	.69	14414	1.5
CUM(3/8" X 100M)	100.0	3.5	1.40	14204	2.5
100M X 0	4.7	8.2	2.28	13382	4.4
TOTAL(3/8" X 0)	100.0	3.7	1.44	14165	2.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	89.3	1.3	.11	14588	.8
FLOAT 1.40	94.3	1.6	.20	14536	.9
FLOAT 1.60	96.2	1.9	.31	14484	1.1
CUM(14M X 0)	100.0	3.8	1.39	14151	2.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---		--- MOISTURE, % ---	
SAMPLE CRUSHED TO PASS 1-1/2"		TOTAL AS RECEIVED	
1-1/2" X 3/8"	82.4	4.5	
3/8" X 14M	13.0	2.9	
14M X 100M	3.6		
100M X 0	1.0		

STATE: OHIO
COUNTY: MAHONING

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 85

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.90	2.30	1.00	--	--	--
ASH	3.84	1.78	49.33	3.95	1.82	49.82
VOLATILE MATTER	37.84	39.41	8.89	38.97	40.34	8.98
FIXED CARBON	55.42	56.51	40.79	57.08	57.84	41.20
BTU/lb	13753	14127	6040	14164	14459	6101
				14747	14728	12158

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.75	.79	28.67	1.80	.81	28.96
OXYGEN	--	--	--	--	--	--
ASH	3.84	1.78	49.33	3.95	1.82	49.82

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.27	.27	28.44	1.31	.28	28.73
SULFATIC	.03	.01	.05	.03	.01	.05
ORGANIC	.45	.51	.18	.46	.52	.18
TOTAL	1.75	.79	28.67	1.80	.81	28.96

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLomite	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

FREE SWELLING	RAW	FL 1.60	SK 1.60
HARDGROVE GRINDABILITY (HGI)	4 1/2	5	1 1/2
	53	52	--

STATE: OHIO
COUNTY: MAHONING
BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 84
SAMPLE NO. 86

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.9	4.3	.75	14029	2.5
FLOAT 1.40	85.5	6.0	.93	13734	2.8
FLOAT 1.60	92.4	7.3	.96	13508	2.9
CUM(1-1/2" X 100M)	100.0	11.5	1.59	12778	4.0
100M X 0	1.2	23.3	3.34	10729	8.5
TOTAL(1-1/2" X 0)	100.0	11.6	1.61	12754	4.1

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.5	3.1	.44	14237	2.0
FLOAT 1.40	84.4	5.2	.71	13873	2.4
FLOAT 1.60	91.4	6.6	.80	13629	2.6
CUM(3/8" X 100M)	100.0	11.2	1.59	12831	3.9
100M X 0	4.8	20.1	3.16	11285	7.6
TOTAL(3/8" X 0)	100.0	11.6	1.67	12756	4.1

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.4	3.0	.33	14255	1.8
FLOAT 1.40	79.3	4.5	.50	13994	2.1
FLOAT 1.60	90.0	6.3	.70	13682	2.4
CUM(14M X 0)	100.0	11.6	1.69	12761	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.6
3/8" X 14M	19.3
14M X 100M	5.9
100M X 0	1.2

--- MOISTURE, % ---

TOTAL AS RECEIVED	4.3
	3.2

STATE: OHIO
COUNTY: MAHONING

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 86

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.20	1.70	--	--	--	--
ASH	11.04	6.49	11.40	6.60	42.32	41.98
VOLATILE MATTER	36.29	38.54	37.49	39.21	57.68	58.02
FIXED CARBON	49.47	53.27	51.11	54.19	--	--
BTU/LB	12439	13349	12850	13580	14503	14540

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	69.77	74.90	72.08	76.20	81.35	81.58
HYDROGEN	5.01	5.29	4.81	5.19	5.43	5.56
NITROGEN	1.45	1.57	1.50	1.60	1.69	1.71
SULFUR	2.75	1.74	2.84	1.77	3.21	1.90
OXYGEN	9.98	10.00	7.37	8.64	8.32	9.25
ASH	11.04	6.49	11.40	6.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.68	.62	1.74	.63	1.96	.67
SULFATIC	.04	.02	.02	.25	.05	.02
ORGANIC	1.03	1.10	1.06	1.12	1.20	1.20
TOTAL	2.75	1.74	2.84	1.77	3.21	1.90

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.80	.82	--	--	--	--
OXYGEN/CARBON	.08	.09	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	4	1/2	5	1/2	5	1/2
FREE SWELLING (FSL)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	56	56	56	56	56	56

STATE: OHIO
COUNTY: MUSKINGUM

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 87

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.0	3.8	.92	13981	2.6
FLOAT 1.40	82.5	7.6	2.04	13274	4.7
FLOAT 1.60	93.3	8.8	2.62	13050	5.9
FLOAT 1.90	96.2	9.6	2.89	12901	6.4
CUM(1-1/2" X 100M)	100.0	11.6	3.47	12529	7.7
100M X 0	.1	30.3	10.35	9049	28.6
TOTAL(1-1/2" X 0)	100.0	11.6	3.48	12526	7.8

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.6	2.9	.27	14148	1.4
FLOAT 1.40	85.2	4.2	.54	13906	1.9
FLOAT 1.60	89.4	4.8	.80	13795	2.3
FLOAT 1.90	96.2	9.6	2.89	12901	6.4
CUM(3/8" X 100M)	100.0	10.4	3.25	12752	7.2
100M X 0	.8	22.3	8.54	10538	20.6
TOTAL(3/8" X 0)	100.0	10.5	3.29	12735	7.2

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.7	2.2	.24	14279	1.2
FLOAT 1.40	83.1	4.8	.58	13795	1.9
FLOAT 1.60	88.6	5.4	.74	13683	2.2
FLOAT 1.90	96.2	9.6	2.89	12901	6.4
CUM(14M X 0)	100.0	11.5	3.53	12548	7.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	.1

--- MOISTURE, % ---

TOTAL AS RECEIVED	4.4
	2.6

STATE: OHIO	BED: LOWER KITTANNING		BED CODE: 84	
COUNTY: MUSKINGUM	RANK: HIGH VOLATILE B BITUMINOUS		SAMPLE NO. 87	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M				
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----				
	AS RECEIVED		MOISTURE FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.60	--	--	--
ASH	11.69	--	12.00	--
VOLATILE MATTER	38.86	--	39.90	--
FIXED CARBON	46.85	--	48.10	--
			45.34	--
			54.66	--
BTU/LB	12334	--	12663	--
			14390	--
----- ULTIMATE ANALYSIS, % -----				
	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--
HYDROGEN	--	--	--	--
NITROGEN	--	--	--	--
SULFUR	4.23	--	4.34	--
OXYGEN	--	--	--	--
ASH	11.69	--	12.00	--
			4.94	--
			--	--
----- SULFUR FORMS ANALYSIS, % -----				
	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.51	--	3.60	--
SULFATIC	.07	--	.07	--
ORGANIC	.65	--	.67	--
TOTAL	4.23	--	4.34	--
			--	--
----- MINERAL ANALYSIS OF ASH, % -----				
	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--
SO3 (SULFITES)	--	--	--	--
----- COAL UTILIZATION RATIOS -----				
	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	--	--	--	--
OXYGEN/CARBON	--	--	--	--
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--
----- FUSIBILITY OF ASH, DEGREES F -----				
	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--
----- MISCELLANEOUS DATA, % -----				
	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--
MINERAL MATTER (PARR)	--	--	15.35	--
----- PHYSICAL PARAMETERS, INDEX -----				
	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--

STATE: OHIO
COUNTY: STARK
BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 84
SAMPLE NO. 88

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.5	2.8	.53	14130	3.1
FLOAT 1.40	86.6	4.6	.79	13836	3.7
FLOAT 1.60	93.9	5.8	.89	13649	3.9
CUM(1-1/2" X 100M)	100.0	8.2	1.91	13173	5.7
100M X 0	1.5	14.2	2.59	11973	7.7
TOTAL(1-1/2" X 0)	100.0	8.3	1.92	13155	5.7

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.6	2.4	.41	14193	2.9
FLOAT 1.40	84.4	4.1	.65	13899	3.3
FLOAT 1.60	92.9	5.5	.78	13672	3.5
CUM(3/8" X 100M)	100.0	8.5	1.96	13084	5.8
100M X 0	4.7	13.1	2.91	12183	7.6
TOTAL(3/8" X 0)	100.0	8.7	2.00	13042	5.9

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.7	2.1	.36	14206	2.8
FLOAT 1.40	81.1	3.6	.55	13956	3.2
FLOAT 1.60	92.6	5.2	.73	13693	3.5
CUM(14M X 0)	100.0	8.3	2.07	13085	5.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.4
3/8" X 14M	16.8
14M X 100M	4.3
100M X 0	1.5

MOISTURE, %

TOTAL	5.9
AS RECEIVED	4.5

STATE: OHIO
COUNTY: STARK

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 88

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.50	4.40 1.80	--	--	--	--
ASH	8.24	5.16 48.41	8.63	5.40 49.30	--	--
VOLATILE MATTER	39.44	40.74 24.06	41.30	42.61 24.50	45.20	45.04 48.32
FIXED CARBON	47.81	49.70 25.73	50.07	51.99 26.20	54.80	54.96 51.68
BTU/LB	12451	13063 5154	13038	13664 5248	14269	14444 10352

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	69.71	73.12 26.83	73.00	76.48 27.32	79.89	80.85 53.89
HYDROGEN	5.21	5.47 1.54	4.93	5.21 1.37	5.40	5.51 2.69
NITROGEN	1.35	1.43 .38	1.41	1.50 .39	1.55	1.59 .77
SULFUR	3.61	2.18 21.24	3.78	2.28 21.63	4.14	2.41 42.66
OXYGEN	11.88	12.63 --	8.25	9.12 --	9.03	9.64 --
ASH	8.24	5.16 48.41	8.63	5.40 49.30	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.00	.67 18.05	2.10	.70 18.38	2.30	.74 36.26
SULFATIC	.11	.07 .17	.12	.07 .17	.13	.07 .34
ORGANIC	1.49	1.44 3.02	1.56	1.51 3.08	1.71	1.60 6.07
TOTAL	3.61	2.18 21.24	3.78	2.28 21.63	4.14	2.41 42.66

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	32.39	41.76 22.59
Al2O3 (ALUMINUM OXIDE)	21.50	29.79 12.82
Fe2O3 (IRON OXIDE)	38.89	20.88 60.91
TiO2 (TITANIUM OXIDE)	1.00	1.67 .67
CaO (CALCIUM OXIDE)	.98	1.46 .22
MgO (MAGNESIUM OXIDE)	.63	.80 .40
Na2O (SODIUM OXIDE)	.30	.43 .08
K2O (POTASSIUM OXIDE)	1.52	1.86 .94
SO3 (SULFITES)	.33	.40 .30

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.77	.35
DOLomite	.04	.09
HYDROGEN/CARBON	.81	.82
OXYGEN/CARBON	.08	.09
R250	.57	.76
SILICA	.44	.65
SILICA/ALUMINA	1.51	1.40

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2030	2180
SOFTENING TEMPERATURE (ST)	2130	2300
FLUID TEMPERATURE (FT)	2430	2480
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	.07	--
NA (SODIUM) (CALCULATED)	.02	.02
MINERAL MATTER (PARR)	11.40	7.09 65.14

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSL)	4	--
HARDGROVE GRINDABILITY (HGI)	48	--

STATE: OHIO
COUNTY: STARK

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 89

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.6	48.4	3.9	.91	2.33	13900	3.4
FLOAT 1.40	76.6	84.7	6.2	1.83	2.93	13521	4.3
FLOAT 1.60	85.5	92.6	7.9	2.24	3.24	13242	4.9
CUM(1-1/2" X 100M)	100.0	100.0	14.1	3.42	4.28	12223	7.0
100M X 0	1.6	1.4	22.7	4.24	6.61	10813	12.2
TOTAL(1-1/2" X 0)	100.0	100.0	14.2	3.43	4.32	12201	7.1

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.7	52.1	3.4	.85	2.27	13985	3.2
FLOAT 1.40	76.2	84.5	5.6	1.39	2.79	13602	4.1
FLOAT 1.60	85.2	92.8	7.0	1.76	3.07	13362	4.6
CUM(3/8" X 100M)	100.0	100.0	13.7	3.23	4.36	12270	7.1
100M X 0	6.5	6.1	18.5	4.13	5.60	11499	9.7
TOTAL(3/8" X 0)	100.0	100.0	14.0	3.29	4.44	12220	7.3

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.8	50.4	3.1	.79	2.27	14026	3.2
FLOAT 1.40	71.9	80.7	5.0	1.20	2.66	13696	3.9
FLOAT 1.60	84.4	92.8	6.7	1.68	2.92	13413	4.4
CUM(14M X 0)	100.0	100.0	14.1	3.36	4.46	12200	7.3

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----		----- MOISTURE, % -----	
SAMPLE CRUSHED TO 'ASS 1-1/2"			
1-1/2" X 3/8"	61.7	TOTAL	6.0
3/8" X 14M	29.0	AS RECEIVED	4.1
14M X 100M	7.7		
100M X 0	1.6		

STATE: OHIO
COUNTY: STARK

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 89

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.10	2.60	2.60	--	--	--
ASH	13.91	6.82	53.86	14.50	7.00	55.30
VOLATILE MATTER	38.22	41.73	22.69	39.85	42.85	23.30
FIXED CARBON	43.78	48.85	20.84	45.65	50.15	21.40
BTU/LB	11645	13022	5352	12143	13370	5495
				12143	14376	12293

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	64.63	72.18	27.88	67.39	74.11	28.62
HYDROGEN	5.12	5.49	2.72	4.86	5.34	2.50
NITROGEN	1.27	1.44	.49	1.32	1.48	.50
SULFUR	4.19	2.91	12.50	4.37	2.99	12.84
OXYGEN	10.90	11.16	2.55	7.56	9.08	.24
ASH	13.91	6.82	53.86	14.50	7.00	55.30

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.09	1.47	12.13	3.22	1.51	12.45
SULFATIC	.05	.01	.10	.06	.01	.10
ORGANIC	1.05	1.43	.28	1.09	1.47	.29
TOTAL	4.19	2.91	12.50	4.37	2.99	12.84

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO ₂ (SILICON OXIDE)	38.78	38.14	38.78
Al ₂ O ₃ (ALUMINUM OXIDE)	20.74	25.83	17.72
Fe ₂ O ₃ (IRON OXIDE)	25.16	22.88	27.74
TiO ₂ (TITANIUM OXIDE)	1.00	1.50	.67
CaO (CALCIUM OXIDE)	4.62	3.16	6.16
MgO (MAGNESIUM OXIDE)	.63	.58	.73
Na ₂ O (SODIUM OXIDE)	.27	.47	.46
K ₂ O (POTASSIUM OXIDE)	1.37	1.12	1.40
SO ₃ (SULFITES)	4.61	1.88	4.52

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.53	.43
DOLOMITE	.16	.13
HYDROGEN/CARBON	.87	.86
OXYGEN/CARBON	.08	.09
R250	.67	.71
SILICA	.56	.59
SILICA/ALUMINA	1.87	1.48

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2010	2060	--
SOFTENING TEMPERATURE (ST)	2120	2170	--
FLUID TEMPERATURE (FT)	2210	2260	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.06	--	--
NA (SODIUM) (CALCULATED)	.03	.02	.19
MINERAL MATTER (PAR)	18.06	9.20	66.78

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4	4 1/2	--
HARDGROVE GRINDABILITY (HGI)	53	--	--

STATE: OHIO
COUNTY: STARK
BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 84
SAMPLE NO. 90

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.7	3.2	.85	14051	3.4
FLOAT 1.40	76.1	4.8	1.23	13769	4.1
FLOAT 1.60	82.7	6.4	1.43	13526	4.4
CUM(1-1/2" X 100M)	100.0	15.6	5.24	11947	12.0
100M X 0	1.1	27.0	6.26	9976	16.4
TOTAL(1-1/2" X 0)	100.0	15.7	5.25	11925	12.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.2	2.7	.30	14119	3.2
FLOAT 1.40	75.9	4.0	.74	13908	3.7
FLOAT 1.60	82.1	5.3	1.00	13681	4.0
CUM(3/8" X 100M)	100.0	15.1	4.99	12014	11.8
100M X 0	4.2	20.0	5.80	11173	13.1
TOTAL(3/8" X 0)	100.0	15.3	5.02	11978	11.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.3	2.4	.44	14165	3.2
FLOAT 1.40	73.3	3.7	.74	13949	3.7
FLOAT 1.60	81.5	5.1	.99	13705	4.0
CUM(14M X 0)	100.0	15.2	5.09	11994	12.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	76.9
3/8" X 14M	17.0
14M X 100M	5.0
100M X 0	1.1
TOTAL AS RECEIVED	6.6
	4.7

STATE: OHIO
COUNTY: STARK

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 90

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.70	2.50	--	--	--	--
ASH	14.68	5.07	15.40	5.20	46.37	45.75
VOLATILE MATTER	37.39	42.28	39.23	43.37	53.63	54.25
FIXED CARBON	43.23	50.15	45.37	51.43	141.43	144.42
BTU/LB	11403	13349	11965	13691	4585	11048

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	63.39	73.75	66.51	75.64	78.62	79.79
HYDROGEN	5.06	5.63	4.76	5.49	5.62	5.79
NITROGEN	1.24	1.47	1.30	1.51	1.54	1.59
SULFUR	6.55	2.43	6.87	2.49	8.12	2.63
OXYGEN	9.09	11.65	5.15	9.67	6.09	10.20
ASH	14.68	5.07	15.40	5.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	5.13	1.06	5.38	1.09	6.36	1.15
SULFATIC	.01	.00	.02	.00	.02	.00
ORGANIC	1.41	1.37	1.48	1.40	1.75	1.48
TOTAL	6.55	2.43	6.87	2.49	8.12	2.63

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	31.53	37.93
Al2O3 (ALUMINUM OXIDE)	16.22	26.02
Fe2O3 (IRON OXIDE)	41.46	26.02
TiO2 (TITANIUM OXIDE)	1.00	1.33
CaO (CALCIUM OXIDE)	3.36	2.52
MgO (MAGNESIUM OXIDE)	.56	.76
Na2O (SODIUM OXIDE)	.22	.59
K2O (POTASSIUM OXIDE)	1.08	1.30
SO3 (SULFITES)	.97	1.36

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.96	.48
DOLOMITE	.08	.11
HYDROGEN/CARBON	.86	.87
OXYGEN/CARBON	.06	.10
R250	.52	.69
SILICA	.41	.57
SILICA/ALUMINA	1.94	1.46

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	1960	2000
SOFTENING TEMPERATURE (ST)	2050	2110
FLUID TEMPERATURE (FT)	2160	2200
MISCELLANEOUS DATA, %		
CL (CHLORINE) (ANALYZED)	.12	--
NA (SODIUM) (CALCULATED)	.03	.02
MINERAL MATTER (PARR)	20.41	6.96
		76.51

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	3 1/2	4
HARDGROVE GRINDABILITY (HGI)	53	--

STATE: OHIO
COUNTY: TUSCARAWAS

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 91

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	70.3	3.8	.37	13981	1.2
FLOAT 1.40	90.4	4.5	.71	13851	1.8
FLOAT 1.60	94.7	4.9	.92	13776	2.2
FLOAT 1.90	96.2	5.3	1.07	13702	2.5
CUM(1-1/2" X 100M)	100.0	7.3	1.72	13329	3.8
100M X 0	.2	13.4	3.21	12194	7.0
TOTAL(1-1/2" X 0)	100.0	7.3	1.72	13327	3.8

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	83.7	3.2	.12	14092	.9
FLOAT 1.40	91.5	3.5	.22	14037	1.1
FLOAT 1.60	93.7	3.8	.32	13981	1.3
FLOAT 1.90	96.2	5.3	1.07	13702	2.5
CUM(3/8" X 100M)	100.0	7.2	1.65	13348	3.8
100M X 0	.7	12.6	3.18	12343	6.8
TOTAL(3/8" X 0)	100.0	7.2	1.66	13341	3.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	74.1	3.0	.11	14130	.9
FLOAT 1.40	89.6	3.4	.16	14055	1.0
FLOAT 1.60	93.1	3.8	.22	13981	1.1
FLOAT 1.90	96.2	5.3	1.07	13702	2.5
CUM(14M X 0)	100.0	7.5	1.69	13292	3.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	3.6
3/8" X 14M	2.0
14M X 100M	
100M X 0	

TOTAL
AS RECEIVED

STATE: OHIO	BED: LOWER KITTANNING	BED CODE: 84
COUNTY: TUSCARAWAS	RANK: HIGH VOLATILE A BITUMINOUS	SAMPLE NO. 91
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	2.00	---
ASH	7.35	---
VOLATILE MATTER	40.57	44.76
FIXED CARBON	50.08	55.24
BTU/LB	13448	14835
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	---	---
NITROGEN	---	---
SULFUR	2.38	2.62
OXYGEN	---	---
ASH	7.35	---
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	1.82	2.01
SULFATIC	.12	.13
ORGANIC	.43	.48
TOTAL	2.38	2.62
----- MINERAL ANALYSIS OF ASH, % -----		
	RAW	FL 1.60 SK 1.60
OXIDES	---	---
SiO2 (SILICON OXIDE)	---	---
Al2O3 (ALUMINUM OXIDE)	---	---
Fe2O3 (IRON OXIDE)	---	---
TiO2 (TITANIUM OXIDE)	---	---
CaO (CALCIUM OXIDE)	---	---
MgO (MAGNESIUM OXIDE)	---	---
Na2O (SODIUM OXIDE)	---	---
K2O (POTASSIUM OXIDE)	---	---
SO3 (SULFITES)	---	---
----- COAL UTILIZATION RATIOS -----		
	RAW	FL 1.60
BASE/ACID	---	---
DOLOMITE	---	---
HYDROGEN/CARBON	---	---
OXYGEN/CARBON	---	---
R250	---	---
SILICA	---	---
SILICA/ALUMINA	---	---
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----		
	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	---	---
SOFTENING TEMPERATURE (ST)	---	---
FLUID TEMPERATURE (FT)	---	---
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	---	---
NA (SODIUM) (CALCULATED)	---	---
MINERAL MATTER (PARR)	9.43	---
----- PHYSICAL PARAMETERS, INDEX -----		
	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	---	---
HARDGROVE GRINDABILITY (HGI)	---	---

STATE: OHIO
COUNTY: TUSCARAWAS

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 92

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.1	2.9	.77	14106	3.5
FLOAT 1.40	82.7	5.1	1.44	13713	4.6
FLOAT 1.60	87.7	5.8	1.64	13597	5.0
CUM(1-1/2" X 100M)	100.0	11.5	3.91	12596	8.8
100M X 0	2.2	31.5	15.20	8779	37.5
TOTAL(1-1/2" X 0)	100.0	11.9	4.16	12512	9.2

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.7	2.2	.41	14118	3.2
FLOAT 1.40	80.2	4.2	1.13	13825	4.0
FLOAT 1.60	87.1	5.1	1.49	13664	4.6
CUM(3/8" X 100M)	100.0	11.4	3.83	12562	8.6
100M X 0	5.9	28.2	13.64	9392	31.8
TOTAL(3/8" X 0)	100.0	12.4	4.41	12375	9.7

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.4	2.1	.41	14217	3.2
FLOAT 1.40	73.5	3.6	.92	13938	3.8
FLOAT 1.60	83.6	4.8	1.34	13731	4.4
CUM(14M X 0)	100.0	11.8	3.85	12427	8.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	75.2
3/8" X 14M	17.6
14M X 100M	5.0
100M X 0	2.2

TOTAL AS RECEIVED 6.6 5.0

STATE: OHIO
COUNTY: TUSCARAWAS

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 92

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	5.00	2.90	--	--	--	--
ASH	11.50	4.47	12.10	4.60	46.25	46.70
VOLATILE MATTER	38.62	43.26	40.65	44.55	53.75	53.30
FIXED CARBON	44.89	49.38	47.25	50.85	140.89	144.24
BTU/LB	11765	13361	12385	13760	5776	11002

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	66.31	75.35	69.81	77.60	79.41	81.34
HYDROGEN	5.04	5.52	4.72	5.35	5.37	5.61
NITROGEN	1.17	1.37	1.24	1.41	1.41	1.48
SULFUR	4.91	2.87	5.17	2.96	5.88	3.10
OXYGEN	11.07	10.42	6.97	8.08	7.93	8.47
ASH	11.50	4.47	12.10	4.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.54	1.17	3.73	1.21	4.24	1.26
SULFATIC	.14	.06	.15	.06	.17	.06
ORGANIC	1.23	1.64	1.29	1.69	1.47	1.78
TOTAL	4.91	2.87	5.17	2.96	5.88	3.10

MINERAL ANALYSIS OF ASH, %
FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.81	.83	--	--	--	--
OXYGEN/CARBON	.10	.08	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: OHIO
COUNTY: TUSCARAWAS

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 93

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.8	3.1	.84	14090	3.7
FLOAT 1.40	88.3	4.3	1.39	13869	4.6
FLOAT 1.60	91.1	4.7	1.53	13806	4.8
CUM(1-1/2" X 100M)	100.0	9.5	2.93	12944	7.4
100M X 0	1.3	24.2	3.67	10001	12.6
TOTAL(1-1/2" X 0)	100.0	9.7	2.94	12905	7.5

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.0	2.5	.48	14190	3.8
FLOAT 1.40	86.5	3.7	.95	13968	4.5
FLOAT 1.60	90.6	4.2	1.18	13877	4.8
CUM(3/8" X 100M)	100.0	9.2	2.91	12937	7.5
100M X 0	3.6	16.7	3.60	11445	10.6
TOTAL(3/8" X 0)	100.0	9.5	2.93	12884	7.6

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.7	2.3	.35	14090	3.4
FLOAT 1.40	84.5	4.4	1.05	13760	4.4
FLOAT 1.60	91.0	5.1	1.38	13646	4.9
CUM(14M X 0)	100.0	9.7	2.97	12758	7.7

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.3
3/8" X 14M	17.3
14M X 100M	5.1
100M X 0	1.3

----- MOISTURE, % -----

TOTAL	5.6
AS RECEIVED	4.9

STATE: OHIO
COUNTY: TUSCARAWAS

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 93

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.90	4.90	--	--	--	--
ASH	9.61	4.66	10.10	4.90	49.39	48.79
VOLATILE MATTER	42.22	44.13	25.20	46.40	50.61	51.21
FIXED CARBON	43.27	46.31	15.98	48.70	--	--
BTU/LB	12079	13006	3545	12701	14128	14380
				13676	3728	8609

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	66.05	71.97	69.45	75.68	77.26	79.57
HYDROGEN	5.39	5.64	5.10	5.36	5.67	5.64
NITROGEN	1.16	1.32	1.22	1.39	1.36	1.46
SULFUR	4.86	3.00	5.11	3.15	5.68	3.31
OXYGEN	12.93	13.42	9.01	9.53	10.03	10.02
ASH	9.61	4.66	10.10	4.90	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.94	1.18	3.10	1.24	3.44	1.31
SULFATIC	.12	.08	.13	.08	.14	.08
ORGANIC	1.80	1.74	1.89	1.83	2.10	1.92
TOTAL	4.86	3.00	5.11	3.15	5.68	3.31

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.88	.85	--	--	--	--
OXYGEN/CARBON	.10	.09	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--
MISCELLANEOUS DATA, %	--	--	--	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--
PHYSICAL PARAMETERS, INDEX	--	--	--	--	--	--
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: OHIO

COUNTY: TUSCARAWAS

BED: LOWER KITTANNING

RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84

SAMPLE NO. 94

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	16.3	3.1	.71	14068	3.5
FLOAT 1.40	80.0	6.7	1.74	13369	5.5
FLOAT 1.60	89.3	7.7	2.17	13200	6.3
CUM(1-1/2" X 100M)	100.0	12.5	3.61	12345	9.0
100M X 0	1.5	23.8	7.66	10347	21.6
TOTAL(1-1/2" X 0)	100.0	12.7	3.67	12315	9.2

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	32.3	2.7	.49	14207	3.2
FLOAT 1.40	77.9	5.7	1.23	13614	4.6
FLOAT 1.60	89.5	7.1	1.82	13365	5.6
CUM(3/8" X 100M)	100.0	11.8	3.30	12506	8.5
100M X 0	5.5	23.0	7.67	10491	20.5
TOTAL(3/8" X 0)	100.0	12.4	3.54	12396	9.1

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	39.7	2.8	.59	14083	3.5
FLOAT 1.40	74.3	5.0	1.03	13692	4.3
FLOAT 1.60	87.7	6.5	1.57	13421	5.2
CUM(14M X 0)	100.0	12.1	3.54	12426	9.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	70.5
3/8" X 14M	23.0
14M X 100M	5.0
100M X 0	1.5

MOISTURE, %

TOTAL	6.9
AS RECEIVED	4.7

STATE: OHIO
COUNTY: TUSCARAWAS

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 94

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.70	4.80	--	--	--	--
ASH	11.99	6.44	12.58	6.76	--	--
VOLATILE MATTER	38.24	40.50	42.54	22.80	45.90	45.63
FIXED CARBON	45.07	48.27	47.29	50.70	54.10	54.38
BTU/LB	11776	12741	12357	13383	14136	14354

----- ULTIMATE ANALYSIS, % -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	65.48	70.67	68.71	74.23	78.60	79.61
HYDROGEN	5.01	5.50	4.71	5.21	5.39	5.59
NITROGEN	1.14	1.24	1.20	1.31	1.37	1.40
SULFUR	5.19	3.40	5.45	3.57	6.23	3.83
OXYGEN	11.18	12.76	7.35	8.92	8.40	9.57
ASH	11.99	6.44	12.58	6.76	--	--

----- SULFUR FORMS ANALYSIS, % -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.30	1.62	3.46	1.70	3.96	1.82
SULFATIC	.13	.10	.14	.16	.15	.12
ORGANIC	1.76	1.68	1.85	1.76	2.12	1.89
TOTAL	5.19	3.40	5.45	3.57	6.23	3.83

----- MINERAL ANALYSIS OF ASH, % -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	36.65	31.53	34.46	17.59	39.60	36.41
SiO2 (SILICON OXIDE)	18.86	25.27	.14	.16	.15	.12
Al2O3 (ALUMINUM OXIDE)	38.60	36.32	1.85	1.76	2.12	1.89
Fe2O3 (IRON OXIDE)	1.00	.67	5.45	3.57	6.23	3.83
TiO2 (TITANIUM OXIDE)	.87	1.76	--	--	--	--
CaO (CALCIUM OXIDE)	.40	.53	--	--	--	--
MgO (MAGNESIUM OXIDE)	.16	.35	--	--	--	--
Na2O (SODIUM OXIDE)	.92	1.18	--	--	--	--
K2O (POTASSIUM OXIDE)	.02	.14	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

----- COAL UTILIZATION RATIOS -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.72	.70	--	--	--	--
DOLOMITE	.03	.06	--	--	--	--
HYDROGEN/CARBON	.82	.84	--	--	--	--
OXYGEN/CARBON	.08	.09	--	--	--	--
R250	.58	.60	--	--	--	--
SILICA	.48	.45	--	--	--	--
SILICA/ALUMINA	1.94	1.25	--	--	--	--

----- PHYSICAL PARAMETERS, INDEX -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	5	5	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	51	51	--	--	--	--

STATE: OHIO

COUNTY: TUSCARAWAS

BED: LOWER KITTANNING

RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84

SAMPLE NO. 95

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.6	2.3	.59	14092	3.6
FLOAT 1.40	85.4	4.3	1.26	13753	4.7
FLOAT 1.60	90.8	5.1	1.50	13618	5.2
CUM(1-1/2" X 100M)	100.0	9.4	3.34	12853	8.5
100M X 0	1.1	20.7	6.82	10845	18.4
TOTAL(1-1/2" X 0)	100.0	9.5	3.38	12831	8.6

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.9	1.9	.46	14163	3.3
FLOAT 1.40	83.2	3.4	.99	13903	4.1
FLOAT 1.60	90.2	4.5	1.36	13724	4.7
CUM(3/8" X 100M)	100.0	9.1	3.30	12884	8.2
100M X 0	4.3	17.0	5.81	11501	14.6
TOTAL(3/8" X 0)	100.0	9.4	3.41	12825	8.5

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.2	2.0	.50	14166	3.4
FLOAT 1.40	81.2	2.8	.74	14006	3.9
FLOAT 1.60	89.1	3.9	1.04	13822	4.4
CUM(14M X 0)	100.0	9.1	3.29	12902	8.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	74.9
3/8" X 14M	19.0
14M X 100M	5.0
100M X 0	1.1
TOTAL	100.0
AS RECEIVED	5.9

MOISTURE, %

TOTAL	8.6
AS RECEIVED	5.9

STATE: OHIO
COUNTY: TUSCARAWAS

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 95

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	5.90	5.70 1.50	--	--	--	--
ASH	8.91	3.77 50.63	9.46	4.00 51.40	--	--
VOLATILE MATTER	39.26	41.61 22.75	41.72	44.13 23.10	46.08	45.97
FIXED CARBON	45.94	48.92 25.12	48.82	51.87 25.50	53.92	54.03
BTU/LB	12092	13021 5324	12851	13808 5405	14194	14383
						11121

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	66.95	71.65 --	71.15	75.98 --	78.59	79.15 --
HYDROGEN	5.27	5.54 --	4.91	5.20 --	5.42	5.42 --
NITROGEN	1.31	1.42 .49	1.39	1.51 .50	1.54	1.57 1.03
SULFUR	5.40	3.15 23.49	5.74	3.34 23.85	6.34	3.48 49.08
OXYGEN	12.15	14.47 --	7.34	9.97 --	8.11	10.38 --
ASH	8.91	3.77 50.63	9.46	4.00 51.40	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.00	.88 21.36	3.19	.94 21.68	3.52	.98 44.61
SULFATIC	.14	.10 .18	.15	.18	.16	.11
ORGANIC	2.26	2.17 1.96	2.41	2.30 1.99	2.66	2.39 4.09
TOTAL	5.40	3.15 23.49	5.74	3.34 23.85	6.34	3.48 49.08

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	29.83	30.90 27.70
Al2O3 (ALUMINUM OXIDE)	15.08	21.50 11.69
Fe2O3 (IRON OXIDE)	48.04	39.18 55.48
TiO2 (TITANIUM OXIDE)	1.00	1.33 .67
CaO (CALCIUM OXIDE)	.90	2.08 .25
MgO (MAGNESIUM OXIDE)	.50	.66 .36
Na2O (SODIUM OXIDE)	.52	.85 .05
K2O (POTASSIUM OXIDE)	1.13	1.23 .99
SO3 (SULFITES)	.63	1.22 .31

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	1.11	.82
DOLOMITE	.03	.06
HYDROGEN/CARBON	.83	.82
OXYGEN/CARBON	.08	.10
R250	.48	.56
SILICA	.38	.43
SILICA/ALUMINA	1.98	1.44

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	1960	2010
SOFTENING TEMPERATURE (ST)	2020	2060
FLUID TEMPERATURE (FT)	2070	2110

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.11	--
NA (SODIUM) (CALCULATED)	.04	.03
MINERAL MATTER (PARR)	13.38	6.26
		68.63

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	3 1/2	2 1/2
HARDGROVE GRINDABILITY (HGI)	55	--

STATE: OHIO
 COUNTY: TUSCARAWAS
 BED: LOWER KITTANNING
 RANK: HIGH VOLATILE B BITUMINOUS
 BED CODE: 84
 SAMPLE NO. 96

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	36.4	2.6	.73	14204	3.4
FLOAT 1.40	71.8	4.7	1.63	13813	5.1
FLOAT 1.60	85.8	6.5	2.36	13478	6.7
FLOAT 1.90	90.8	8.0	2.78	13199	7.6
CUM(1-1/2" X 100M)	100.0	12.6	4.35	12343	10.9
100M X 0	.1	22.5	7.41	10501	19.9
TOTAL(1-1/2" X 0)	100.0	12.6	4.35	12341	10.9

SAMPLE CRUSHED TO PASS 3/8"
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.8	1.9	.49	14334	3.0
FLOAT 1.40	76.2	3.4	1.14	14055	4.2
FLOAT 1.60	85.3	4.8	1.68	13795	5.2
FLOAT 1.90	90.8	8.0	2.78	13199	7.6
CUM(3/8" X 100M)	100.0	12.1	4.11	12436	10.2
100M X 0	.6	19.7	6.68	11022	17.3
TOTAL(3/8" X 0)	100.0	12.1	4.13	12428	10.2

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.9	1.7	.44	14372	3.0
FLOAT 1.40	74.9	3.0	.97	14130	3.9
FLOAT 1.60	84.2	4.8	1.58	13795	5.1
FLOAT 1.90	90.8	8.0	2.78	13199	7.6
CUM(14M X 0)	100.0	12.7	4.28	12324	10.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.1

MOISTURE, %

TOTAL	9.1
AS RECEIVED	4.8

STATE: OHIO
COUNTY: TUSCARAWAS

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 96

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.80	--	--	--	--	--
ASH	12.00	--	--	12.60	--	--
VOLATILE MATTER	38.27	--	--	40.20	--	--
FIXED CARBON	44.93	--	--	47.20	--	--
BTU/LB	12387	--	--	13012	--	--
				14888	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	5.93	--	--	6.23	--	--
OXYGEN	--	--	--	--	7.13	--
AJH	12.00	--	--	12.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.45	--	--	4.68	--	--
SULFATIC	.26	--	--	.27	--	--
ORGANIC	1.22	--	--	1.28	--	--
TOTAL	5.93	--	--	6.23	--	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	17.03	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
--	-----	---------

BASE/ACID

DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: OHIO
COUNTY: TUSCARAWAS
BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 84
SAMPLE NO. 97

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	17.0	5.1	1.23	14090	4.1
FLOAT 1.40	66.0	8.6	2.27	13385	5.8
FLOAT 1.60	85.1	11.1	3.23	12930	7.5
CUM(1-1/2" X 100M)	100.0	16.8	4.68	11841	10.7
100M X 0	1.5	25.6	7.06	10010	20.6
TOTAL(1-1/2" X 0)	100.0	16.8	4.72	11814	10.9

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.2	4.4	.64	14090	3.5
FLOAT 1.40	66.3	7.5	1.42	13461	4.7
FLOAT 1.60	83.5	9.9	2.30	13063	6.2
CUM(3/8" X 100M)	100.0	16.2	4.42	11868	10.2
100M X 0	4.8	25.7	8.12	9991	20.6
TOTAL(3/8" X 0)	100.0	16.7	4.60	11778	10.7

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.3	4.0	.71	14220	3.1
FLOAT 1.40	62.5	6.3	1.27	13742	3.8
FLOAT 1.60	80.9	8.8	2.09	13296	5.1
CUM(14M X 0)	100.0	16.4	4.79	11820	10.4

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---

SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	76.7
3/8" X 14M	16.6
14M X 100M	5.2
100M X 0	1.5

--- MOISTURE, % ---

TOTAL	4.6
AS RECEIVED	3.6

STATE: OHIO
COUNTY: TUSCARAWAS

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 97

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	3.60	3.40	--	--	--	--
ASH	16.48	8.84	17.10	9.15	52.78	53.04
VOLATILE MATTER	42.18	46.55	43.75	48.19	47.22	46.96
FIXED CARBON	37.74	41.21	39.15	42.66	52.78	47.92
BTU/LB	11299	12794	11721	13244	14139	14579

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	61.32	69.27	63.61	71.71	76.73	78.93
HYDROGEN	5.15	5.79	4.93	5.60	5.94	6.17
NITROGEN	1.25	1.46	1.30	1.51	1.57	1.66
SULFUR	6.19	3.63	6.43	3.76	7.75	4.14
OXYGEN	9.60	11.01	6.64	8.27	8.01	9.10
ASH	16.48	8.84	17.10	9.15	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	4.62	2.14	4.79	2.22	5.78	2.44
SULFATIC	.20	.11	.21	.11	.25	.12
ORGANIC	1.38	1.38	1.43	1.43	1.72	1.58
TOTAL	6.19	3.63	6.43	3.76	7.75	4.14

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.93	.94	--	--	--	--
OXYGEN/CARBON	.08	.09	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING	2 1/2	3 1/2	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	44	36	--	--	--	--

STATE: OHIO
COUNTY: VINTON

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 98

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	7.2	5.2	.68	13367	2.2
FLOAT 1.40	75.0	9.7	2.24	12670	4.7
FLOAT 1.60	94.1	11.4	3.04	12406	6.2
CUM(1-1/2" X 100M)	100.0	13.4	4.05	12096	7.9
100M X 0	1.8	27.2	12.68	9956	28.7
TOTAL(1-1/2" X 0)	100.0	13.6	4.21	12057	8.2

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	25.3	4.4	.45	13492	1.8
FLOAT 1.40	75.2	7.7	1.27	12980	3.1
FLOAT 1.60	91.4	9.5	1.99	12701	4.3
CUM(3/8" X 100M)	100.0	12.7	3.94	12204	7.5
100M X 0	5.6	24.9	12.80	10312	25.3
TOTAL(3/8" X 0)	100.0	13.4	4.44	12098	8.4

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	49.1	4.7	.35	13445	1.8
FLOAT 1.40	73.9	6.5	.68	13166	2.3
FLOAT 1.60	87.6	8.0	1.13	12933	3.0
CUM(14M X 0)	100.0	13.3	4.44	12111	8.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
--- SAMPLE CRUSHED TO PASS 1-1/2" ---	
1-1/2" X 3/8"	79.9
3/8" X 14M	14.4
14M X 100M	3.9
100M X 0	1.8

TOTAL AS RECEIVED
5.8
4.3

STATE: OHIO
COUNTY: VINTON

BED: LOWER KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 84
SAMPLE NO. 98

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	4.30	3.10	--	--	--	--
ASH	13.02	8.04	13.60	8.30	48.71	--
VOLATILE MATTER	37.81	42.33	39.51	43.69	11.09	--
FIXED CARBON	44.87	46.53	46.89	48.01	40.20	--
BTU/LB	11608	12432	12130	12830	6611	14039
						13991
						12890

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	5.18	2.01	5.42	2.07	27.85	--
OXYGEN	--	--	--	--	--	--
ASH	13.02	8.04	13.60	8.30	48.71	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	4.45	1.13	4.65	1.17	27.82	54.25
SULFATIC	.01	.01	.02	.01	.00	.01
ORGANIC	.72	.86	.75	.89	.03	.05
TOTAL	5.18	2.01	5.42	2.07	27.85	54.31

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	17.67	10.10	67.93

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3	4	--
HARDGROVE GRINDABILITY (HGI)	47	43	--

STATE: OHIO
COUNTY: HOLMES

BED: LOWER MERCER
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 103
SAMPLE NO. 99

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, %		HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU		
				PYRITIC	TOTAL				
FLOAT 1.30	58.5	63.3	4.2	.70	2.05	14000	2.9		
FLOAT 1.40	86.0	90.9	6.2	1.20	2.59	13685	3.8		
FLOAT 1.60	92.3	96.4	7.2	1.55	2.92	13518	4.3		
CUM(1-1/2" X 100M)	100.0	100.0	10.4	2.96	4.36	12942	6.7		
100M X 0	1.8	1.6	19.7	6.68	8.45	11246	15.0		
TOTAL(1-1/2" X 0)	100.0	100.0	10.6	3.03	4.43	12912	6.9		

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, %		HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU		
				PYRITIC	TOTAL				
FLOAT 1.30	65.3	71.0	3.9	.42	1.83	14098	2.6		
FLOAT 1.40	84.7	90.3	5.5	.78	2.19	13828	3.2		
FLOAT 1.60	91.4	96.2	6.6	1.08	2.47	13642	3.6		
CUM(3/8" X 100M)	100.0	100.0	10.3	2.86	4.20	12968	6.5		
100M X 0	4.7	4.4	15.2	5.46	6.74	12657	11.2		
TOTAL(3/8" X 0)	100.0	100.0	10.5	2.98	4.32	12925	6.7		

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, %		HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU		
				PYRITIC	TOTAL				
FLOAT 1.30	64.5	70.7	3.4	.36	1.79	14133	2.5		
FLOAT 1.40	82.4	89.0	4.7	.59	2.01	13924	2.9		
FLOAT 1.60	90.6	96.3	6.0	.83	2.24	13712	3.3		
CUM(14M X 0)	100.0	100.0	10.5	3.04	4.40	12895	6.8		

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %		MOISTURE, %	
SAMPLE CRUSHED TO PASS 1-1/2"			
1-1/2" X 3/8"	72.2	TOTAL	5.6
3/8" X 14M	20.0	AS RECEIVED	3.0
14M X 100M	6.0		
100M X 0	1.8		

STATE: OHIO
COUNTY: HOLMES

BED: LOWER MERCER
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 103
SAMPLE NO. 99

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.00	2.00	2.00	--	--	--	--	--	--
ASH	10.19	5.98	53.70	10.50	6.10	54.80	--	--	--
VOLATILE MATTER	43.23	45.70	23.62	44.57	46.63	24.10	49.79	49.66	53.32
FIXED CARBON	43.59	46.32	20.68	44.93	47.27	21.10	50.21	50.34	46.68
BTU/LB	12508	13424	4815	12895	13698	4913	14407	14587	10870

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	68.82	73.68	20.48	70.95	75.19	20.90	79.27	80.07	46.24
HYDROGEN	5.36	5.63	1.86	5.18	5.52	1.67	5.79	5.88	3.69
NITROGEN	1.36	1.47	.43	1.40	1.50	.44	1.56	1.60	.97
SULFUR	3.95	2.22	22.24	4.07	2.27	22.70	4.55	2.41	50.21
OXYGEN	10.33	11.02	--	7.90	9.43	--	8.82	10.04	--
ASH	10.19	5.98	53.70	10.50	6.10	54.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.72	.84	21.47	2.80	.86	21.91	3.13	.91	48.47
SULFATIC	.03	.01	.05	.03	.01	.05	.03	.01	.11
ORGANIC	1.20	1.37	.73	1.24	1.40	.74	1.39	1.49	1.64
TOTAL	3.95	2.22	22.24	4.07	2.27	22.70	4.55	2.41	50.21

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	33.24	40.06	23.44
Al2O3 (ALUMINUM OXIDE)	21.87	29.04	12.82
Fe2O3 (IRON OXIDE)	36.32	20.30	59.19
TiO2 (TITANIUM OXIDE)	1.33	1.67	.67
CaO (CALCIUM OXIDE)	1.34	2.13	.39
MgO (MAGNESIUM OXIDE)	.56	.70	.40
Na2O (SODIUM OXIDE)	.30	.51	.05
K2O (POTASSIUM OXIDE)	1.47	1.69	1.18
SO3 (SULFITES)	.66	.65	.26

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.71	.36
DOLOMITE	.05	.11
HYDROGEN/CARBON	.88	.88
OXYGEN/CARBON	.08	.09
R250	.59	.75
SILICA	.47	.64
SILICA/ALUMINA	1.52	1.38

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2030	2190	--
SOFTENING TEMPERATURE (ST)	2130	2290	--
FLUID TEMPERATURE (FT)	2480	2520	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.16	--	--
NA (SODIUM) (CALCULATED)	.02	--	.02
MINERAL MATTER (PARR)	13.58	7.83	71.39

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3	3	--
HARDGROVE GRINDABILITY (HGI)	45	40	--

STATE: OHIO
COUNTY: GUERNSEY
BED: MAHONING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 70
SAMPLE NO. 100

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.6	4.1	.83	14054	4.0
FLOAT 1.40	62.3	7.3	1.51	13480	5.1
FLOAT 1.60	70.3	8.6	1.80	13246	5.4
FLOAT 1.90	75.5	10.7	2.01	12869	5.8
CUM(1-1/2" X 100M)	100.0	28.3	3.11	9710	9.1
100M X 0	.1	43.8	2.80	6927	10.6
TOTAL(1-1/2" X 0)	100.0	28.3	3.11	9707	9.1

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.5	3.8	.77	14108	3.9
FLOAT 1.40	62.7	5.4	1.09	13821	4.4
FLOAT 1.60	69.9	6.8	1.35	13569	4.7
FLOAT 1.90	75.5	10.7	2.01	12869	5.8
CUM(3/8" X 100M)	100.0	27.2	3.10	9907	9.1
100M X 0	.8	45.0	3.05	6712	14.4
TOTAL(3/8" X 0)	100.0	27.3	3.10	9882	9.1

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.9	3.4	.65	14180	3.8
FLOAT 1.40	53.8	5.3	.99	13839	4.3
FLOAT 1.60	66.5	9.0	1.28	13174	4.8
FLOAT 1.90	75.5	10.7	2.01	12869	5.8
CUM(14M X 0)	100.0	28.8	3.03	9620	9.2

RAW COAL SIZE AND MOISTURE ANALYSIS

SIZE DISTRIBUTION, %	MOISTURE, %
--- SAMPLE CRUSHED TO PASS 1-1/2" ---	
1-1/2" X 3/8"	3.1
3/8" X 14M	1.8
14M X 100M	
100M X 0	

TOTAL
AS RECEIVED

STATE: OHIO
COUNTY: GUERNSEY
BED: MAHONING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 70
SAMPLE NO. 100

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.80	--	--	--	--	--
ASH	27.15	--	--	--	--	--
VOLATILE MATTER	33.67	--	27.65	--	47.40	--
FIXED CARBON	37.37	--	34.29	--	52.60	--
		--	38.06	--		--
BTU/LB	10172	--	10358	--	14316	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.12	--	4.20	--	5.80	--
OXYGEN	--	--	--	--	--	--
ASH	27.15	--	27.65	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.87	--	2.93	--	4.04	--
SULFATIC	.09	--	.09	--	.12	--
ORGANIC	.16	--	1.18	--	1.63	--
TOTAL	4.12	--	4.20	--	5.80	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--
SO3 (SULFITES)	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	--	--	--	--
OXYGEN/CARBON	--	--	--	--
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--
MINERAL MATTER (PARR)	32.17	--	--	--
FREE SWELLING (FSI)	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--

BED CODE: 70
SAMPLE NO. 101

BED: MAHONING
RANK: HIGH VOLATILE A BITUMINOUS

STATE: OHIO
COUNTY: JEFFERSON

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.7	3.6	.30	14144	1.1
FLOAT 1.40	88.2	5.1	.44	13874	1.4
FLOAT 1.60	94.0	6.3	.51	13659	1.6
FLOAT 1.90	96.0	7.1	.59	13515	1.7
CUM(1-1/2" X 100M)	100.0	9.4	.89	13103	2.3
100M X 0	.2	14.8	1.87	12133	3.7
TOTAL(1-1/2" X 0)	100.0	9.4	.89	13101	2.3

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	72.9	2.8	.10	14287	.9
FLOAT 1.40	86.8	3.9	.16	14090	1.0
FLOAT 1.60	92.2	5.0	.21	13892	1.1
FLOAT 1.90	96.0	7.1	.59	13515	1.7
CUM(3/8" X 100M)	100.0	9.3	.84	13121	2.2
100M X 0	.6	12.7	1.86	12510	3.8
TOTAL(3/8" X 0)	100.0	9.3	.85	13117	2.2

SAMPLE CRUSHED TO PASS 14M X 0 MATERIAL

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.8	2.6	.09	14323	.9
FLOAT 1.40	87.0	4.5	.17	13982	1.0
FLOAT 1.60	93.0	5.5	.21	13803	1.1
FLOAT 1.90	96.0	7.1	.59	13515	1.7
CUM(14M X 0)	100.0	9.4	.79	13103	2.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" --
3/8" X 14M --
14M X 100M --
100M X 0 .2

MOISTURE, %
TOTAL
AS RECEIVED
3.7
2.3

STATE: OHIO
COUNTY: JEFFERSON

BED: MAHONING
RANK: HIGH VOLATILE A BITUMINOUS

RED CODE: 70
SAMPLE NO. 101

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.30	--	--	--	--	--
ASH	8.82	--	--	--	--	--
VOLATILE MATTER	37.01	--	9.02	--	41.64	--
FIXED CARBON	51.88	--	37.88	--	58.36	--
BTU/LB	13579	--	53.10	--	15278	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.30	--	1.33	--	1.47	--
OXYGEN	--	--	--	--	--	--
ASH	8.82	--	9.02	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.86	--	.88	--	.97	--
SULFATIC	.06	--	.06	--	.07	--
ORGANIC	.38	--	.39	--	.43	--
TOTAL	1.30	--	1.33	--	1.47	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--
SOFTENING TEMPERATURE (ST)	--	--
FLUID TEMPERATURE (FT)	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	10.48	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--
HARDGROVE GRINDABILITY (HGI)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

STATE: OHIO
COUNTY: CARROLL

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 80
SAMPLE NO. 102

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	41.6	4.3	1.38	13924	4.6
FLOAT 1.40	82.8	7.0	2.33	13482	6.0
FLOAT 1.60	92.6	8.4	2.71	13247	6.6
CUM(1-1/2" X 100M)	100.0	10.8	3.93	12824	8.5
100M X 0	1.1	16.7	4.73	11740	10.7
TOTAL(1-1/2" X 0)	100.0	10.9	3.94	12812	8.5

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	50.7	3.4	1.14	13892	4.2
FLOAT 1.40	79.3	5.6	1.93	13587	5.1
FLOAT 1.60	91.2	7.5	2.38	13281	5.8
CUM(3/8" X 100M)	100.0	10.7	3.94	12717	8.4
100M X 0	5.6	13.0	5.27	12386	10.3
TOTAL(3/8" X 0)	100.0	10.8	4.01	12698	8.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	43.3	2.7	.92	14206	3.8
FLOAT 1.40	72.3	4.7	1.51	13878	4.7
FLOAT 1.60	88.3	6.9	2.11	13496	5.5
CUM(14M X 0)	100.0	11.3	4.08	12718	8.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.9
3/8" X 14M	17.0
14M X 100M	4.0
100M X 0	1.1

--- MOISTURE, % ---

TOTAL	4.5
AS RECEIVED	3.1

STATE: OHIO
COUNTY: CARROLL

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 80
SAMPLE NO. 102

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.10	2.10	1.50	--	--	--
ASH	11.05	7.03	44.13	11.40	7.18	44.80
VOLATILE MATTER	39.93	42.34	24.72	41.21	43.25	25.10
FIXED CARBON	45.92	48.53	29.65	47.39	49.58	30.10
BTU/LB	12310	13173	6711	12704	13456	6813
					14338	14496
						12342

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	69.87	72.43	--	72.10	73.99	--
HYDROGEN	5.43	5.53	--	5.25	5.42	--
NITROGEN	1.41	1.47	--	1.46	1.50	--
SULFUR	4.76	3.42	18.95	4.91	3.50	19.24
OXYGEN	7.49	10.11	--	4.88	8.42	--
ASH	11.05	7.03	44.13	11.40	7.18	44.80

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.60	2.20	18.66	3.71	2.25	13.95
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	1.15	1.21	.27	1.19	1.24	.28
TOTAL	4.76	3.42	18.95	4.91	3.50	19.24

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	31.11	37.93	23.89
Al2O3 (ALUMINUM OXIDE)	19.61	25.64	13.58
Fe2O3 (IRON OXIDE)	43.75	29.74	57.76
TiO2 (TITANIUM OXIDE)	.67	1.00	.67
CaO (CALCIUM OXIDE)	.95	1.48	.11
MgO (MAGNESIUM OXIDE)	.56	.73	.40
Na2O (SODIUM OXIDE)	.43	.40	.05
K2O (POTASSIUM OXIDE)	1.49	1.78	1.06
SO3 (SULFITES)	.82	1.04	.33

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.92	.53
DOLOMITE	.03	.06
HYDROGEN/CARBON	.87	.88
OXYGEN/CARBON	.06	.09
R250	.53	.67
SILICA	.41	.54
SILICA/ALUMINA	1.59	1.48

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1960	2000	--
SOFTENING TEMPERATURE (ST)	2050	2110	--
FLUID TEMPERATURE (FT)	2160	2200	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.04	.02	.02
MINERAL MATTER (PARR)	14.54	9.67	58.96

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4	4	--
HARDGROVE GRINDABILITY (HGI)	51	--	--

STATE: OHIO
COUNTY: COLUMBIANA

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 103

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.5	5.2	.54	13990	1.3
FLOAT 1.40	91.8	6.5	.77	13755	1.6
FLOAT 1.60	96.0	7.1	.89	13646	1.8
FLOAT 1.90	97.5	7.6	.97	13556	1.9
CUM(1-1/2" X 100M)	100.0	9.0	1.40	13303	2.6
100M X 0	.2	17.3	1.74	11803	4.3
TOTAL(1-1/2" X 0)	100.0	9.0	1.40	13300	2.6

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	70.0	3.3	.13	14333	1.0
FLOAT 1.40	90.2	5.2	.39	13990	1.3
FLOAT 1.60	94.1	6.1	.50	13827	1.5
FLOAT 1.90	97.5	7.6	.97	13556	1.9
CUM(3/8" X 100M)	100.0	9.0	1.31	13303	2.8
100M X 0	.5	10.3	.95	13068	2.3
TOTAL(3/8" X 0)	100.0	9.0	1.31	13302	2.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.7	3.1	.17	14369	.7
FLOAT 1.40	86.0	4.4	.22	14134	.8
FLOAT 1.60	92.2	5.0	.27	14026	.9
FLOAT 1.90	97.5	7.6	.97	13556	1.9
CUM(14M X 0)	100.0	9.2	1.40	13267	2.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--	MOISTURE, %
3/8" X 14M	--	
14M X 100M	--	
100M X 0	.2	

TOTAL
AS RECEIVED

7.0
3.9

STATE: OHIO
COUNTY: COLUMBIANA
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 80
SAMPLE NO. 103

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60	SK 1.60	RAW FL 1.60	SK 1.60	RAW FL 1.60	SK 1.60
MOISTURE	3.90	--	--	--	--	--
ASH	8.49	--	8.83	--	--	--
VOLATILE MATTER	33.87	--	35.25	--	38.66	--
FIXED CARBON	53.74	--	55.92	--	61.34	--
BTU/LB	13431	--	13976	--	15330	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.72	--	1.79	--	1.96	--
OXYGEN	--	--	--	--	--	--
ASH	8.49	--	8.83	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60	SK 1.60	RAW FL 1.60	SK 1.60	RAW FL 1.60	SK 1.60
PYRITIC	1.36	--	1.42	--	1.56	--
SULFATIC	.05	--	.05	--	.05	--
ORGANIC	.31	--	.32	--	.35	--
TOTAL	1.72	--	1.79	--	1.96	--

MINERAL ANALYSIS OF ASH, %

OXIDES	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
(SILICON OXIDE)	--	--	--	INITIAL DEFORMATION (ID)	--	--
SiO2	--	--	--	SOTENING TEMPERATURE (ST)	--	--
AL2O3	--	--	--	FLUID TEMPERATURE (FT)	--	--
(IRON OXIDE)	--	--	--			
Fe2O3	--	--	--	----- MISCELLANEOUS DATA, % -----		
(TITANIUM OXIDE)	--	--	--			
TiO2	--	--	--			
(CALCIUM OXIDE)	--	--	--			
CaO	--	--	--			
(MAGNESIUM OXIDE)	--	--	--			
MgO	--	--	--			
(SODIUM OXIDE)	--	--	--			
Na2O	--	--	--			
(POTASSIUM OXIDE)	--	--	--			
K2O	--	--	--			
(SULFITES)	--	--	--			
SO3	--	--	--			

COAL UTILIZATION RATIOS

	RAW	FL 1.60	----- PHYSICAL PARAMETERS, INDEX -----		
BASE/ACID	---	---	RAW	FL 1.60	SK 1.60
DOLOMITE	---	---			
HYDROGEN/CARBON	---	---			
OXYGEN/CARBON	---	---			
R250	---	---	FREE SWELLING (FSI)	--	--
	---	---	HARDGROVE GRINDABILITY (HGI)	--	--
SILICA	---	---			
SILICA/ALUMINA	---	---			

STATE: OHIO
COUNTY: COLUMBIANA
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 80
SAMPLE NO. 104

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT			PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	68.6	75.5	3.8	.28	14242	1.0
FLOAT 1.40	86.0	93.0	5.2	.43	13990	1.3
FLOAT 1.60	91.0	97.2	6.1	.56	13827	1.5
FLOAT 1.90	93.0	98.6	6.7	.68	13719	1.7
CUM(1-1/2" X 100M)	100.0	100.0	11.0	1.72	12942	3.6
100M X 0	.2	.2	19.3	2.36	11442	4.7
TOTAL(1-1/2" X 0)	100.0	100.0	11.0	1.72	12939	3.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT			PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	74.5	82.1	3.0	.07	14387	.7
FLOAT 1.40	86.5	94.2	4.0	.11	14206	.8
FLOAT 1.60	90.4	97.5	4.7	.16	14080	.9
FLOAT 1.90	93.0	98.6	6.7	.68	13719	1.7
CUM(3/8" X 100M)	100.0	100.0	10.4	1.61	13050	3.6
100M X 0	.9	.8	17.0	2.35	11858	5.2
TOTAL(3/8" X 0)	100.0	100.0	10.5	1.62	13039	3.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT			PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	69.6	77.8	2.6	.06	14459	.7
FLOAT 1.40	83.9	92.3	3.8	.09	14242	.7
FLOAT 1.60	89.5	97.4	4.7	.13	14080	.8
FLOAT 1.90	93.0	98.6	6.7	.68	13719	1.7
CUM(14M X 0)	100.0	100.0	11.0	1.67	12942	3.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.2

--- MOISTURE, % ---
TOTAL
AS RECEIVED
2.7
1.5

STATE: OHIO	BED: MIDDLE KITTANNING	BED CODE: 80
COUNTY: COLUMBIANA	RANK: HIGH VOLATILE A BITUMINOUS	SAMPLE NO. 104
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	1.50	1.50
ASH	10.74	10.90
VOLATILE MATTER	36.45	37.00
FIXED CARBON	51.32	52.10
BTU/LB	13167	13368
		15003
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	--	--
HYDROGEN	--	--
NITROGEN	--	--
SULFUR	2.16	2.19
OXYGEN	--	--
ASH	10.74	10.90
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	1.73	1.76
SULFATIC	.08	.08
ORGANIC	.34	.39
TOTAL	2.16	2.19
----- MINERAL ANALYSIS OF ASH, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--
----- COAL UTILIZATION RATIOS -----		
	RAW FL 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--
----- FUSIBILITY OF ASH, DEGREES F -----		
		(IN OXIDIZING ATMOSPHERE)
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--
SOFTENING TEMPERATURE (ST)	--	--
FLUID TEMPERATURE (FT)	--	--
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	12.98	12.98
----- PHYSICAL PARAMETERS, INDEX -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--
HARDGROVE GRINDABILITY (HGI)	--	--

STATE: OHIO
COUNTY: COLUMBIANA
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 80
SAMPLE NO. 105

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.9	3.6	.69	14279	1.9
FLOAT 1.40	87.1	5.8	1.07	13881	2.6
FLOAT 1.60	93.5	6.8	1.22	13700	2.9
FLOAT 1.90	96.2	7.7	1.33	13538	3.1
CUM(1-1/2" X 100M)	100.0	9.8	1.71	13158	3.8
100M X 0	.2	16.9	3.70	11876	7.5
TOTAL(1-1/2" X 0)	100.0	9.8	1.71	13156	3.8

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.0	2.6	.25	14459	1.0
FLOAT 1.40	85.4	3.9	.44	14224	1.4
FLOAT 1.60	91.4	5.0	.61	14026	1.7
FLOAT 1.90	96.2	7.7	1.33	13538	3.1
CUM(3/8" X 100M)	100.0	9.3	1.61	13249	3.6
100M X 0	1.0	14.0	3.04	12400	6.3
TOTAL(3/8" X 0)	100.0	9.3	1.62	13240	3.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	69.0	2.3	.13	14513	.9
FLOAT 1.40	83.1	3.4	.24	14315	1.0
FLOAT 1.60	89.8	4.6	.38	14098	1.3
FLOAT 1.90	96.2	7.7	1.33	13538	3.1
CUM(14M X 0)	100.0	9.9	1.71	13140	3.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.2

--- MOISTURE, % ---

TOTAL	4.1
AS RECEIVED	2.3

STATE: OHIO	BED: MIDDLE KITTANNING	BED CODE: 80
COUNTY: COLUMBIANA	RANK: HIGH VOLATILE A BITUMINOUS	SAMPLE NO. 105
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
MOISTURE	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
ASH	2.30	--
VOLATILE MATTER	10.06	10.30
FIXED CARBON	36.68	37.54
	50.96	52.16
BTU/LB	13348	13662
		15230
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE FREE
CARBON	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
NITROGEN	--	--
SULFUR	--	--
OXYGEN	2.38	2.44
ASH	10.06	10.30
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE FREE
PYRITIC	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
SULFATIC	1.75	1.79
ORGANIC	.05	.05
TOTAL	.59	.60
	2.38	2.44
----- MINERAL ANALYSIS OF ASH, % -----		
OXIDES	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--
----- COAL UTILIZATION RATIOS -----		
BASE/ACID	RAW FL 1.60	RAW FL 1.60 SK 1.60
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--
SOFTENING TEMPERATURE (ST)	--	--
FLUID TEMPERATURE (FT)	--	--
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	12.46	--
----- PHYSICAL PARAMETERS, INDEX -----		
FREE SWELLING (FSI)	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
HARDGROVE GRINDABILITY (HGI)	--	--

STATE: OHIO
COUNTY: COLUMBIANA

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 106

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL) -----									
PRODUCT	RECOVERY, %	ASH, %	BTU	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU		
FLOAT 1.30	48.7	2.5	52.7	.48	1.10	14671	1.5		
FLOAT 1.40	85.3	4.3	90.2	1.18	1.73	14339	2.4		
FLOAT 1.60	92.1	5.2	96.2	1.42	1.97	14173	2.8		
CUM(1-1/2" X 100M)	100.0	8.4	100.0	2.51	3.13	13564	4.6		
100M X 0	3.3	13.6	3.1	3.87	4.95	12543	7.9		
TOTAL(1-1/2" X 0)	100.0	8.6	100.0	2.55	3.19	13530	4.7		

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL) -----									
PRODUCT	RECOVERY, %	ASH, %	BTU	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU		
FLOAT 1.30	64.6	2.0	70.5	.21	.69	14702	.9		
FLOAT 1.40	83.9	3.1	90.4	.47	.92	14511	1.3		
FLOAT 1.60	89.5	4.0	95.4	.67	1.11	14363	1.5		
CUM(3/8" X 100M)	100.0	8.6	100.0	2.41	2.95	13472	4.4		
100M X 0	6.2	12.7	5.9	4.17	5.10	12712	8.0		
TOTAL(3/8" X 0)	100.0	8.9	100.0	2.52	3.08	13424	4.6		

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL) -----									
PRODUCT	RECOVERY, %	ASH, %	BTU	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU		
FLOAT 1.30	64.9	1.4	71.1	.10	.59	14784	.8		
FLOAT 1.40	85.9	2.5	92.9	.18	.68	14597	.9		
FLOAT 1.60	90.2	3.1	96.9	.26	.77	14495	1.1		
CUM(14M X 0)	100.0	8.4	100.0	2.63	3.26	13493	4.8		

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----			----- MOISTURE, % -----		
SAMPLE CRUSHED TO PASS 1-1/2"					
1-1/2" X 3/8"	63.7		TOTAL	4.1	
3/8" X 14M	26.0		AS RECEIVED	2.8	
14M X 100M	7.0				
100M X 0	3.3				

STATE: OHIO
COUNTY: COLUMBIANA
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 80
SAMPLE NO. 106

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.80	3.00	--	--	--	--
ASH	8.49	3.13	8.74	3.22	58.00	--
VOLATILE MATTER	34.98	36.17	35.98	37.29	24.50	58.33
FIXED CARBON	53.73	57.70	55.28	59.49	17.50	61.47
BTU/LB	13067	14042	13444	14476	14731	14959

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	74.09	79.48	76.22	81.94	83.52	84.67
HYDROGEN	5.01	5.39	4.83	5.21	5.29	5.38
NITROGEN	1.44	1.58	1.49	1.63	1.63	1.68
SULFUR	3.11	.67	3.20	.69	3.51	.71
OXYGEN	7.86	9.75	5.53	7.30	6.05	7.55
ASH	8.49	3.13	8.74	3.22	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.62	.26	2.70	.27	2.95	.27
SULFATIC	.06	.04	.07	.04	.07	.04
ORGANIC	.43	.38	.44	.39	.48	.40
TOTAL	3.11	.67	3.20	.69	3.51	.72

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	23.44	43.47	23.44	43.47	23.44	43.47
SiO2 (SILICON OXIDE)	17.72	35.45	17.72	35.45	17.72	35.45
Al2O3 (ALUMINUM OXIDE)	50.90	13.15	50.90	13.15	50.90	13.15
Fe2O3 (IRON OXIDE)	1.00	2.67	1.00	2.67	1.00	2.67
TiO2 (TITANIUM OXIDE)	3.36	1.93	3.36	1.93	3.36	1.93
CaO (CALCIUM OXIDE)	.86	.56	.86	.56	.86	.56
MgO (MAGNESIUM OXIDE)	.22	.49	.22	.49	.22	.49
Na2O (SODIUM OXIDE)	.58	1.37	.58	1.37	.58	1.37
K2O (POTASSIUM OXIDE)	1.81	.78	1.81	.78	1.81	.78
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	1.33	.21	1.33	.21	1.33	.21
DOLOMITE	.08	.14	.08	.14	.08	.14
HYDROGEN/CARBON	.76	.76	.76	.76	.76	.76
OXYGEN/CARBON	.05	.07	.05	.07	.05	.07
R250	.43	.84	.43	.84	.43	.84
SILICA	.30	.73	.30	.73	.30	.73
SILICA/ALUMINA	1.32	1.23	1.32	1.23	1.32	1.23

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	7	1/2	7	1/2	7	1/2
HARDGROVE GRINDABILITY (HGI)	62	--	62	--	62	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2010	2910+	2010	2910+	2010	2910+
SOFTENING TEMPERATURE (ST)	2060	2910+	2060	2910+	2060	2910+
FLUID TEMPERATURE (FT)	2300	2910+	2300	2910+	2300	2910+

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.16	--	.16	--	.16	--
NA (SODIUM) (CALCULATED)	.01	.01	.01	.01	.01	.01
MINERAL MATTER (PARR)	11.20	3.80	11.20	3.80	11.20	3.80

STATE: OHIO
COUNTY: COLUMBIANA
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 80
SAMPLE NO. 107

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.6	61.6	2.8	.33	14501	1.1
FLOAT 1.40	82.2	89.6	4.1	.71	14261	1.7
FLOAT 1.60	88.7	95.5	5.1	.93	14077	2.0
CUM(1-1/2" X 100M)	100.0	100.0	10.5	3.21	13080	5.6
100M X 0	1.9	1.7	19.6	5.80	11400	11.9
TOTAL(1-1/2" X 0)	100.0	100.0	10.7	3.26	13048	5.7

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	71.1	78.9	2.5	.14	14557	1.1
FLOAT 1.40	83.9	92.0	3.4	.24	14390	1.2
FLOAT 1.60	88.4	96.1	4.1	.34	14261	1.3
CUM(3/8" X 100M)	100.0	100.0	10.3	3.17	13117	5.7
100M X 0	5.8	5.3	16.0	5.11	12065	9.6
TOTAL(3/8" X 0)	100.0	100.0	10.6	3.28	13056	5.9

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	70.6	78.9	2.4	.13	14575	.9
FLOAT 1.40	83.2	91.9	3.3	.17	14409	.9
FLOAT 1.60	88.2	96.6	4.0	.28	14280	1.0
CUM(14M X 0)	100.0	100.0	10.7	3.21	13043	5.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---	
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	65.2
3/8" X 14M	27.3
14M X 100M	5.6
100M X 0	1.9

--- MOISTURE, % ---	
TOTAL AS RECEIVED	
	4.6
	2.0

STATE: OHIO
COUNTY: COLUMBIANA
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 80
SAMPLE NO. 107

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.00	1.30 .90	--	--	--	--
ASH	10.19	3.95 60.65	10.40	4.00 61.20	--	--
VOLATILE MATTER	35.56	37.72 20.71	36.29	38.21 20.90	40.50	39.80 53.87
FIXED CARBON	52.25	57.04 17.74	53.31	57.79 17.90	59.50	60.20 46.13
BTU/LB	12759	14163 3696	13019	14350 3730	14530	14948 9613

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	72.36	79.24 --	73.84	80.28 --	82.41	83.63 --
HYDROGEN	4.93	5.47 --	4.80	5.40 --	5.36	5.63 --
NITROGEN	1.37	1.68 --	1.40	1.70 --	1.56	1.77 --
SULFUR	3.57	.78 25.34	3.64	.79 25.57	4.06	.83 65.90
OXYGEN	7.58	8.88 --	5.92	7.83 --	6.61	8.15 --
ASH	10.19	3.95 60.65	10.40	4.00 61.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.11	.25 24.88	3.17	.25 25.11	3.54	.26 64.72
SULFATIC	.04	.02 .06	.04	.02 .06	.04	.02 .15
ORGANIC	.42	.51 .40	.43	.52 .40	.48	.54 1.03
TOTAL	3.57	.78 25.34	3.64	.79 25.57	4.06	.83 65.90

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--
COAL UTILIZATION RATIOS	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.78	.81	--	--	--	--
OXYGEN/CARBON	.06	.07	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	7	1/2	7	1/2	7	1/2
HARDGROVE GRINDABILITY (HGI)	59	--	59	--	59	--

BED CODE: 80
SAMPLE NO. 108

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

STATE: OHIO
COUNTY: COLUMBIANA

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.1	3.8	.96	14278	1.9
FLOAT 1.40	80.5	5.2	1.42	14032	2.8
FLOAT 1.60	87.2	6.2	1.70	13857	3.2
CUM(1-1/2" X 100M)	100.0	11.8	3.17	12874	5.9
100M X 0	2.2	17.9	3.84	11803	9.6
TOTAL(1-1/2" X 0)	100.0	11.9	3.18	12850	6.0

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.6	2.6	.39	14489	1.4
FLOAT 1.40	79.8	4.0	.83	14243	2.0
FLOAT 1.60	85.8	4.9	1.07	14085	2.4
CUM(3/8" X 100M)	100.0	11.7	3.14	12892	6.0
100M X 0	5.4	16.0	4.76	12137	10.1
TOTAL(3/8" X 0)	100.0	11.9	3.23	12851	6.2

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.5	1.6	.19	14664	1.2
FLOAT 1.40	76.5	2.8	.35	14454	1.4
FLOAT 1.60	84.4	3.8	.56	14278	1.8
CUM(14M X 0)	100.0	11.9	3.23	12856	6.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	70.8
3/8" X 14M	21.6
14M X 100M	5.4
100M X 0	2.2

MOISTURE, %

TOTAL	4.5
AS RECEIVED	2.3

STATE: OHIO
COUNTY: COLUMBIANA
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 80
SAMPLE NO. 108

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.30	1.60	12.40	3.90	40.75	39.55
ASH	12.11	3.84	35.70	38.00	59.25	60.45
VOLATILE MATTER	34.88	37.40	51.90	58.10	14307	15044
FIXED CARBON	50.71	57.17		20.80		11782
BTU/lb	12245	14226	12533	14458		

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	69.49	79.17	71.13	80.46	81.20	83.73
HYDROGEN	4.85	5.39	4.70	5.30	5.37	5.52
NITROGEN	1.37	1.67	1.40	1.70	1.60	1.77
SULFUR	3.96	1.13	4.06	1.15	4.63	1.20
OXYGEN	8.21	8.79	6.32	7.49	7.21	7.79
ASH	12.11	3.84	12.40	3.90		

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.31	.50	3.39	.50	3.87	.52
SULFATIC	.10	.05	.11	.05	.12	.05
ORGANIC	.55	.59	.56	.60	.64	.62
TOTAL	3.96	1.13	4.06	1.15	4.63	1.20

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)		
Al2O3 (ALUMINUM OXIDE)		
Fe2O3 (IRON OXIDE)		
TiO2 (TITANIUM OXIDE)		
CaO (CALCIUM OXIDE)		
MgO (MAGNESIUM OXIDE)		
Na2O (SODIUM OXIDE)		
K2O (POTASSIUM OXIDE)		
SO3 (SULFITES)		

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID		
DOLOMITE		
HYDROGEN/CARBON	.79	.79
OXYGEN/CARBON	.07	.07
R250		
SILICA		
SILICA/ALUMINA		

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2030	2150
SOFTENING TEMPERATURE (ST)	2050	2200
FLUID TEMPERATURE (FT)	2080	2390
MISCELLANEOUS DATA, %		
CL (CHLORINE) (ANALYZED)		
NA (SODIUM) (CALCULATED)		
MINERAL MATTER (PARR)	15.62	4.74
PHYSICAL PARAMETERS, INDEX		
FREE SWELLING (FSI)	6	6 1/2
HERDGROVE GRINDABILITY (HGI)	59	

STATE: OHIO
COUNTY: COSHOCTON

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 80
SAMPLE NO. 109

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	51.7	56.6	2.7	.53	14028	3.3
FLOAT 1.40	84.2	90.9	3.9	.85	13834	3.8
FLOAT 1.60	90.3	96.4	4.8	1.05	13689	4.1
FLOAT 1.90	92.3	97.9	5.4	1.15	13592	4.3
CUM(1-1/2" X 100M)	100.0	100.0	10.2	2.29	12818	6.5
100M X 0	.1	.1	20.0	2.57	11238	6.5
TOTAL(1-1/2" X 0)	100.0	100.0	10.2	2.29	12817	6.5

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	52.3	57.4	2.3	.51	14092	3.3
FLOAT 1.40	84.3	91.3	3.4	.71	13915	3.5
FLOAT 1.60	90.3	96.9	4.2	.89	13786	3.8
FLOAT 1.90	92.3	97.9	5.4	1.15	13592	4.3
CUM(3/8" X 100M)	100.0	100.0	10.0	2.33	12851	6.6
100M X 0	.9	.8	16.4	3.08	11819	8.4
TOTAL(3/8" X 0)	100.0	100.0	10.1	2.34	12841	6.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	33.4	36.7	2.2	.39	14108	3.1
FLOAT 1.40	77.1	83.5	3.4	.63	13915	3.4
FLOAT 1.60	92.0	97.1	5.6	1.07	13560	4.1
FLOAT 1.90	92.3	97.9	5.4	1.15	13592	4.3
CUM(14M X 0)	100.0	100.0	10.0	2.24	12851	6.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.1

MOISTURE, %

TOTAL	8.5
AS RECEIVED	5.7

STATE: OHIO
COUNTY: COSHOCTON

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 80
SAMPLE NO. 109

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.70	--	--	--	--	--
ASH	9.05	--	--	9.60	--	--
VOLATILE MATTER	39.11	--	--	41.48	45.88	--
FIXED CARBON	46.13	--	--	48.92	54.12	--
BTU/LB	12628	--	--	13391	14813	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.73	--	--	3.96	4.38	--
OXYGEN	--	--	--	--	--	--
ASH	9.05	--	--	9.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.11	--	--	2.24	2.48	--
SULFATIC	.08	--	--	.08	.09	--
ORGANIC	1.55	--	--	1.64	1.81	--
TOTAL	3.73	--	--	3.96	4.38	--

MINERAL ANALYSIS OF ASH, %

(IN OXIDIZING ATMOSPHERE)						
	RAW	FL 1.60	SK 1.60		RAW	FL 1.60 SK 1.60
OXIDES						
SiO2 (SILICON OXIDE)	--	--	--	INITIAL DEFORMATION (ID)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	SOFTENING TEMPERATURE (ST)	--	--
Fe2O3 (IRON OXIDE)	--	--	--	FLUID TEMPERATURE (FT)	--	--
TiO2 (TITANIUM OXIDE)	--	--	--			
CaO (CALCIUM OXIDE)	--	--	--	----- MISCELLANEOUS DATA, % -----		
MgO (MAGNESIUM OXIDE)	--	--	--			
Na2O (SODIUM OXIDE)	--	--	--			
K2O (POTASSIUM OXIDE)	--	--	--	CL (CHLORINE) (ANALYZED)	--	--
SO3 (SULFITES)	--	--	--			

COAL UTILIZATION RATIOS

	AS RECEIVED		
	RAW	FL 1.60	
BASE/ACID	--	--	
DOLOMITE	--	--	
HYDROGEN/CARBON	--	--	RAW
OXYGEN/CARBON	--	--	FL 1.60
R250	--	--	SK 1.60
SILICA	--	--	--
SILICA/ALUMINA	--	--	--

STATE: OHIO	BED: MIDDLE KITTANNING	BED CODE: 80
COUNTY: COSHOCTON	RANK: HIGH VOLATILE B BITUMINOUS	SAMPLE NO. 110
CUMULATIVE WASHABILITY DATA (DRY BASIS)		
----- SAMPLE CRUSHED TO PASS 1-1/2" ----- (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)		
PRODUCT	RECOVERY, % WEIGHT	ASH, % SULFUR, % PYRITIC HEATING VALUE BTU/LB SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.0 57.3	2.3 .61 14092 3.2
FLOAT 1.40	76.9 86.7	3.8 1.20 13851 4.3
FLOAT 1.60	83.7 93.4	4.7 1.55 13706 4.9
CUM(1-1/2" X 100M)	100.0 100.0	13.5 4.51 12287 10.4
100M X 0	1.5 1.4	2.03 11819 6.7
TOTAL(1-1/2" X 0)	100.0 100.0	13.5 4.47 12280 10.3
----- SAMPLE CRUSHED TO PASS 3/8" ----- (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)		
PRODUCT	RECOVERY, % WEIGHT	ASH, % SULFUR, % PYRITIC HEATING VALUE BTU/LB SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.9 59.3	2.1 .47 14125 3.1
FLOAT 1.40	75.1 84.7	3.2 .95 13947 3.9
FLOAT 1.60	83.7 93.2	4.3 1.37 13770 4.6
CUM(3/8" X 100M)	100.0 100.0	13.0 4.34 12367 10.0
100M X 0	3.4 3.1	19.0 4.19 11400 11.0
TOTAL(3/8" X 0)	100.0 100.0	13.2 4.33 12334 10.0
----- SAMPLE CRUSHED TO PASS 14M ----- (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)		
PRODUCT	RECOVERY, % WEIGHT	ASH, % SULFUR, % PYRITIC HEATING VALUE BTU/LB SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.2 60.6	1.9 .40 14157 3.0
FLOAT 1.40	71.4 82.2	2.7 .73 14028 3.6
FLOAT 1.60	83.3 94.2	4.2 1.12 13786 4.2
CUM(14M X 0)	100.0 100.0	14.1 4.60 12190 10.5
RAW COAL SIZE AND MOISTURE ANALYSES		
----- SIZE DISTRIBUTION, % -----		
SAMPLE CRUSHED TO PASS 1-1/2"		
1-1/2" X 3/8"	---	----- MOISTURE, % -----
3/8" X 14M	---	TOTAL
14M X 100M	---	AS RECEIVED
100M X 0	---	6.0
		4.1

STATE: OHIO	BED: MIDDLE KITTANNING	BED CODE: 80	
COUNTY: COSHOCTON	RANK: HIGH VOLATILE B BITUMINOUS	SAMPLE NO. 110	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M			
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----			
MOISTURE ASH VOLATILE MATTER FIXED CARBON BTU/LB	AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	4.10 4.10 4.10	-- -- --	-- -- --
	13.52 4.12 58.44	14.10 4.30 60.94	-- -- --
	38.55 42.68 --	40.20 44.50 --	46.80 46.50 --
	43.83 49.10 --	45.70 51.20 --	53.20 53.50 --
	11690 13205 --	12190 13770 --	14191 14389 --
----- ULTIMATE ANALYSIS, % -----			
CARBON HYDROGEN NITROGEN SULFUR OXYGEN ASH	AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	-- -- --	-- -- --	-- -- --
	6.19 2.82 22.77	6.45 2.94 23.74	7.51 3.07 60.78
	13.52 4.12 58.44	14.10 4.30 60.94	-- -- --
----- SULFUR FORMS ANALYSIS, % -----			
PYRITIC SULFATIC ORGANIC TOTAL	AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	4.42 1.13 21.06	4.61 1.18 21.96	5.37 1.23 56.22
	.19 .10 .17	.20 .10 .18	.23 .10 .46
	1.57 1.59 1.54	1.64 1.66 1.60	1.91 1.73 4.10
	6.19 2.82 22.77	6.45 2.94 23.74	7.51 3.07 60.78
----- MINERAL ANALYSIS OF ASH, % -----			
OXIDES SiO2 (SILICON OXIDE) Al2O3 (ALUMINUM OXIDE) Fe2O3 (IRON OXIDE) TiO2 (TITANIUM OXIDE) CaO (CALCIUM OXIDE) MgO (MAGNESIUM OXIDE) Na2O (SODIUM OXIDE) K2O (POTASSIUM OXIDE) SO3 (SULFITES)	AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	-- -- --	-- -- --	-- -- --
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----- FUSIBILITY OF ASH, DEGREES F -----			
{IN OXIDIZING ATMOSPHERE}			
INITIAL DEFORMATION (ID) SOFTENING TEMPERATURE (ST) FLUID TEMPERATURE (FT)	RAW	RAW	RAW
	FL 1.60 SK 1.60	FL 1.60 SK 1.60	FL 1.60 SK 1.60
	2020 2030	2020 2030	2020 2030
	2070 2080	2070 2080	2070 2080
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED) NA (SODIUM) (CALCULATED) MINERAL MATTER (FARR)	RAW	RAW	RAW
	FL 1.60 SK 1.60	FL 1.60 SK 1.60	FL 1.60 SK 1.60
	18.78 6.26 78.87	18.78 6.26 78.87	18.78 6.26 78.87
----- PHYSICAL PARAMETERS, INDEX -----			
FREE SWELLING (FSI) HARDGROVE GRINDABILITY (HGI)	RAW	RAW	RAW
	FL 1.60 SK 1.60	FL 1.60 SK 1.60	FL 1.60 SK 1.60
	4 4	4 4	4 4
----- COAL UTILIZATION RATIOS -----			
BASE/ACID DOLOMITE HYDROGEN/CARBON OXYGEN/CARBON R250 SILICA SILICA/ALUMINA	RAW	RAW	RAW
	FL 1.60 SK 1.60	FL 1.60 SK 1.60	FL 1.60 SK 1.60
	-- -- --	-- -- --	-- -- --
	-- -- --	-- -- --	-- -- --
	-- -- --	-- -- --	-- -- --

STATE: OHIO
COUNTY: HOLMES

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 80
SAMPLE NO. 111

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.1	2.7	2.7	.97	14041	2.4
FLOAT 1.40	88.9	4.2	4.2	1.83	13780	3.8
FLOAT 1.60	95.5	5.0	5.0	2.24	13644	4.5
CUM(1-1/2" X 100M)	100.0	6.7	6.7	2.70	13359	5.4
100M X 0	1.7	17.9	17.9	3.17	11458	8.0
TOTAL(1-1/2" X 0)	100.0	6.9	6.9	2.71	13327	5.4

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.7	2.2	2.2	.73	14096	2.1
FLOAT 1.40	86.6	3.6	3.6	1.43	13878	3.3
FLOAT 1.60	94.8	4.6	4.6	1.87	13711	4.1
CUM(3/8" X 100M)	100.0	6.5	6.5	2.51	13367	5.2
100M X 0	4.3	16.7	16.7	3.62	11662	8.2
TOTAL(3/8" X 0)	100.0	6.9	6.9	2.56	13294	5.3

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.0	1.9	1.9	.60	14209	1.9
FLOAT 1.40	84.1	3.0	3.0	1.12	14018	2.7
FLOAT 1.60	93.5	4.0	4.0	1.61	13833	3.6
CUM(14M X 0)	100.0	6.7	6.7	2.68	13375	5.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	75.3
3/8" X 14M	18.0
14M X 100M	5.0
100M X 0	1.7
TOTAL AS RECEIVED	7.4
	5.1

STATE: OHIO
COUNTY: HOLMES
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 80
SAMPLE NO. 111

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	5.10	5.50 1.40	--	--	--	--
ASH	6.64	3.93 44.07	7.00	4.16 44.70	--	--
VOLATILE MATTER	40.67	41.64 26.13	42.86	44.06 26.50	46.09	45.97 47.92
FIXED CARBON	47.58	48.93 28.40	50.14	51.78 28.80	53.91	54.03 52.08
BTU/LB	12652	13050 6802	13332	13810 6899	14336	14409 12475

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	70.02	72.46 31.67	73.78	76.67 32.12	79.34	80.00 58.08
HYDROGEN	5.64	5.87 2.58	5.35	5.57 2.46	5.75	5.81 4.45
NITROGEN	1.44	1.50 .68	1.52	1.58 .69	1.63	1.65 1.25
SULFUR	3.68	2.42 19.75	3.88	2.56 20.03	4.17	2.67 36.22
OXYGEN	12.57	13.83 --	8.47	9.46 --	9.11	9.87 --
ASH	6.64	3.93 44.07	7.00	4.16 44.70	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.64	1.61 17.55	2.78	1.70 17.80	2.99	1.77 32.20
SULFATIC	.07	.07 .08	.08	.07 .08	.08	.07 .14
ORGANIC	.97	.75 2.12	1.02	.79 2.15	1.10	.82 3.88
TOTAL	3.68	2.42 19.75	3.88	2.56 20.03	4.17	2.67 36.22

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	20.46	20.46 22.59
Al2O3 (ALUMINUM OXIDE)	14.33	15.46 13.58
Fe2O3 (IRON OXIDE)	61.48	58.19 61.48
TiO2 (TITANIUM OXIDE)	.67	.83 .33
CaO (CALCIUM OXIDE)	1.09	1.79 .20
MgO (MAGNESIUM OXIDE)	.43	.41 .43
Na2O (SODIUM OXIDE)	.27	.35 .19
K2O (POTASSIUM OXIDE)	.65	.52 .87
SO3 (SULFITES)	.18	1.43 .33

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	1.80	1.67
DOLOMITE	.02	.04
HYDROGEN/CARBON	.87	.87
OXYGEN/CARBON	.09	.09
R250	.36	.37
SILICA	.25	.25
SILICA/ALUMINA	1.43	1.32

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	1980	1980
SOFTENING TEMPERATURE (ST)	2020	2020
FLUID TEMPERATURE (FT)	2060	2060
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.04	--
MINERAL MATTER (PARR)	.01	.01
	9.69	5.90 59.29

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	2 1/2	3 1/2 1
HARDGROVE GRINDABILITY (HGI)	48	--

STATE: OHIO
COUNTY: HOLMES

RED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

SED CODE: 80
SAMPLE NO. 112

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.5	3.5	28.8	.74	14054	3.2
FLOAT 1.40	64.8	6.8	76.0	1.91	13440	5.5
FLOAT 1.60	81.6	8.8	93.1	2.50	13077	6.5
CUM(1-1/2" X 100M)	100.0	18.3	100.0	4.11	11460	9.9
100M X 0	2.2	18.6	2.2	3.09	11390	10.9
TOTAL(1-1/2" X 0)	100.0	18.3	100.0	4.09	11459	9.9

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.9	3.3	38.5	.61	14056	3.5
FLOAT 1.40	66.1	6.4	77.1	1.61	13526	5.2
FLOAT 1.60	81.8	8.5	92.7	2.21	13148	6.3
CUM(3/8" X 100M)	100.0	17.6	100.0	3.75	11597	9.4
100M X 0	6.4	20.6	6.1	3.83	11048	10.9
TOTAL(3/8" X 0)	100.0	17.8	100.0	3.76	11562	9.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.2	2.6	36.0	.44	14162	3.0
FLOAT 1.40	58.9	5.0	70.0	1.19	13650	4.3
FLOAT 1.60	79.6	7.8	91.1	1.88	13155	5.6
CUM(14M X 0)	100.0	17.6	100.0	3.88	11489	10.0

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	63.7
3/8" X 14M	26.0
14M X 100M	8.1
100M X 0	2.2

--- MOISTURE, % ---

TOTAL	6.1
AS RECEIVED	3.7

STATE: OHIO
COUNTY: HOLMES

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 80
SAMPLE NO. 112

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	FL 1.60 SK 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.70	2.50	1.40	--	--	--
ASH	16.56	7.81	55.20	8.01	50.01	49.61
VOLATILE MATTER	39.87	44.49	22.78	45.64	53.72	53.72
FIXED CARBON	39.86	45.20	19.62	46.35	49.99	50.39
BTU/LB	11117	12797	4787	13125	13942	14268
				4855		11291

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	FL 1.60 SK 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	60.81	69.81	22.39	71.14	76.26	77.83
HYDROGEN	5.13	5.66	2.32	4.90	5.91	6.00
NITROGEN	1.21	1.41	1.39	1.26	1.52	1.57
SULFUR	5.82	3.31	13.60	6.05	7.30	3.69
OXYGEN	10.47	12.01	5.09	7.46	9.01	10.91
ASH	16.56	7.81	56.20	17.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	FL 1.60 SK 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.94	1.95	11.52	2.00	4.94	2.17
SULFATIC	.19	.17	.22	.17	.24	.18
ORGANIC	1.69	1.19	1.86	1.22	2.13	1.33
TOTAL	5.82	3.31	13.60	3.39	7.30	3.69

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.93	.93
OXYGEN/CARBON	.09	.11
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2065	2145
SOFTENING TEMPERATURE (ST)	2170	2250
FLUID TEMPERATURE (FT)	2255	2365

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	.26	--
MINERAL MATTER (PARR)	21.90	10.52
FREE SWELLING (FSI)	3 1/2	3 1/2
HARDGROVE GRINDABILITY (HGI)	57	49

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	3 1/2	3 1/2
HARDGROVE GRINDABILITY (HGI)	57	49

STATE: OHIO
COUNTY: JEFFERSON
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 80
SAMPLE NO. 113

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.4	3.6	.64	14354	2.1
FLOAT 1.40	89.1	5.3	1.10	14042	2.8
FLOAT 1.60	94.3	6.0	1.23	13913	3.0
CUM(1-1/2" X 100M)	100.0	8.6	2.18	13436	4.5
100M X 0	1.5	23.7	7.39	10662	15.9
TOTAL(1-1/2" X 0)	100.0	8.8	2.26	13394	4.6

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.4	2.9	.27	14483	1.8
FLOAT 1.40	87.0	4.4	.62	14207	2.3
FLOAT 1.60	93.5	5.3	.86	14042	2.6
CUM(3/8" X 100M)	100.0	8.6	2.11	13436	4.6
100M X 0	6.0	17.9	6.39	11727	12.1
TOTAL(3/8" X 0)	100.0	9.2	2.37	13333	5.0

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.7	2.7	.23	14520	1.7
FLOAT 1.40	85.3	3.8	.39	14317	1.9
FLOAT 1.60	92.2	4.8	.56	14134	2.2
CUM(14M X 0)	100.0	8.8	2.20	13399	4.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.0
3/8" X 14M	20.1
14M X 100M	5.4
100M X 0	1.5

MOISTURE, %

TOTAL AS RECEIVED	4.6
	2.4

STATE: OHIO
COUNTY: JEFFERSON
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 80
SAMPLE NO. 113

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.40	1.80	1.00	--	--	--
ASH	8.93	4.81	58.01	9.15	4.90	58.60
VOLATILE MATTER	36.92	38.61	20.59	37.82	39.32	20.80
FIXED CARBON	51.75	54.78	20.39	53.03	55.78	20.60
BTU/LB	13031	13846	4207	13351	14100	4250

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	74.63	77.51	--	76.46	78.94	--
HYDROGEN	5.18	5.41	--	5.03	5.30	--
NITROGEN	1.40	1.47	--	1.44	1.50	--
SULFUR	2.81	1.51	19.67	2.88	1.54	19.87
OXYGEN	7.05	9.28	--	5.03	7.82	--
ASH	8.93	4.81	58.01	9.15	4.90	58.60

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.00	.54	19.23	2.05	.55	19.43
SULFATIC	.08	.07	.02	.08	.07	.02
ORGANIC	.73	.90	.41	.75	.92	.42
TOTAL	2.81	1.51	19.67	2.88	1.54	19.87

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.79	.81	--	--	--	--
OXYGEN/CARBON	.06	.07	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING	6	6	--	6	6	--
HARDGROVE GRINDABILITY (HGI)	58	58	--	58	58	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	10.68	6.14	63.89	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1980	2370	--	2.25	.58	46.93
SOFTENING TEMPERATURE (ST)	2080	2420	--	.09	.07	.05
FLUID TEMPERATURE (FT)	2280	2520	--	.83	.97	1.01

STATE: OHIO
COUNTY: MUSKINGUM
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 80
SAMPLE NO. 114

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	87.9	3.6	.37	13943	2.9
FLOAT 1.40	93.4	4.0	.43	13874	3.0
FLOAT 1.60	95.7	4.4	.55	13805	3.2
FLOAT 1.90	97.1	4.8	.63	13736	3.4
CUM(1-1/2" X 100M)	100.0	6.4	1.20	13461	4.4
100M X 0	.1	14.7	1.69	12032	5.8
TOTAL(1-1/2" X 0)	100.0	6.4	1.20	13459	4.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	75.9	3.1	.26	14029	2.8
FLOAT 1.40	92.3	3.9	.36	13891	3.0
FLOAT 1.60	95.2	4.3	.45	13822	3.1
FLOAT 1.90	97.1	4.8	.63	13736	3.4
CUM(3/8" X 100M)	100.0	6.6	1.26	13426	4.6
100M X 0	.7	9.8	1.79	12876	5.4
TOTAL(3/8" X 0)	100.0	6.6	1.26	13422	4.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	71.2	3.0	.17	14046	2.7
FLOAT 1.40	92.4	3.9	.28	13891	2.9
FLOAT 1.60	95.8	4.4	.35	13805	3.0
FLOAT 1.90	97.1	4.8	.63	13736	3.4
CUM(14M X 0)	100.0	6.4	1.14	13461	4.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	3.7
3/8" X 14M	2.3
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	

STATE: OHIO
COUNTY: MUSKINGUM
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 80
SAMPLE NO. 114

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.30	--	--	--	--	--
ASH	6.35	--	--	--	--	--
VOLATILE MATTER	43.57	--	6.50	--	--	--
FIXED CARBON	47.78	--	44.60	--	47.70	--
		--	48.90	--	52.30	--
BTU/LB	13222	--	13533	--	14474	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.75	--	2.81	--	3.01	--
OXYGEN	--	--	--	--	--	--
ASH	6.35	--	6.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.23	--	1.26	--	1.35	--
SULFATIC	.09	--	.09	--	.10	--
ORGANIC	1.43	--	1.46	--	1.56	--
TOTAL	2.75	--	2.81	--	3.01	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--
SO3 (SULFITES)	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MISCELLANEOUS DATA, %	
	RAW	FL 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	--	--	--	--
OXYGEN/CARBON	--	--	--	--
R250	--	--	--	--
SILICA	--	--	8.57	--
SILICA/ALUMINA	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		FREE SWELLING (FSI)		HARDGROVE GRINDABILITY (HGI)	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY	--	--	--	--	--	--

STATE: OHIO
COUNTY: MUSKINGUM

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 80
SAMPLE NO. 115

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.3	69.8	2.8	1.00	2.51	14078	3.6
FLOAT 1.40	88.9	92.4	3.8	1.66	3.23	13897	4.6
FLOAT 1.60	94.7	97.5	4.6	2.09	3.64	13769	5.3
CUM(1-1/2" X 100M)	100.0	100.0	6.9	3.15	4.73	13374	7.1
100M X 0	1.7	1.6	12.8	2.74	3.81	12360	6.2
TOTAL(1-1/2" X 0)	100.0	100.0	7.0	3.14	4.71	13357	7.1

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	69.8	74.0	2.5	.89	2.18	14134	3.1
FLOAT 1.40	87.5	91.7	3.4	1.42	2.81	13979	4.0
FLOAT 1.60	93.1	96.7	4.2	1.85	3.27	13848	4.7
CUM(3/8" X 100M)	100.0	100.0	7.0	3.18	4.60	13333	6.9
100M X 0	3.6	3.5	10.3	3.52	4.87	12790	7.6
TOTAL(3/8" X 0)	100.0	100.0	7.1	3.19	4.61	13314	6.9

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.7	70.1	2.0	.65	2.32	14216	3.3
FLOAT 1.40	85.0	89.7	2.9	1.09	2.79	14073	4.0
FLOAT 1.60	92.0	96.2	3.7	1.56	3.26	13934	4.7
CUM(14M X 0)	100.0	100.0	7.2	3.29	4.93	13330	7.4

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	79.6
3/8" X 14M	14.9
14M X 100M	3.8
100M X 0	1.7

--- MOISTURE, % ---

TOTAL	6.5
AS RECEIVED	4.5

STATE: OHIO
COUNTY: MUSKINGUM
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 80
SAMPLE NO. 115

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.50	3.10	1.20	--	--	--	--	--	--
ASH	6.60	3.59	47.23	6.91	3.70	47.80	--	--	--
VOLATILE MATTER	43.33	45.42	25.98	45.38	46.87	26.30	48.75	48.67	50.38
FIXED CARBON	45.57	47.90	25.59	47.71	49.43	25.90	51.26	51.33	49.62
BTU/LB	12769	13502	6262	13371	13934	6339	14364	14469	12143

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	71.79	75.20	--	75.17	77.61	--	80.76	80.59	--
HYDROGEN	5.56	5.67	--	5.29	5.50	--	5.69	5.71	--
NITROGEN	1.34	1.36	--	1.40	1.40	--	1.50	1.45	--
SULFUR	4.18	3.11	23.88	4.38	3.21	24.17	4.71	3.33	46.29
OXYGEN	10.53	11.07	--	6.84	8.58	--	7.35	8.91	--
ASH	6.60	3.59	47.23	6.91	3.70	47.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.76	1.58	22.91	2.89	1.63	23.19	3.10	1.69	44.42
SULFATIC	.04	.01	.07	.04	.01	.07	.04	.01	.13
ORGANIC	1.38	1.52	.90	1.45	1.57	.91	1.56	1.63	1.74
TOTAL	4.18	3.11	23.88	4.38	3.21	24.17	4.71	3.33	46.29

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	19.18	14.92	17.47
SiO2 (SILICON OXIDE)	13.95	15.46	9.43
Al2O3 (ALUMINUM OXIDE)	58.62	57.19	68.63
Fe2O3 (IRON OXIDE)	.67	.67	.33
TiO2 (TITANIUM OXIDE)	1.79	3.30	.20
CaO (CALCIUM OXIDE)	.53	.63	.30
MgO (MAGNESIUM OXIDE)	.43	.75	.08
Na2O (SODIUM OXIDE)	.80	.67	.67
K2O (POTASSIUM OXIDE)	1.87	2.35	.35
SO3 (SULFITES)			

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	1.84	2.01
DOLOMITE	.04	.06
HYDROGEN/CARBON	.84	.85
OXYGEN/CARBON	.07	.08
R250	.35	.33
SILICA	.24	.20
SILICA/ALUMINA	1.37	.97

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2140	2410	--
SOFTENING TEMPERATURE (ST)	2190	2460	--
FLUID TEMPERATURE (FT)	2290	2560	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.09	--	--
MINERAL MATTER (PARR)	.02	.02	.03
	9.87	5.76	64.91

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	2 1/2	2 1/2	--
HARDGROVE GRINDABILITY (HGI)	50	43	--

STATE: OHIO
 COUNTY: PERRY
 BED: MIDDLE KITTANNING
 RANK: HIGH VOLATILE C BITUMINOUS
 BED CODE: 80
 SAMPLE NO. 116

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.5	40.2	4.5	.05	.69	13558	1.0
FLOAT 1.40	77.7	91.4	6.1	.05	.65	13288	1.0
FLOAT 1.60	82.8	96.7	6.7	.06	.66	13187	1.0
CUM(1-1/2" X 100M)	100.0	100.0	17.9	.10	.65	11297	1.2
100M X 0	1.1	.9	30.1	.88	2.79	9239	6.0
TOTAL(1-1/2" X 0)	100.0	100.0	18.0	.11	.67	11275	1.2

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.1	41.4	3.5	.05	.63	13727	.9
FLOAT 1.40	76.1	90.1	5.6	.04	.64	13373	1.0
FLOAT 1.60	82.2	96.3	6.4	.06	.65	13238	1.0
CUM(3/8" X 100M)	100.0	100.0	17.9	.12	.64	11297	1.1
100M X 0	3.9	3.4	25.8	.49	1.19	9965	2.4
TOTAL(3/8" X 0)	100.0	100.0	18.2	.13	.66	11245	1.2

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.8	36.6	2.8	.05	.63	13845	.9
FLOAT 1.40	70.2	83.9	5.1	.04	.72	13457	1.1
FLOAT 1.60	81.5	95.7	6.5	.06	.73	13221	1.1
CUM(14M X 0)	100.0	100.0	18.1	.14	.71	11264	1.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---

SAMPLE CRUSHED TO PASS 1-1/2"		MOISTURE, %
1-1/2" X 3/8"	80.5	
3/8" X 14M	14.5	
14M X 100M	3.9	
100M X 0	1.1	
TOTAL	AS RECEIVED	7.6
		7.2

STATE: OHIO
COUNTY: PERRY
BED: MIDDLE KITTINGING
RANK: HIGH VOLATILE C BITUMINOUS
BED CODE: 80
SAMPLE NO. 116

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	7.22	6.00	.90	--	--	--	--	--	--
ASH	16.98	6.11	66.20	18.30	6.50	66.80	--	--	--
VOLATILE MATTER	33.34	38.79	13.28	35.94	41.26	13.40	43.99	44.13	40.36
FIXED CARBON	42.46	49.10	19.62	45.76	52.24	19.80	56.01	55.87	59.64
BTU/LB	10460	12394	3011	11274	13185	3038	13800	14102	9150

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	60.48	70.32	23.59	65.19	74.81	23.80	79.79	80.01	71.69
HYDROGEN	5.05	5.58	1.98	4.58	5.22	1.90	5.60	5.59	5.72
NITROGEN	1.39	1.60	.59	1.50	1.70	.60	1.84	1.82	1.81
SULFUR	.65	.65	.62	.71	.69	.63	.86	.74	1.89
OXYGEN	15.44	15.75	7.02	9.73	11.08	6.27	11.91	11.85	18.89
ASH	16.98	6.11	66.20	18.30	6.50	66.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.11	.06	.49	.12	.06	.49	.15	.06	1.48
SULFATIC	.01	.01	.02	.02	.01	.02	.02	.01	.06
ORGANIC	.53	.58	.11	.57	.62	.11	.70	.66	.34
TOTAL	.65	.65	.62	.71	.69	.63	.86	.74	1.89

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	RAW	FL 1.60	SK 1.60
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	2910+	2910+	2730
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	2910+	2910+	2790
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	2910+	2910+	2910+
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	MISCELLANEOUS DATA, %		
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	CL (CHLORINE) (ANALYZED)	RAW	FL 1.60
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	NA (SODIUM) (CALCULATED)	.01	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	MINERAL MATTER (PARR)	20.15	7.40
SO3 (SULFITES)	--	--	--	--	--	--	PHYSICAL PARAMETERS, INDEX		

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	RAW	FL 1.60	SK 1.60
DOLOMITE	--	--	--	--	--	--	1 1/2	2	--
HYDROGEN/CARBON	.84	.84	.84	--	--	--	FREE SWELLING	(FSI)	38
OXYGEN/CARBON	.11	.11	.11	--	--	--	HARDGROVE GRINDABILITY (HGI)	41	--
R250	--	--	--	--	--	--			
SILICA	--	--	--	--	--	--			
SILICA/ALUMINA	--	--	--	--	--	--			

BED CODE: 80
SAMPLE NO. 117

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

STATE: OHIO
COUNTY: PERRY

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	17.0	3.9	.19	13746	1.4
FLOAT 1.40	59.1	7.7	.17	13137	1.4
FLOAT 1.60	93.4	14.0	.17	12127	1.4
CUM(1-1/2" X 100M)	100.0	16.7	.36	11694	1.7
100M X 0	1.7	25.6	.67	10267	2.2
TOTAL(1-1/2" X 0)	100.0	16.9	.37	11669	1.8

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	21.1	2.8	.13	13922	1.4
FLOAT 1.40	61.5	6.3	.15	13361	1.4
FLOAT 1.60	89.9	12.2	.15	12415	1.4
CUM(3/8" X 100M)	100.0	16.1	.30	11790	1.7
100M X 0	2.6	22.4	.46	10780	2.0
TOTAL(3/8" X 0)	100.0	16.3	.30	11764	1.7

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.5	2.1	.12	14034	1.3
FLOAT 1.40	56.4	5.2	.14	13537	1.4
FLOAT 1.60	85.9	11.4	.14	12543	1.4
CUM(14M X 0)	100.0	16.6	.38	11710	1.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	78.8
3/8" X 14M	14.9
14M X 100M	4.6
100M X 0	1.7

TOTAL AS RECEIVED
7.7
6.9

STATE: OHIO
COUNTY: PERRY

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 80
SAMPLE NO. 117

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	6.90	6.40	.50	--	--	--
ASH	15.55	11.10	49.75	16.70	11.86	50.00
VOLATILE MATTER	33.78	35.53	24.08	36.29	37.96	24.20
FIXED CARBON	43.77	46.97	25.67	47.01	50.19	25.80
BTU/LB	10921	11642	6318	11730	12439	6350
					14082	14112
						12700

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	61.84	66.32	36.51	66.42	70.86	36.69
HYDROGEN	5.04	5.23	2.94	4.59	4.83	2.90
NITROGEN	1.30	1.41	.80	1.40	1.51	.80
SULFUR	.91	.77	2.22	.98	.82	2.23
OXYGEN	15.37	15.17	7.79	9.92	10.13	7.38
ASH	15.55	11.10	49.75	16.70	11.86	50.00

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.32	.14	1.83	.34	.15	1.84
SULFATIC	.01	.01	.02	.02	.01	.01
ORGANIC	.58	.62	.37	.62	.37	.75
TOTAL	.91	.77	2.22	.98	.82	2.23
					1.17	.93
						4.47

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
--	-----	---------

BASE/ACID
DOLOMITE
HYDROGEN/CARBON
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2910+
SOFTENING TEMPERATURE (ST)	2910+	2910+	2910+
FLUID TEMPERATURE (FT)	2910+	2910+	2910+
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.01	--	--
MINERAL MATTER (PARR)	18.57	13.26	55.23

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	1 1/2	1 1/2	0
HARDGROVE GRINDABILITY (HGI)	43	42	--

BED CODE: 80
SAMPLE NO. 118

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

STATE: OHIO
COUNTY: PERRY

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	45.2	3.5	.59	13767	2.5
FLOAT 1.40	65.0	5.4	.83	13453	2.9
FLOAT 1.60	85.1	10.5	1.11	12608	3.5
CUM(1-1/2" X 100M)	100.0	17.6	3.32	11432	7.9
100M X 0	1.5	17.8	2.81	11399	7.3
TOTAL(1-1/2" X 0)	100.0	17.6	3.31	11432	7.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	45.0	3.2	.56	13817	2.4
FLOAT 1.40	67.1	5.1	.80	13502	2.8
FLOAT 1.60	81.9	8.7	.99	12906	3.3
CUM(3/8" X 100M)	100.0	17.7	3.16	11416	7.4
100M X 0	3.1	21.2	3.79	10836	8.9
TOTAL(3/8" X 0)	100.0	17.8	3.18	11398	7.5

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	35.6	2.7	.36	13900	2.1
FLOAT 1.40	59.3	4.2	.57	13651	2.4
FLOAT 1.60	76.8	7.7	.77	13072	2.8
CUM(14M X 0)	100.0	19.1	3.47	11184	8.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
3/8" X 14M ---
14M X 100M ---
100M X 0 ---

TOTAL
AS RECEIVED

MOISTURE, %

7.2
5.3

STATE: OHIO
COUNTY: PERRY
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 80
SAMPLE NO. 118

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	5.30	5.10 5.10	--	--	--	--
ASH	17.36	7.31 54.00	18.34	7.70 56.90	--	--
VOLATILE MATTER	36.55	40.05 --	38.60	42.20 --	47.26	45.72
FIXED CARBON	40.78	47.54 --	43.06	50.10 --	52.73	54.28
BTU/LB	10835	12451 --	11441	13120 --	14010	14215

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.98	1.83 12.64	4.21	1.93 13.32	5.15	2.09 30.90
OXYGEN	--	--	--	--	--	--
ASH	17.36	7.31 54.00	18.34	7.70 56.90	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.86	.74 11.78	3.02	.78 12.41	3.70	.85 28.79
SULFATIC	.12	.05 .19	.13	.05 .20	.15	.05 .46
ORGANIC	1.00	1.04 .67	1.06	1.10 .71	1.30	1.19 1.65
TOTAL	3.98	1.83 12.64	4.21	1.93 13.32	5.15	2.09 30.90

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--

STATE: OHIO
COUNTY: PERRY

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 80
SAMPLE NO. 119

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.5	3.3	.45	13800	2.3
FLOAT 1.40	63.3	6.0	.99	13353	3.2
FLOAT 1.60	81.3	9.7	1.33	12741	3.9
FLOAT 1.90	86.0	11.4	1.61	12459	4.4
CUM(1-1/2" X 100M)	100.0	18.9	3.70	11217	8.6
100M X 0	.1	20.0	2.57	11035	6.7
TOTAL(1-1/2" X 0)	100.0	18.9	3.70	11217	8.6

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.1	3.1	.39	13834	2.2
FLOAT 1.40	66.7	4.4	.65	13618	2.7
FLOAT 1.60	79.4	7.4	.88	13121	3.1
FLOAT 1.90	86.0	11.4	1.61	12459	4.4
CUM(3/8" X 100M)	100.0	18.1	3.47	11349	8.0
100M X 0	.9	16.4	3.08	11631	8.6
TOTAL(3/8" X 0)	100.0	18.1	3.47	11352	8.0

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.3	2.5	.41	13933	2.2
FLOAT 1.40	58.6	4.8	.69	13552	2.8
FLOAT 1.60	77.5	8.5	1.01	12939	3.4
FLOAT 1.90	86.0	11.4	1.61	12459	4.4
CUM(14M X 0)	100.0	19.5	3.58	11118	8.3

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	.1

----- MOISTURE, %
TOTAL AS RECEIVED
9.9
5.2

STATE: OHIO	BED: MIDDLE KITTANNING	BED CODE: 80
COUNTY: PERRY	RANK: HIGH VOLATILE B BITUMINOUS	SAMPLE NO. 119
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	5.20	--
ASH	18.49	--
VOLATILE MATTER	36.78	48.20
FIXED CARBON	39.53	51.80
BTU/LB	11143	14601
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	--	--
HYDROGEN	--	--
NITROGEN	--	--
SULFUR	4.50	5.90
OXYGEN	--	--
ASH	18.49	--
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	3.51	4.60
SULFATIC	.05	.06
ORGANIC	.95	1.24
TOTAL	4.50	5.90
----- MINERAL ANALYSIS OF ASH, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--
----- FUSIBILITY OF ASH, DEGREES F -----		
(IN OXIDIZING ATMOSPHERE)		
INITIAL DEFORMATION (ID)	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
SOFTENING TEMPERATURE (ST)	--	--
FLUID TEMPERATURE (FT)	--	--
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	23.67	--
----- PHYSICAL PARAMETERS, INDEX -----		
FREE SWELLING (FSI)	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
HARDGROVE GRINDABILITY (HGI)	--	--
----- COAL UTILIZATION RATIOS -----		
	RAW FL 1.60	RAW FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

STATE: OHIO
 COUNTY: PERRY
 BED: MIDDLE KITTANNING
 RANK: HIGH VOLATILE B BITUMINOUS
 BED CODE: 80
 SAMPLE NO. 120

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.0	2.9	46.2	2.9	.52	1.83	13865	2.6
FLOAT 1.40	77.8	4.5	86.0	4.5	1.13	2.52	13596	3.7
FLOAT 1.60	88.3	5.8	93.8	5.8	1.65	3.10	13378	4.6
CUM(1-1/2" X 100M)	100.0	12.2	160.0	12.2	3.43	5.11	12304	8.3
100M X 0	1.7	20.2	1.5	20.2	4.55	6.30	10865	11.6
TOTAL(1-1/2" X 0)	100.0	12.3	100.0	12.3	3.45	5.13	12280	8.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.5	2.6	52.2	2.6	.51	1.90	13915	2.7
FLOAT 1.40	79.1	4.1	87.1	4.1	1.01	2.42	13663	3.5
FLOAT 1.60	86.5	5.2	94.0	5.2	1.42	2.89	13479	4.3
CUM(3/8" X 100M)	100.0	11.6	100.0	11.6	3.25	4.97	12405	8.0
100M X 0	4.0	19.9	3.5	19.9	4.01	5.62	10919	10.3
TOTAL(3/8" X 0)	100.0	11.9	100.0	11.9	3.28	5.00	12345	8.1

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.5	2.5	50.2	2.5	.51	1.84	13932	2.6
FLOAT 1.40	74.9	4.0	83.0	4.0	.91	2.31	13680	3.4
FLOAT 1.60	85.4	5.3	93.2	5.3	1.33	2.78	13462	4.1
CUM(14M X 0)	100.0	12.0	100.0	12.0	3.54	5.23	12338	8.5

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	75.5
3/8" X 14M	17.8
14M X 100M	5.0
100M X 0	1.7

--- MOISTURE, % ---
 TOTAL
 AS RECEIVED

8.0
 5.7

STATE: OHIO
COUNTY: PERRY
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 80
SAMPLE NO. 120

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	5.71	5.45	--	--	--	--
ASH	11.77	5.21	12.48	5.51	49.68	49.39
VOLATILE MATTER	41.00	44.12	23.75	46.66	50.32	50.61
FIXED CARBON	41.53	45.22	20.77	47.83	50.32	50.61
BTU/LB	11617	12769	5222	13505	14077	14292

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	63.65	69.68	67.50	73.70	77.13	78.00
HYDROGEN	5.24	5.68	4.89	5.36	5.59	5.68
NITROGEN	1.19	1.32	1.26	1.40	1.44	1.48
SULFUR	4.83	2.67	5.12	2.82	5.85	2.99
OXYGEN	13.33	15.44	8.75	11.21	10.00	11.86
ASH	11.77	5.21	12.48	5.51	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.39	1.36	3.59	1.43	4.11	1.52
SULFATIC	.13	.07	.14	.07	.15	.07
ORGANIC	1.31	1.25	1.39	1.32	1.59	1.40
TOTAL	4.83	2.67	5.12	2.82	5.85	2.99

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	31.53	31.96	1960	2080
SiO2 (SILICON OXIDE)	19.99	24.89	2060	2180
Al2O3 (ALUMINUM OXIDE)	44.32	37.46	2360	2480
Fe2O3 (IRON OXIDE)	1.00	1.00	--	--
TiO2 (TITANIUM OXIDE)	1.09	2.43	--	--
CaO (CALCIUM OXIDE)	.43	.53	--	--
MgO (MAGNESIUM OXIDE)	.27	.43	--	--
Na2O (SODIUM OXIDE)	.94	.96	--	--
K2O (POTASSIUM OXIDE)	.04	.09	--	--
SO3 (SULFITES)	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	.90	.72	.06	--
DOLOMITE	.03	.07	.02	--
HYDROGEN/CARBON	.87	.87	16.29	7.51
OXYGEN/CARBON	.10	.11	--	--
R250	.53	.59	--	--
SILICA	.41	.44	--	--
SILICA/ALUMINA	1.58	1.28	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING	3 1/2	4	--	--
HARDGROVE GRINDABILITY (HGI)	46	--	--	--

STATE: OHIO
COUNTY: STARK

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 80
SAMPLE NO. 121

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.2	57.0	3.7	.58	2.07	13932	3.0
FLOAT 1.40	77.7	84.9	5.2	1.15	2.39	13665	3.5
FLOAT 1.60	89.5	95.2	7.5	1.51	2.60	13303	3.9
CUM(1-1/2" X 100M)	100.0	100.0	12.1	4.12	5.10	12510	8.2
100M X 0	1.9	1.7	18.8	3.16	3.84	11366	6.8
TOTAL(1-1/2" X 0)	100.0	100.0	12.2	4.10	5.08	12489	8.1

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.4	63.5	3.0	.55	2.07	13994	3.0
FLOAT 1.40	77.0	85.1	4.6	.86	2.30	13747	3.3
FLOAT 1.60	87.9	94.8	6.6	1.09	2.45	13415	3.7
CUM(3/8" X 100M)	100.0	100.0	12.3	4.14	5.37	12436	8.6
100M X 0	5.1	4.8	16.7	4.29	5.16	11720	8.8
TOTAL(3/8" X 0)	100.0	100.0	12.5	4.15	5.36	12400	8.6

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.6	52.6	2.8	1.20	2.19	14075	3.1
FLOAT 1.40	73.1	81.3	4.0	1.21	2.32	13862	3.3
FLOAT 1.60	86.9	94.1	6.2	1.38	2.47	13498	3.7
CUM(14M X 0)	100.0	100.0	12.3	4.31	5.40	12459	8.7

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.1
3/8" X 14M	17.0
14M X 100M	4.0
100M X 0	1.9

----- MOISTURE, % -----
TOTAL
AS RECEIVED
7.4
5.1

STATE: OHIO	BED: MIDDLE KITTANNING	BED CODE: 80
COUNTY: STARK	RANK: HIGH VOLATILE B BITUMINOUS	SAMPLE NO. 121
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	5.10 2.40	-- --
ASH	12.14 6.29	-- --
VOLATILE MATTER	36.20 39.64	43.74 43.41
FIXED CARBON	46.56 51.67	56.26 56.59
BTU/LB	11757 13139	14206 14390
	5352	5422 11788
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	66.47 75.21	80.31 82.38
HYDROGEN	5.25 5.58	5.65 5.81
NITROGEN	1.30 1.48	1.57 1.62
SULFUR	4.51 2.25	5.45 2.47
OXYGEN	10.34 9.19	7.02 7.73
ASH	12.14 6.29	-- --
	53.30	54.00
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	3.58 1.26	4.32 1.38
SULFATIC	.07 .01	.08 .01
ORGANIC	.87 .99	1.05 1.08
TOTAL	4.51 2.25	5.45 2.47
	22.06	22.35 48.59
----- MINERAL ANALYSIS OF ASH, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	31.53 43.89	1995 2510
SiO2 (SILICON OXIDE)	19.99 30.74	2115 2600
Al2O3 (ALUMINUM OXIDE)	42.04 18.73	2205 2700
Fe2O3 (IRON OXIDE)	1.00 1.50	-- --
TiO2 (TITANIUM OXIDE)	.78 1.20	-- --
CaO (CALCIUM OXIDE)	.56 .81	-- --
MgO (MAGNESIUM OXIDE)	.13 .23	-- --
Na2O (SODIUM OXIDE)	1.47 2.04	SK 1.60
K2O (POTASSIUM OXIDE)	.34 .70	.04 --
SO3 (SULFITES)	-- --	.01 .17
	1.58 1.43	15.81 8.23
----- COAL UTILIZATION RATIOS -----		
	RAW FL 1.60	RAW FL 1.60
BASE/ACID	.86 .30	-- --
DOLOMITE	.03 .09	-- --
HYDROGEN/CARBON	.84 .85	2 1/2 5
OXYGEN/CARBON	.08 .07	-- --
R250	.55 .79	-- --
SILICA	.42 .68	53
SILICA/ALUMINA	1.58 1.43	-- --
----- MISCELLANEOUS DATA, % -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.04 --	-- --
NA (SODIUM) (CALCULATED)	.01 .01	-- --
MINERAL MATTER (PARR)	15.81 8.23	64.78
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	1995 2510	-- --
SOFTENING TEMPERATURE (ST)	2115 2600	-- --
FLUID TEMPERATURE (FT)	2205 2700	-- --
----- PHYSICAL PARAMETERS, INDEX -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)	2 1/2 5	-- --
HARDGROVE GRINDABILITY (HGI)	53	-- --

STATE: OHIO
 COUNTY: STARK
 BED: MIDDLE KITTANNING
 RANK: HIGH VOLATILE B BITUMINOUS
 BED CODE: 80
 SAMPLE NO. 122

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	WGT, %	BTU	HEATING VALUE	SO ₂ EMISSION
					BTU/LB	LB/MM BTU
FLOAT 1.30	55.0	3.0	59.4	14086	3.2	
FLOAT 1.40	83.4	4.5	88.6	13853	4.0	
FLOAT 1.60	90.1	5.3	94.6	13691	4.9	
CUM(1-1/2" X 100M)	100.0	8.9	100.0	13037	8.7	
100M X 0	1.0	17.1	.9	11510	9.6	
TOTAL(1-1/2" X 0)	100.0	9.0	100.0	13022	8.7	

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	WGT, %	BTU	HEATING VALUE	SO ₂ EMISSION
					BTU/LB	LB/MM BTU
FLOAT 1.30	62.9	2.7	68.1	14124	3.1	
FLOAT 1.40	84.3	4.0	89.8	13907	3.7	
FLOAT 1.60	90.4	4.8	95.4	13772	4.5	
CUM(3/8" X 100M)	100.0	8.6	100.0	13052	8.4	
100M X 0	4.3	13.3	4.0	12205	8.9	
TOTAL(3/8" X 0)	100.0	8.8	100.0	13016	8.4	

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	WGT, %	BTU	HEATING VALUE	SO ₂ EMISSION
					BTU/LB	LB/MM BTU
FLOAT 1.30	52.9	2.1	57.9	14198	2.6	
FLOAT 1.40	82.4	3.5	88.8	13977	3.2	
FLOAT 1.60	89.7	4.4	95.7	13829	3.7	
CUM(14M X 0)	100.0	9.1	100.0	12964	8.5	

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	70.0
3/8" X 14M	24.0
14M X 100M	5.0
100M X 0	1.0
TOTAL AS RECEIVED	9.2
	5.3

STATE: OHIO	BED: MIDDLE KITTANNING	BED CODE: 80
COUNTY: STARK	RANK: HIGH VOLATILE B BITUMINOUS	SAMPLE NO. 122
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	5.30 4.80 .90	-- --
ASH	8.96 4.36 50.24	50.70
VOLATILE MATTER	41.17 43.27 26.36	26.60
FIXED CARBON	44.57 47.58 22.50	22.70
BTU/LB	12228 13141 5314	5362
	12912 13803	14262
		14465
		10877
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	66.82 72.35 20.34	77.93 79.64 41.62
HYDROGEN	5.30 5.64 1.56	5.50 5.62 2.99
NITROGEN	1.24 1.34 .35	1.44 1.47 .72
SULFUR	5.44 2.69 27.66	6.35 2.96 56.62
OXYGEN	12.23 13.63 --	8.77 10.31 --
ASH	8.96 4.36 50.24	-- --
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	3.54 .94 24.62	4.13 1.04 50.40
SULFATIC	.08 .03 .14	.09 .03 .28
ORGANIC	1.83 1.72 2.90	2.13 1.90 5.94
TOTAL	5.44 2.69 27.66	6.35 2.96 56.62
----- MINERAL ANALYSIS OF ASH, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	20.88 33.24 12.36	2030 2040
SiO2 (SILICON OXIDE)	13.95 25.27 6.79	2080 2180
Al2O3 (ALUMINUM OXIDE)	60.05 31.74 77.21	2290 2460
Fe2O3 (IRON OXIDE)	.67 1.67 .33	-- --
TiO2 (TITANIUM OXIDE)	1.40 2.97 .28	-- --
CaO (CALCIUM OXIDE)	.33 .46 .17	-- --
MgO (MAGNESIUM OXIDE)	.35 .25 --	-- --
Na2O (SODIUM OXIDE)	.46 .65 .39	-- --
K2O (POTASSIUM OXIDE)	.89 1.30 .26	-- --
SO3 (SULFITES)	-- -- --	-- --
----- COAL UTILIZATION RATIOS -----		
	RAW FL 1.60	RAW FL 1.60
BASE/ACID	1.76 .60	2030 2040
DOLOMITE	.03 .10	2080 2180
HYDROGEN/CARBON	.85 .85	2290 2460
OXYGEN/CARBON	.08 .10	-- --
R250	.36 .63	-- --
SILICA	.25 .49	-- --
SILICA/ALUMINA	1.50 1.32	-- --
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----		
	RAW FL 1.60	RAW FL 1.60
CL (CHLORINE) (ANALYZED)	.09 --	2030 2040
NA (SODIUM) (CALCULATED)	.02 .01	2080 2180
MINERAL MATTER (PARR)	13.38 6.54	2290 2460
----- MISCELLANEOUS DATA, % -----		
	RAW FL 1.60	RAW FL 1.60
CL (CHLORINE) (ANALYZED)	.09 --	2030 2040
NA (SODIUM) (CALCULATED)	.02 .01	2080 2180
MINERAL MATTER (PARR)	13.38 6.54	2290 2460
----- PHYSICAL PARAMETERS, INDEX -----		
	RAW FL 1.60	RAW FL 1.60
FREE SWELLING (FSI)	2 2	2030 2040
HARDGROVE GRINDABILITY (HGI)	51 45	2080 2180

STATE: OHIO
COUNTY: TUSCARAWAS
BED: MIDDLE KITANNING
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 80
SAMPLE NO.: 123

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.2	65.0	2.4	.35	13970	3.1
FLOAT 1.40	87.7	93.3	3.4	.62	13763	3.6
FLOAT 1.60	92.6	97.6	4.1	.83	13644	4.0
CUM(1-1/2" X 100M)	100.0	100.0	8.4	1.56	12943	5.2
100M X 0	1.0	.8	21.0	1.27	10772	6.0
TOTAL(1-1/2" X 0)	100.0	100.0	8.5	1.56	12921	5.2

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.8	56.7	2.1	.30	14080	3.0
FLOAT 1.40	85.7	92.1	3.2	.51	13827	3.6
FLOAT 1.60	91.7	97.5	4.0	.79	13684	4.0
CUM(3/8" X 100M)	100.0	100.0	8.7	1.61	12868	5.5
100M X 0	3.6	3.1	19.2	1.51	11080	6.6
TOTAL(3/8" X 0)	100.0	100.0	9.1	1.61	12804	5.5

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.6	60.8	2.1	.30	14060	3.1
FLOAT 1.40	83.2	89.4	3.0	.44	13828	3.5
FLOAT 1.60	91.6	97.1	4.0	.78	13646	3.9
CUM(14M X 0)	100.0	100.0	8.5	1.67	12868	5.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	63.8
3/8" X 14M	30.1
14M X 100M	5.1
100M X 0	1.0

MOISTURE, %

TOTAL AS RECEIVED	7.7
	5.6

STATE: OHIO
COUNTY: TUSCARAWAS

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 80
SAMPLE NO. 123

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	5.60	5.20 .80	--	--	--	--
ASH	8.34	3.94 59.32	8.84	4.16 59.80	--	--
VOLATILE MATTER	41.09	43.24 20.53	43.52	45.61 20.70	47.74	47.59 51.49
FIXED CARBON	44.97	47.62 19.34	47.64	50.23 19.50	52.26	52.41 48.51
BTU/LB	12102	12915 4117	12820	13624 4150	14063	14215 10323

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	68.32	72.83 21.11	72.37	76.83 21.28	79.39	80.16 52.94
HYDROGEN	5.49	5.75 1.87	5.16	5.46 1.80	5.66	5.70 4.48
NITROGEN	1.34	1.43 .40	1.42	1.51 .40	1.56	1.58 1.00
SULFUR	2.92	2.43 12.65	3.09	2.56 12.75	3.39	2.67 31.71
OXYGEN	13.59	13.61 4.65	9.12	9.48 3.97	10.00	9.89 9.88
ASH	8.34	3.94 59.32	8.84	4.16 59.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.67	.67 12.41	1.77	.70 12.51	1.94	.73 31.13
SULFATIC	.09	.07 .04	.10	.07 .04	.10	.07 .10
ORGANIC	1.16	1.70 .19	1.23	1.79 .19	1.35	1.87 .48
TOTAL	2.92	2.43 12.65	3.09	2.56 12.75	3.39	2.67 31.71

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.85	.85
OXYGEN/CARBON	.09	.09
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2130	2130
SOFTENING TEMPERATURE (ST)	2230	2210
FLUID TEMPERATURE (FT)	2460	2440
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	11.25	5.90 73.78

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	3	3 1/2
HARDGROVE GRINDABILITY (HGI)	49	--

STATE: OHIO
COUNTY: TUSCARAWAS
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 80
SAMPLE NO.: 124

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	64.7	2.2	71.1	.30	14170	2.7
FLOAT 1.40	86.5	3.6	93.4	.67	13923	3.6
FLOAT 1.60	91.1	4.4	97.5	.84	13798	3.9
CUM(1-1/2" X 100M)	100.0	9.7	100.0	1.90	12895	5.9
100M X 0	.8	25.6	.6	2.04	10178	10.2
TOTAL(1-1/2" X 0)	100.0	9.8	100.0	1.90	12874	5.9

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	63.6	2.1	70.0	.18	14300	2.6
FLOAT 1.40	84.7	3.2	91.7	.46	14066	3.2
FLOAT 1.60	90.6	4.0	97.1	.66	13926	3.6
CUM(3/8" X 100M)	100.0	9.5	100.0	1.89	12996	5.8
100M X 0	4.7	21.9	3.9	2.03	10811	8.5
TOTAL(3/8" X 0)	100.0	10.1	100.0	1.90	12893	5.9

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	63.9	2.0	70.7	.18	14170	2.7
FLOAT 1.40	82.4	3.0	90.0	.42	13999	3.1
FLOAT 1.60	89.5	4.0	96.7	.59	13838	3.4
CUM(14M X 0)	100.0	10.0	100.0	1.85	12811	5.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.4
3/8" X 14M	17.6
14M X 100M	5.2
100M X 0	.8

--- MOISTURE, % ---

TOTAL AS RECEIVED	6.8
	4.8

STATE: OHIO
COUNTY: TUSCARAWAS

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 80
SAMPLE NO. 124

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.80	4.40	--	--	--	--
ASH	9.90	3.98	10.40	4.16	48.11	47.69
VOLATILE MATTER	41.04	43.70	43.11	45.71	51.89	52.31
FIXED CARBON	44.26	47.93	46.49	50.13		
BTU/LB	12142	13207	12754	13815	14234	14414

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	67.61	73.26	71.02	76.63	79.27	79.96
HYDROGEN	5.29	5.67	5.00	5.41	5.58	5.65
NITROGEN	1.28	1.40	1.34	1.46	1.50	1.53
SULFUR	3.62	2.23	3.81	2.34	4.25	2.44
OXYGEN	12.29	13.47	8.43	9.99	9.41	10.43
ASH	9.90	3.98	10.40	4.16	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.82	.61	1.91	.64	2.13	.66
SULFATIC	.10	.03	.11	.03	.12	.03
ORGANIC	1.70	1.60	1.79	1.67	2.00	1.74
TOTAL	3.62	2.23	3.81	2.34	4.25	2.44

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES						
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.85	.85	--	--	--	--
OXYGEN/CARBON	.09	.10	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	3	1/2	3	1/2	3	1/2
HARDGROVE GRINDABILITY (HGI)	52	42	52	42	52	42

STATE: OHIO
COUNTY: TUSCARAWAS

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 125

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	72.2	2.7	.67	14049	2.9
FLOAT 1.40	88.8	3.4	1.05	13927	3.6
FLOAT 1.60	92.8	3.9	1.24	13841	3.9
FLOAT 1.90	94.2	4.3	1.37	13771	4.2
CUM(1-1/2" X 100M)	100.0	7.6	2.67	13198	6.8
100M X 0	.1	11.7	2.82	12486	6.1
TOTAL(1-1/2" X 0)	100.0	7.6	2.67	13197	6.8

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	78.2	2.3	.55	14119	2.7
FLOAT 1.40	87.7	2.7	.76	14049	3.0
FLOAT 1.60	92.2	3.3	.98	13945	3.4
FLOAT 1.90	94.2	4.3	1.37	13771	4.2
CUM(3/8" X 100M)	100.0	7.4	2.69	13233	6.8
100M X 0	.7	12.1	3.59	12416	6.9
TOTAL(3/8" X 0)	100.0	7.4	2.70	13227	6.8

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.3	2.1	.47	14153	2.2
FLOAT 1.40	86.5	2.7	.71	14049	2.7
FLOAT 1.60	91.7	3.2	.90	13962	3.1
FLOAT 1.90	94.2	4.3	1.37	13771	4.2
CUM(14M X 0)	100.0	7.7	2.70	13181	6.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	8.2
3/8" X 14M	4.8
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	

STATE: OHIO
COUNTY: TUSCARAWAS
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 80
SAMPLE NO. 125

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.80	--	--	--	--	--
ASH	7.43	--	7.80	--	--	--
VOLATILE MATTER	41.03	--	43.10	--	46.75	--
FIXED CARBON	46.74	--	49.10	--	53.25	--
BTU/LB	13448	--	14126	--	15321	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.02	--	4.23	--	4.58	--
OXYGEN	--	--	--	--	--	--
ASH	7.43	--	7.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.82	--	2.96	--	3.21	--
SULFATIC	.14	--	.15	--	.16	--
ORGANIC	1.06	--	1.12	--	1.21	--
TOTAL	4.02	--	4.23	--	4.58	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	10.75	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: OHIO
COUNTY: TUSCARAWAS
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 80
SAMPLE NO. 126

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.8	3.2	.40	13962	3.1
FLOAT 1.40	80.7	4.5	.61	13736	3.6
FLOAT 1.60	86.5	5.5	.84	13563	4.0
FLOAT 1.90	90.0	6.5	1.12	13389	4.5
CUM(1-1/2" X 100M)	100.0	12.1	2.78	12416	8.1
100M X 0	.2	20.1	3.07	11027	9.9
TOTAL(1-1/2" X 0)	100.0	12.1	2.78	12414	8.1

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.0	2.6	.36	14066	3.1
FLOAT 1.40	80.1	3.7	.52	13875	3.4
FLOAT 1.60	86.3	4.8	.73	13684	3.8
FLOAT 1.90	90.0	6.5	1.12	13389	4.5
CUM(3/8" X 100M)	100.0	11.9	2.70	12451	7.9
100M X 0	.7	18.2	2.64	11357	9.9
TOTAL(3/8" X 0)	100.0	11.9	2.70	12444	7.9

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.6	2.2	.31	14136	3.0
FLOAT 1.40	75.0	3.4	.48	13927	3.3
FLOAT 1.60	85.8	4.9	.68	13667	3.8
FLOAT 1.90	90.0	6.5	1.12	13389	4.5
CUM(14M X 0)	100.0	12.1	2.64	12416	7.9

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	.2

----- MOISTURE, % -----

TOTAL	5.2
AS RECEIVED	3.5

STATE: OHIO
COUNTY: TUSCARAWAS

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 126

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.50	--	--	--	--	--	--	--	--
ASH	11.39	--	--	11.80	--	--	--	--	--
VOLATILE MATTER	39.37	--	--	40.80	--	--	46.26	--	--
FIXED CARBON	45.74	--	--	47.40	--	--	53.74	--	--
BTU/LB	12642	--	--	13101	--	--	14854	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.55	--	--	4.72	--	--	5.35	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	11.39	--	--	11.80	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.87	--	--	2.98	--	--	3.38	--	--
SULFATIC	.14	--	--	.15	--	--	.17	--	--
ORGANIC	1.53	--	--	1.59	--	--	1.80	--	--
TOTAL	4.55	--	--	4.72	--	--	5.35	--	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--	15.34	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

STATE: OHIO
COUNTY: TUSCARAWAS
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 80
SAMPLE NO. 127

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.3	3.0	.35	14046	2.8
FLOAT 1.40	82.5	5.2	1.00	13613	4.1
FLOAT 1.60	88.0	6.0	1.18	13479	4.4
CUM(1-1/2" X 100M)	100.0	12.3	2.63	12391	7.1
100M X 0	1.0	19.7	5.08	11107	14.1
TOTAL(1-1/2" X 0)	100.0	12.4	2.65	12379	7.2

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.1	2.6	.29	14102	2.5
FLOAT 1.40	78.6	4.6	.72	13741	3.4
FLOAT 1.60	85.9	5.5	.97	13567	3.9
CUM(3/8" X 100M)	100.0	12.8	2.69	12283	7.3
100M X 0	5.3	20.2	4.83	11021	13.2
TOTAL(3/8" X 0)	100.0	13.2	2.80	12216	7.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.5	2.4	.24	14142	2.4
FLOAT 1.40	70.8	3.9	.52	13826	2.8
FLOAT 1.60	85.2	5.5	.90	13528	3.6
CUM(14M X 0)	100.0	12.4	2.70	12324	7.2

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	78.0
3/8" X 14M	18.0
14M X 100M	3.0
100M X 0	1.0

--- MOISTURE, % ---

TOTAL	7.6
AS RECEIVED	5.2

STATE: OHIO
COUNTY: TUSCARAWAS

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 80
SAMPLE NO. 127

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	5.20	3.50 1.50	--	--	--	--
ASH	12.23	5.52 53.39	12.90	5.72 54.21	--	--
VOLATILE MATTER	37.73	41.37 21.86	39.80	42.87 22.19	45.69	45.47 48.46
FIXED CARBON	44.84	49.61 23.25	47.30	51.41 23.60	54.30	54.52 51.54
BTU/LB	11617	13025 5081	12255	13497 5158	14069	14316 11264

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	63.60	72.39 23.23	67.09	75.02 23.58	77.02	79.57 51.49
NITROGEN	5.02	5.51 1.25	4.69	5.30 1.10	5.38	5.62 2.40
HYDROGEN	1.15	1.27 .49	1.21	1.31 .50	1.39	1.39 1.09
SULFUR	4.49	2.52 16.28	4.74	2.61 16.53	5.44	2.77 36.09
OXYGEN	13.52	12.80 5.36	9.38	10.04 4.09	10.77	10.65 8.92
ASH	12.23	5.52 53.39	12.90	5.72 54.21	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.64	.93 12.54	2.78	.96 12.73	3.19	1.02 27.79
SULFATIC	.19	.12 .37	.21	.12 .38	.24	.13 .83
ORGANIC	1.66	1.48 3.37	1.75	1.53 3.42	2.01	1.62 7.47
TOTAL	4.49	2.52 16.28	4.74	2.61 16.53	5.44	2.77 36.09

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	37.93	33.67 38.78
Al2O3 (ALUMINUM OXIDE)	21.12	24.89 17.35
Fe2O3 (IRON OXIDE)	32.60	28.60 36.60
TiO2 (TITANIUM OXIDE)	1.00	1.00 1.00
CaO (CALCIUM OXIDE)	1.04	2.35 .06
MgO (MAGNESIUM OXIDE)	.63	.60 .60
Na2O (SODIUM OXIDE)	.27	.30 .08
K2O (POTASSIUM OXIDE)	1.78	1.18 2.05
SO3 (SULFITES)	.76	3.20 .10

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.60	.55
DOLOMITE	.05	.09
HYDROGEN/CARBON	.84	.85
OXYGEN/CARBON	.10	.10
R250	.64	.65
SILICA	.53	.52
SILICA/ALUMINA	1.80	1.35

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2010	2020
SOFTENING TEMPERATURE (ST)	2150	2270
FLUID TEMPERATURE (FT)	2180	2650

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.09	--
NA (SODIUM) (CALCULATED)	.03	.01 .03
MINERAL MATTER (PARR)	16.53	7.61 67.63

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	0	--
HARDGROVE GRINDABILITY (HGI)	52	--

STATE: OHIO
COUNTY: TUSCARAWAS

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 128

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.3	3.2	.46	13962	3.2
FLOAT 1.40	78.7	4.8	.66	13684	3.6
FLOAT 1.60	84.0	5.7	.84	13528	4.0
FLOAT 1.90	86.9	6.7	1.04	13354	4.3
CUM(1-1/2" X 100M)	100.0	14.3	3.59	12034	9.6
100M X 0	.2	23.3	3.66	10471	12.2
TOTAL(1-1/2" X 0)	100.0	14.3	3.59	12031	9.6

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.4	2.4	.34	14101	3.1
FLOAT 1.40	78.3	3.9	.53	13841	3.5
FLOAT 1.60	83.5	4.8	.67	13684	3.7
FLOAT 1.90	86.9	6.7	1.04	13354	4.3
CUM(3/8" X 100M)	100.0	13.9	3.45	12104	9.3
100M X 0	.8	21.7	3.76	10749	11.5
TOTAL(3/8" X 0)	100.0	14.0	3.45	12093	9.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.8	2.3	.33	14119	3.1
FLOAT 1.40	72.6	3.8	.52	13858	3.5
FLOAT 1.60	83.5	5.3	.71	13597	3.8
FLOAT 1.90	86.9	6.7	1.04	13354	4.3
CUM(14M X 0)	100.0	14.6	3.41	11982	9.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"
1-1/2" X 3/8" --
3/8" X 14M --
14M X 100M --
100M X 0 .2

MOISTURE, %
TOTAL
AS RECEIVED
4.7
2.5

STATE: OHIO
COUNTY: TUSCARAWAS
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 80
SAMPLE NO. 128

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.50	--	--	--	--	--
ASH	14.63	--	--	15.00	--	--
VOLATILE MATTER	39.08	--	--	40.08	--	--
FIXED CARBON	43.80	--	--	44.92	--	--
BTU/LB	12290	--	--	12605	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	5.09	--	--	5.22	--	--
OXYGEN	--	--	--	--	--	--
ASH	14.63	--	--	15.00	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.57	--	--	3.66	--	--
SULFATIC	.12	--	--	.12	--	--
ORGANIC	1.40	--	--	1.44	--	--
TOTAL	5.09	--	--	5.22	--	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--
MISCELLANEOUS DATA, %	--	--	--	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--

STATE: OHIO
 COUNTY: TUSCARAWAS
 BED: MIDDLE KITTANNING
 RANK: HIGH VOLATILE B BITUMINOUS
 BED CODE: 80
 SAMPLE NO. 129

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	51.2	4.4	.53	13874	3.3
FLOAT 1.40	80.7	5.6	.74	13644	3.7
FLOAT 1.60	86.3	6.5	.82	13495	3.9
CUM(1-1/2" X 100M)	100.0	13.3	3.42	12168	8.9
100M X 0	2.4	18.8	2.99	11255	9.3
TOTAL(1-1/2" X 0)	100.0	13.4	3.41	12147	8.9

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	58.5	3.7	.47	13931	3.3
FLOAT 1.40	80.0	4.7	.60	13739	3.6
FLOAT 1.60	86.8	5.7	.71	13574	3.6
CUM(3/8" X 100M)	100.0	12.5	3.19	12260	8.3
100M X 0	6.3	19.0	3.93	11219	11.8
TOTAL(3/8" X 0)	100.0	12.9	3.24	12194	8.5

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	40.1	3.1	.35	14136	3.1
FLOAT 1.40	68.3	4.6	.47	13851	3.5
FLOAT 1.60	83.2	6.4	.74	13525	4.0
CUM(14M X 0)	100.0	13.6	3.58	12200	9.0

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	75.2
3/8" X 14M	18.0
14M X 100M	4.4
100M X 0	2.4

--- MOISTURE, % ---

TOTAL	5.5
AS RECEIVED	3.8

STATE: OHIO
COUNTY: TUSCARAWAS

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 80
SAMPLE NO. 129

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	3.80	4.10	--	--	--	--
ASH	13.47	6.14	14.00	6.40	50.85	51.15
VOLATILE MATTER	42.07	45.91	43.73	47.88	49.15	48.85
FIXED CARBON	40.66	43.85	42.27	45.72	50.85	51.76
BTU/LB	11682	12970	12144	13525	14120	14449

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	64.18	71.51	66.72	74.57	77.58	79.67
HYDROGEN	5.04	5.73	4.80	5.50	5.58	5.88
NITROGEN	2.96	2.93	3.07	3.06	3.57	3.27
SULFUR	5.23	2.62	5.43	2.73	6.32	2.92
OXYGEN	9.12	11.07	5.97	7.74	6.94	8.27
ASH	13.47	6.14	14.00	6.40	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	3.44	.78	3.58	.81	4.16	.87
SULFATIC	.25	.12	.27	.12	.31	.13
ORGANIC	1.53	1.72	1.59	1.80	1.85	1.92
TOTAL	5.23	2.62	5.43	2.73	6.32	2.92

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
OXIDES (SILICON OXIDE)	--	--	--	--	--	--
AL ₂ O ₃ (ALUMINUM OXIDE)	--	--	--	--	--	--
FE ₂ O ₃ (IRON OXIDE)	--	--	--	--	--	--
TiO ₂ (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na ₂ O (SODIUM OXIDE)	--	--	--	--	--	--
K ₂ O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO ₃ (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLomite	--	--	--	--	--	--
HYDROGEN/CARBON	.86	.89	--	--	--	--
OXYGEN/CARBON	.07	.08	--	--	--	--
R ₂ SO	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
FREE SWELLING (FSI)	2	1 1/2	2	1 1/2	3	1 1/2
HARDGROVE GRINDABILITY (HGI)	56	46	56	46	56	46

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
INITIAL DEFORMATION (ID)	1900	2150	1900	2150	1900	2150
SOFTENING TEMPERATURE (ST)	2120	2270	2120	2270	2120	2270
FLUID TEMPERATURE (FT)	2250	2490	2250	2490	2250	2490

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	18.11	8.41	18.11	8.41	18.11	8.41

STATE: OHIO
 COUNTY: VINTON
 BED: MIDDLE KITTRANNING
 RANK: HIGH VOLATILE C BITUMINOUS
 BED CODE: 80
 SAMPLE NO. 130

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	84.6	2.2	.17	13849	1.1
FLOAT 1.40	97.2	2.9	.28	13732	1.3
FLOAT 1.60	99.1	3.2	.32	13681	1.3
CUM(1-1/2" X 100M)	100.0	3.6	.41	13614	1.5
100M X 0	1.9	15.9	1.73	11549	4.1
TOTAL(1-1/2" X 0)	100.0	3.8	.44	13575	1.5

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	84.1	2.1	.11	13866	1.2
FLOAT 1.40	95.9	2.7	.18	13765	1.3
FLOAT 1.60	99.0	3.1	.23	13698	1.3
CUM(3/8" X 100M)	100.0	3.5	.34	13631	1.5
100M X 0	4.5	10.9	1.52	12389	3.4
TOTAL(3/8" X 0)	100.0	3.8	.39	13575	1.6

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	70.8	1.6	.10	13950	1.2
FLOAT 1.40	94.2	2.4	.17	13816	1.2
FLOAT 1.60	98.6	2.9	.27	13732	1.2
CUM(14M X 0)	100.0	3.6	.39	13614	1.5

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---		--- MOISTURE, % ---	
SAMPLE CRUSHED TO PASS 1-1/2"		TOTAL AS RECEIVED	
1-1/2" X 3/8"	80.6	9.1	
3/8" X 14M	13.3	7.2	
14M X 100M	4.2		
100M X 0	1.9		

STATE: OHIO

COUNTY: VINTON

BED: MIDDLE KITTANNING

RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 80

SAMPLE NO. 130

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW

FL 1.60

SK 1.60

MOISTURE

7.20

3.60

3.60

ASH

3.43

2.68

48.96

VOLATILE MATTER

38.34

40.30

14.46

FIXED CARBON

51.02

53.42

32.99

BTU/LB

12654

13220

5488

MOISTURE FREE

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

42.91

43.00

30.48

57.09

57.01

69.53

14160

14106

11566

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

CARBON

--

--

--

HYDROGEN

--

--

--

NITROGEN

--

--

--

SULFUR

1.06

.87

12.53

OXYGEN

--

--

--

ASH

3.43

2.68

48.96

MOISTURE FREE

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

--

--

--

--

--

--

1.19

.93

26.40

--

--

--

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

PYRITIC

.36

.23

8.52

SULFATIC

.01

.01

.01

ORGANIC

.69

.62

3.99

TOTAL

1.06

.87

12.53

MOISTURE FREE

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

.40

.25

17.96

.01

.01

.02

.78

.67

8.41

1.19

.93

26.40

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

OXIDES

--

--

--

SiO2 (SILICON OXIDE)

--

--

--

Al2O3 (ALUMINUM OXIDE)

--

--

--

Fe2O3 (IRON OXIDE)

--

--

--

TiO2 (TITANIUM OXIDE)

--

--

--

CaO (CALCIUM OXIDE)

--

--

--

MgO (MAGNESIUM OXIDE)

--

--

--

Na2O (SODIUM OXIDE)

--

--

--

K2O (POTASSIUM OXIDE)

--

--

--

SO3 (SULFITES)

--

--

--

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

INITIAL DEFORMATION (ID)

--

--

--

SOFTENING TEMPERATURE (ST)

--

--

--

FLUID TEMPERATURE (FT)

--

--

--

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)

RAW

FL 1.60

SK 1.60

NA (SODIUM) (CALCULATED)

--

--

--

MINERAL MATTER (PARR)

4.68

3.50

61.99

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)

RAW

FL 1.60

SK 1.60

HARDGROVE GRINDABILITY (HGI)

2

2

1 1/2

44

44

COAL UTILIZATION RATIOS

AS RECEIVED

RAW

FL 1.60

SK 1.60

BASE/ACID

--

--

--

DOLOMITE

--

--

--

HYDROGEN/CARBON

--

--

--

OXYGEN/CARBON

--

--

--

R250

--

--

--

SILICA

--

--

--

SILICA/ALUMINA

--

--

--

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

BASE/ACID

--

--

--

DOLOMITE

--

--

--

HYDROGEN/CARBON

--

--

--

OXYGEN/CARBON

--

--

--

R250

--

--

--

SILICA

--

--

--

SILICA/ALUMINA

--

--

--

BED CODE: 36
SAMPLE NO. 131

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

STATE: OHIO
COUNTY: BELMONT

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	20.9	3.6	.52	14248	2.5
FLOAT 1.40	82.7	6.2	1.11	13776	3.5
FLOAT 1.60	92.3	7.5	1.45	13539	4.0
CUM(1-1/2" X 100M)	100.0	10.4	2.00	13013	4.9
100M X 0	.4	22.4	3.71	10833	9.2
TOTAL(1-1/2" X 0)	100.0	10.4	2.01	13004	4.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	27.5	3.5	.49	14266	2.5
FLOAT 1.40	82.6	6.0	1.08	13812	3.4
FLOAT 1.60	91.5	7.3	1.37	13576	3.8
CUM(3/8" X 100M)	100.0	10.7	2.02	12958	5.0
100M X 0	1.5	19.4	4.53	11378	10.4
TOTAL(3/8" X 0)	100.0	10.8	2.06	12934	5.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	28.9	3.0	.31	14357	2.2
FLOAT 1.40	79.3	5.3	.77	13939	3.0
FLOAT 1.60	91.1	7.1	1.10	13612	3.2
CUM(14M X 0)	100.0	10.9	2.07	12922	4.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	
3/8" X 14M	
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	4.4
	3.0

STATE: OHIO

COUNTY: BELMONT

BED: PITTSBURGH

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36

SAMPLE NO. 131

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

MOISTURE

3.00

3.10

.90

ASH

10.48

6.60

49.55

VOLATILE MATTER

38.24

38.22

10.80

6.82

50.00

FIXED CARBON

48.28

52.07

39.43

39.44

44.20

42.33

BTU/LB

12552

13240

49.77

53.74

55.80

57.67

14507

14663

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

CARBON

HYDROGEN

NITROGEN

SULFUR

3.18

2.22

12.44

3.28

2.29

12.56

OXYGEN

ASH

10.48

6.60

49.55

10.80

6.82

50.00

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

PYRITIC

1.97

.96

11.89

2.03

.99

12.00

SULFATIC

.01

.00

.02

.01

.00

.02

ORGANIC

1.20

1.26

.53

1.24

1.30

.54

TOTAL

3.18

2.22

12.44

3.28

2.29

12.56

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

OXIDES

SiO2 (SILICON OXIDE)

Al2O3 (ALUMINUM OXIDE)

Fe2O3 (IRON OXIDE)

TiO2 (TITANIUM OXIDE)

CaO (CALCIUM OXIDE)

MgO (MAGNESIUM OXIDE)

Na2O (SODIUM OXIDE)

K2O (POTASSIUM OXIDE)

SO3 (SULFITES)

COAL UTILIZATION RATIOS

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

INITIAL DEFORMATION (ID)

SOFTENING TEMPERATURE (ST)

FLUID TEMPERATURE (FT)

MISCELLANEOUS DATA, %

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

PHYSICAL PARAMETERS, INDEX

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

STATE: OHIO
COUNTY: BELMONT
BED: PITTSBURGH
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 36
SAMPLE NO. 132

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.0	4.0	.41	13967	3.1
FLOAT 1.40	79.9	6.5	1.39	13549	4.8
FLOAT 1.60	90.9	7.8	1.79	13331	5.4
CUM(1-1/2" X 100M)	100.0	12.7	2.23	12512	6.3
100M X 0	.4	20.7	4.31	11174	10.9
TOTAL(1-1/2" X 0)	100.0	12.7	2.24	12507	6.3

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	36.2	3.9	.41	13984	3.1
FLOAT 1.40	78.3	5.9	1.12	13649	4.3
FLOAT 1.60	89.1	7.4	1.55	13398	4.9
CUM(3/8" X 100M)	100.0	12.7	2.43	12512	6.5
100M X 0	1.1	20.1	4.44	11274	11.4
TOTAL(3/8" X 0)	100.0	12.8	2.45	12498	6.5

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.1	3.3	.32	14084	3.1
FLOAT 1.40	78.6	5.3	.81	13750	3.9
FLOAT 1.60	90.9	7.2	1.27	13432	4.6
CUM(14M X 0)	100.0	11.7	2.23	12679	6.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	---

MOISTURE, %

TOTAL	4.2
AS RECEIVED	2.8

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 36
SAMPLE NO. 132

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.80	2.50	1.60	--	--	--
ASH	11.66	6.74	55.30	12.00	6.91	56.20
VOLATILE MATTER	39.27	41.25	--	40.40	42.30	--
FIXED CARBON	46.27	49.51	--	47.60	50.78	--
BTU/LB	12275	13143	--	12629	13480	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.69	2.93	12.45	3.80	3.00	12.66
OXYGEN	--	--	--	--	--	--
ASH	11.66	6.74	55.30	12.00	6.91	56.20

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.26	1.14	11.63	2.32	1.17	11.82
SULFATIC	.03	.02	.05	.04	.02	.05
ORGANIC	1.40	1.76	.77	1.44	1.81	.79
TOTAL	3.69	2.93	12.45	3.80	3.00	12.66

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

RAW FL 1.60

BASE/ACID
DOLOMITE
HYDROGEN/CARBON
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1910	1960	--
SOFTENING TEMPERATURE (ST)	1990	2010	--
FLUID TEMPERATURE (FT)	2190	2080	--
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	15.05	9.11	67.66

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	5 1/2	6 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 133

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO ₂ EMISSION
	WEIGHT	BTU	PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	36.9	41.6	.71	14133	3.7
FLOAT 1.40	81.0	89.2	1.50	13800	4.9
FLOAT 1.60	89.4	97.2	1.89	13634	5.5
CUM(1-1/2" X 100M)	100.0	100.0	2.42	12534	6.5
100M X 0	3.4	3.2	3.40	11618	8.2
TOTAL(1-1/2" X 0)	100.0	100.0	2.45	12503	6.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO ₂ EMISSION
	WEIGHT	BTU	PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	44.6	50.5	.77	14067	3.8
FLOAT 1.40	80.1	89.0	1.42	13800	4.7
FLOAT 1.60	88.6	96.9	1.86	13584	5.4
CUM(3/8" X 100M)	100.0	100.0	2.42	12418	6.6
100M X 0	4.4	4.1	3.64	11701	8.7
TOTAL(3/8" X 0)	100.0	100.0	2.47	12386	6.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO ₂ EMISSION
	WEIGHT	BTU	PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	39.1	44.3	.47	14300	3.4
FLOAT 1.40	77.9	85.9	1.05	13934	4.3
FLOAT 1.60	88.1	95.1	1.41	13634	5.0
CUM(14M X 0)	100.0	100.0	2.53	12634	6.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	2.8
3/8" X 14M	1.4
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 133

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.40	1.30	1.30	--	--	--	--	--	--
ASH	13.41	6.82	57.25	13.60	6.91	58.00	--	--	--
VOLATILE MATTER	38.75	43.18	--	39.30	43.75	--	45.49	47.00	--
FIXED CARBON	46.44	48.69	--	47.10	49.33	--	54.51	53.00	--
BTU/LB	12473	13506	--	12650	13684	--	14641	14700	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.96	3.21	11.30	4.02	3.25	11.45	--	--	--
OXYGEN	--	--	--	--	--	--	4.65	3.49	27.26
ASH	13.41	6.82	57.25	13.60	6.91	58.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.36	1.44	10.68	2.39	1.46	10.82	2.77	1.57	25.77
SULFATIC	.00	.00	.00	.00	.00	.00	.00	.00	.00
ORGANIC	1.61	1.77	.62	1.63	1.79	.63	1.89	1.92	1.49
TOTAL	3.96	3.21	11.30	4.02	3.25	11.45	4.65	3.49	27.26

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2050	2050	--
SOFTENING TEMPERATURE (ST)	2110	2120	--
FLUID TEMPERATURE (FT)	2340	2420	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	16.90	9.25	68.94

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7	6 1/2	--
HARDGROVE GRINDABILITY (HGI)	55	51	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 134

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.9	4.4	4.4	.94	14117	3.9
FLOAT 1.40	82.7	6.6	6.6	1.14	13708	4.8
FLOAT 1.60	95.2	8.5	8.5	1.53	13399	5.3
CUM(1-1/2" X 100M)	100.0	10.6	10.6	2.12	13056	6.2
100M X 0	1.4	15.6	15.6	2.89	12139	7.1
TOTAL(1-1/2" X 0)	100.0	10.7	10.7	2.13	13043	6.2

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.6	4.2	4.2	.91	14110	3.9
FLOAT 1.40	81.9	5.8	5.8	1.36	13817	4.5
FLOAT 1.60	92.5	7.2	7.2	1.64	13593	5.0
CUM(3/8" X 100M)	100.0	10.6	10.6	2.28	13016	6.1
100M X 0	5.7	12.7	12.7	2.69	12623	6.9
TOTAL(3/8" X 0)	100.0	10.7	10.7	2.30	12993	6.1

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.0	3.6	3.6	.75	13971	3.9
FLOAT 1.40	79.7	4.8	4.8	1.05	13843	4.2
FLOAT 1.60	91.4	6.4	6.4	1.41	13600	4.7
CUM(14M X 0)	100.0	10.3	10.3	2.19	12950	6.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	70.6
3/8" X 14M	22.0
14M X 100M	6.0
100M X 0	1.4
TOTAL AS RECEIVED	3.4
	2.2

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 134

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.20	1.60	1.70	--	--	--
ASH	10.48	6.55	52.59	10.71	6.66	53.50
VOLATILE MATTER	40.36	42.44	21.82	41.27	43.13	22.20
FIXED CARBON	46.96	49.41	23.89	48.02	50.21	24.30
BTU/LB	12607	13346	5716	12890	13563	5815
					14437	14530
						12505

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	69.96	74.17	29.78	71.53	75.37	30.30
HYDROGEN	5.13	5.34	2.45	5.00	5.25	2.30
NITROGEN	1.33	1.41	.59	1.36	1.43	.60
SULFUR	3.95	3.44	11.36	4.04	3.50	11.56
OXYGEN	9.15	9.09	3.22	7.35	7.79	1.74
ASH	10.48	6.55	52.59	10.71	6.66	53.50

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.27	1.35	10.30	2.32	1.37	10.48
SULFATIC	.05	.05	.06	.06	.05	.06
ORGANIC	1.63	2.04	1.00	1.67	2.08	1.02
TOTAL	3.95	3.44	11.36	4.04	3.50	11.56

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	43.47	43.04	39.63			
SiO2 (SILICON OXIDE)	21.50	24.51	16.59	2.60	1.47	22.54
Al2O3 (ALUMINUM OXIDE)	26.02	24.88	32.31	.06	.05	.13
Fe2O3 (IRON OXIDE)	1.10	1.13	1.03	1.87	2.23	2.19
TiO2 (TITANIUM OXIDE)	2.77	1.26	4.23	4.53	3.75	24.85
CaO (CALCIUM OXIDE)	.66	.70	.56			
MgO (MAGNESIUM OXIDE)	.57	.49	.30			
Na2O (SODIUM OXIDE)	1.76	1.71	1.52			
K2O (POTASSIUM OXIDE)	1.46	.48	2.49			
SO3 (SULFITES)						

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	.48	.42				
DOLOMITE	.11	.07				
HYDROGEN/CARBON	.84	.84				
OXYGEN/CARBON	.08	.08				
R250	.69	.72				
SILICA	.60	.62				
SILICA/ALUMINA	2.02	1.76				

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	.16	--				
NA (SODIUM) (CALCULATED)	.05	.02				
MINERAL MATTER (PARR)	13.79	9.15				
FREE SWELLING (FSI)	5	--				
HARDGROVE GRINDABILITY (HGI)	56	--				

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
INITIAL DEFORMATION (ID)	2160	2150				
SOFTENING TEMPERATURE (ST)	2250	2260				
FLUID TEMPERATURE (FT)	2350	2370				

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	.16	--				
NA (SODIUM) (CALCULATED)	.05	.02				
MINERAL MATTER (PARR)	13.79	9.15				

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 135

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.2	3.8	.59	14200	3.7
FLOAT 1.40	81.3	5.9	1.29	13850	4.7
FLOAT 1.60	92.8	7.6	1.70	13567	5.4
CUM(1-1/2" X 100M)	100.0	10.6	2.32	13067	6.4
100M X 0	.5	13.7	2.64	12551	6.5
TOTAL(1-1/2" X 0)	100.0	10.6	2.32	13065	6.4

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.7	3.7	.60	14217	3.8
FLOAT 1.40	81.0	5.9	1.17	13850	4.6
FLOAT 1.60	91.1	7.4	1.57	13600	5.2
CUM(3/8" X 100M)	100.0	11.3	2.54	12951	6.8
100M X 0	1.2	13.6	3.12	12568	7.5
TOTAL(3/8" X 0)	100.0	11.3	2.55	12946	6.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.0	3.3	.51	14283	3.7
FLOAT 1.40	81.8	5.3	.94	13950	4.3
FLOAT 1.60	90.9	6.6	1.25	13734	4.5
CUM(14M X 0)	100.0	10.5	2.38	13084	6.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	3.2
3/8" X 14M	1.8
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 135

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.80	1.90	1.40	--	--	--	--	--	--
ASH	10.41	6.18	49.30	10.60	6.30	50.00	--	--	--
VOLATILE MATTER	40.65	41.99	--	41.40	42.80	--	46.31	45.68	--
FIXED CARBON	47.14	49.93	--	48.00	50.90	--	53.69	54.32	--
BTU/LB	12864	13489	--	13100	13750	--	14653	14674	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.23	3.18	14.08	4.31	3.24	14.28	4.82	3.46	28.56
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	10.41	6.18	49.30	10.60	6.30	50.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.31	1.19	13.48	2.35	1.21	13.67	2.63	1.29	27.34
SULFATIC	.03	.02	.04	.03	.02	.04	.03	.02	.08
ORGANIC	1.90	1.97	.56	1.93	2.01	.57	2.16	2.15	1.14
TOTAL	4.23	3.18	14.08	4.31	3.24	14.28	4.82	3.46	28.56

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1970	2000	--
SOFTENING TEMPERATURE (ST)	2020	2050	--
FLUID TEMPERATURE (FT)	2160	2180	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PAER)	13.82	8.59	61.85

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6	6 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 136

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.0	3.7	.48	14217	4.0
FLOAT 1.40	58.9	6.7	1.23	13717	5.4
FLOAT 1.60	70.2	8.7	1.68	13384	6.2
FLOAT 1.90	75.1	10.5	1.86	13084	6.6
CUM(1-1/2" X 100M)	100.0	28.7	2.61	10052	9.0
100M X 0	.2	32.0	2.89	9503	9.5
TOTAL(1-1/2" X 0)	100.0	28.7	2.61	10051	9.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.0	3.5	.42	14250	3.9
FLOAT 1.40	59.6	5.9	1.02	13850	5.0
FLOAT 1.60	69.1	7.6	1.44	13567	5.7
FLOAT 1.90	75.1	10.5	1.86	13084	6.6
CUM(3/8" X 100M)	100.0	28.7	2.55	10052	9.2
100M X 0	.7	33.4	3.07	9270	9.7
TOTAL(3/8" X 0)	100.0	28.7	2.55	10047	9.2

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.6	3.4	.37	14267	3.8
FLOAT 1.40	52.6	5.4	.73	13934	4.5
FLOAT 1.60	65.6	7.8	1.13	13534	5.2
FLOAT 1.90	75.1	10.5	1.86	13084	6.6
CUM(14M X 0)	100.0	28.9	2.79	10019	9.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.2

--- MOISTURE, % ---	
TOTAL	4.0
AS RECEIVED	2.2

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 136

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.20	--	--	--	--	--
ASH	27.13	--	27.74	--	--	--
VOLATILE MATTER	34.08	--	34.85	--	48.23	--
FIXED CARBON	36.59	--	37.41	--	51.77	--
BTU/LB	10409	--	10643	--	14730	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.48	--	4.58	--	6.34	--
OXYGEN	--	--	--	--	--	--
ASH	27.13	--	27.74	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.78	--	2.84	--	3.93	--
SULFATIC	.04	--	.04	--	.06	--
ORGANIC	1.66	--	1.70	--	2.35	--
TOTAL	4.48	--	4.58	--	6.34	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--
SOFTENING TEMPERATURE (ST)	--	--
FLUID TEMPERATURE (FT)	--	--
MISCELLANEOUS DATA, %		
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	32.48	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--
HARDGROVE GRINDABILITY (HGI)	--	--

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 137

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.9	4.2	90	14263	4.4
FLOAT 1.40	83.8	6.6	1.97	13844	5.8
FLOAT 1.60	95.9	8.0	2.46	13599	6.5
CUM(1-1/2" X 100M)	100.0	9.8	2.73	13284	7.1
100M X 0	1.8	14.9	2.93	12391	7.7
TOTAL(1-1/2" X 0)	100.0	9.9	2.73	13268	7.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.8	4.1	.87	14281	4.4
FLOAT 1.40	84.4	6.2	1.74	13914	5.5
FLOAT 1.60	95.3	7.5	2.25	13686	6.3
CUM(3/8" X 100M)	100.0	9.4	2.57	13354	7.0
100M X 0	6.4	10.9	2.65	13091	7.5
TOTAL(3/8" X 0)	100.0	9.5	2.58	13337	7.1

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.1	3.8	.58	14333	4.3
FLOAT 1.40	79.5	5.5	1.17	14036	5.0
FLOAT 1.60	92.4	7.0	1.71	13774	5.9
CUM(14M X 0)	100.0	10.0	2.52	13249	7.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	61.8
3/8" X 14M	28.7
14M X 100M	7.7
100M X 0	1.8

TOTAL AS RECEIVED	2.8
	1.7

STATE: OHIO
COUNTY: BELMONT
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 137

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.70	1.50	--	--	--	--
ASH	9.63	7.09	9.80	48.33	--	--
VOLATILE MATTER	41.24	42.30	41.95	27.47	46.51	53.16
FIXED CARBON	47.43	49.10	48.25	24.20	53.49	46.84
BTU/LB	13084	13508	13310	6540	14756	12659

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	71.04	73.73	72.27	33.28	80.13	64.41
HYDROGEN	5.37	5.52	5.27	2.76	5.84	5.35
NITROGEN	1.26	1.30	1.28	.59	1.42	1.15
SULFUR	4.73	3.89	4.81	15.03	5.33	29.10
OXYGEN	7.97	8.47	6.57	--	7.28	--
ASH	9.63	7.09	9.80	48.33	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.55	1.82	2.59	12.21	2.87	23.64
SULFATIC	.01	.01	.01	.01	.01	.02
ORGANIC	2.17	2.06	2.21	2.81	2.45	5.44
TOTAL	4.73	3.89	4.81	15.03	5.33	29.10

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	34.94	38.35	21.20	2100	2120	2100
SiO2 (SILICON OXIDE)	18.86	21.50	12.82	2200	2210	2200
AL2O3 (ALUMINUM OXIDE)	33.74	32.03	36.32	2310	2320	2310
Fe2O3 (IRON OXIDE)	1.10	.90	.63	--	--	--
TiO2 (TITANIUM OXIDE)	3.81	1.51	8.68	--	--	--
CaO (CALCIUM OXIDE)	.63	.60	.46	--	--	--
MgO (MAGNESIUM OXIDE)	.51	.54	.02	--	--	--
Na2O (SODIUM OXIDE)	1.33	1.23	.99	--	--	--
K2O (POTASSIUM OXIDE)	1.43	.82	4.64	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.73	.59	--	--	--	--
DOLOMITE	.11	.06	--	--	--	--
HYDROGEN/CARBON	.88	.87	--	--	--	--
OXYGEN/CARBON	.07	.07	--	--	--	--
R250	.59	.64	--	--	--	--
SILICA	.48	.53	--	--	--	--
SILICA/ALUMINA	1.85	1.78	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	7	1/2	7	1/2	7	1/2
HARDGROVE GRINDABILITY (HGI)	58	--	58	--	58	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2120	2100	2120	2100	2120	2100
SOFTENING TEMPERATURE (ST)	2210	2200	2210	2200	2210	2200
FLUID TEMPERATURE (FT)	2320	2310	2320	2310	2320	2310

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.02	--	.02	--	.02	--
NA (SODIUM) (CALCULATED)	.04	.03	.04	.03	.04	.01
MINERAL MATTER (PARR)	13.23	9.95	13.23	9.95	13.23	60.47

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 36
SAMPLE NO. 138

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.0	3.7	.58	14178	3.0
FLOAT 1.40	77.5	7.2	1.97	13610	5.4
FLOAT 1.60	92.3	9.0	2.55	13302	6.4
CUM(1-1/2" X 100M)	100.0	11.8	3.18	12793	7.6
100M X 0	1.1	20.4	4.43	11182	12.4
TOTAL(1-1/2" X 0)	100.0	11.9	3.19	12775	7.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.1	3.5	.49	14258	2.9
FLOAT 1.40	77.6	6.3	1.37	13767	4.3
FLOAT 1.60	90.4	8.0	1.96	13474	5.3
CUM(3/8" X 100M)	100.0	11.8	3.10	12777	7.2
100M X 0	5.3	17.6	4.70	11689	11.9
TOTAL(3/8" X 0)	100.0	12.1	3.18	12719	7.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.3	3.0	.35	14267	2.9
FLOAT 1.40	74.4	5.3	.92	13871	3.6
FLOAT 1.60	88.6	7.0	1.42	13579	4.4
CUM(14M X 0)	100.0	12.0	3.35	12673	7.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.9
3/8" X 14M	20.0
14M X 100M	5.0
100M X 0	1.1

--- MOISTURE, % ---

TOTAL	4.6
AS RECEIVED	3.2

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 36
SAMPLE NO. 138

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.20	3.10 1.60	--	--	--	--
ASH	11.81	6.88 50.18	12.20	7.10 51.00	--	--
VOLATILE MATTER	38.40	40.34 24.70	39.67	41.63 25.10	45.18	44.81 51.22
FIXED CARBON	46.59	49.58 23.52	48.13	51.27 23.90	54.82	55.19 48.78
BTU/LB	12240	13143 5533	12645	13564 5623	14402	14601 11475

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	68.54	73.94 27.51	70.81	76.30 27.96	80.65	82.14 57.07
NITROGEN	5.06	5.42 2.10	4.86	5.24 1.95	5.54	5.64 3.98
HYDROGEN	1.26	1.36 .51	1.30	1.40 .51	1.48	1.51 1.05
SULFUR	4.74	2.95 18.28	4.90	3.04 18.57	5.58	3.27 37.91
OXYGEN	8.59	9.46 --	5.94	6.92 --	6.76	7.45 --
ASH	11.81	6.88 50.18	12.20	7.10 51.00	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.11	1.36 17.88	3.21	1.40 18.17	3.66	1.51 37.08
SULFATIC	.10	.05 .16	.11	.05 .16	.12	.05 .33
ORGANIC	1.53	1.54 .24	1.58	1.59 .24	1.80	1.71 .50
TOTAL	4.74	2.95 18.28	4.90	3.04 18.57	5.58	3.27 37.91

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	33.24	41.76 24.29
Al2O3 (ALUMINUM OXIDE)	17.35	22.63 11.31
Fe2O3 (IRON OXIDE)	37.75	30.31 48.90
TiO2 (TITANIUM OXIDE)	.67	1.00 .33
CaO (CALCIUM OXIDE)	4.48	1.01 6.72
MgO (MAGNESIUM OXIDE)	.63	.70 .46
Na2O (SODIUM OXIDE)	.16	.24 .24
K2O (POTASSIUM OXIDE)	1.30	1.66 .84
SO3 (SULFITES)	1.65	.61 2.59

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.86	.52
DOLOMITE	.12	.05
HYDROGEN/CARBON	.82	.82
OXYGEN/CARBON	.06	.07
R250	.55	.67
SILICA	.44	.57
SILICA/ALUMINA	1.92	1.85

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	1880	2090
SOFTENING TEMPERATURE (ST)	1920	2160
FLUID TEMPERATURE (FT)	1970	2360

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.06	--
NA (SODIUM) (CALCULATED)	.01	.01 .09
MINERAL MATTER (PARR)	15.87	9.34 65.30

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	6	5 1/2
HARDGROVE GRINDABILITY (HGI)	57	--

STATE: OHIO
COUNTY: BELMONT
BED: PITTSBURGH
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 36
SAMPLE NO. 139

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	13.4	3.3	.44	14223	2.9
FLOAT 1.40	64.8	7.0	1.39	13564	4.7
FLOAT 1.60	86.6	9.8	2.16	13066	6.1
CUM(1-1/2" X 100M)	100.0	15.5	3.27	12052	8.4
100M X 0	.9	28.2	4.68	9793	12.9
TOTAL(1-1/2" X 0)	100.0	15.6	3.28	12032	8.4

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	23.5	3.2	.31	14240	3.0
FLOAT 1.40	71.9	6.6	1.12	13635	4.2
FLOAT 1.60	84.9	8.3	1.84	13333	5.1
CUM(3/8" X 100M)	100.0	14.9	3.15	12159	8.0
100M X 0	3.3	23.5	4.68	10629	12.0
TOTAL(3/8" X 0)	100.0	15.2	3.20	12108	8.1

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	28.3	2.7	.24	14329	2.8
FLOAT 1.40	68.1	5.4	.68	13849	3.5
FLOAT 1.60	83.2	7.6	1.24	13458	4.4
CUM(14M X 0)	100.0	15.1	3.30	12123	8.3

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	80.2
3/8" X 14M	14.9
14M X 100M	4.0
100M X 0	.9

----- MOISTURE, %

TOTAL AS RECEIVED	4.7
	2.5

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 36
SAMPLE NO. 139

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.50	1.80	1.40	--	--	--	--	--	--
ASH	15.31	7.76	51.47	15.70	7.90	52.20	--	--	--
VOLATILE MATTER	35.46	38.93	21.40	36.37	39.64	21.70	43.15	43.04	45.40
FIXED CARBON	46.73	51.51	25.73	47.93	52.46	26.10	56.86	56.96	54.60
BTU/LB	11841	13058	5423	12145	13297	5500	14407	14438	11506

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	65.71	72.73	29.35	67.40	74.06	29.77	79.95	80.41	62.28
HYDROGEN	4.82	5.32	2.23	4.66	5.21	2.10	5.53	5.66	4.39
NITROGEN	1.20	1.36	.49	1.23	1.39	.50	1.46	1.51	1.05
SULFUR	4.82	2.82	14.99	4.94	2.87	15.20	5.86	3.12	31.80
OXYGEN	8.14	10.01	1.47	6.07	8.57	.23	7.20	9.30	.48
ASH	15.31	7.76	51.47	15.70	7.90	52.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.22	1.27	13.51	3.30	1.29	13.50	3.91	1.40	28.25
SULFATIC	.08	.04	.12	.08	.04	.12	.09	.04	.25
ORGANIC	1.52	1.51	1.56	1.56	1.54	1.58	1.85	1.67	3.31
TOTAL	4.82	2.82	14.99	4.94	2.87	15.20	5.86	3.12	31.80

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	.83	.84	--	--	--	--	--	--	--
OXYGEN/CARBON	.07	.09	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PARR)	19.68	10.11	64.74	--	--	--	--	--	--

FREE SWELLING (FSI) 6 1/2 6
HARDGROVE GRINDABILITY (HGI) 61

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PARR)	19.68	10.11	64.74	--	--	--	--	--	--

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 140

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.4	4.6	.75	14067	4.6
FLOAT 1.40	74.5	7.3	1.57	13617	6.0
FLOAT 1.60	93.3	9.8	2.15	13201	7.1
FLOAT 1.90	96.6	10.8	2.33	13034	7.5
CUM(1-1/2" X 100M)	100.0	12.6	2.72	12734	8.3
100M X 0	.1	30.7	5.38	9719	14.7
TOTAL(1-1/2" X 0)	100.0	12.6	2.72	12731	8.3

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.4	3.5	.65	14250	4.3
FLOAT 1.40	77.8	6.7	1.28	13717	5.5
FLOAT 1.60	91.8	8.4	1.72	13434	6.3
FLOAT 1.90	96.6	10.8	2.33	13034	7.5
CUM(3/8" X 100M)	100.0	12.1	2.56	12818	8.0
100M X 0	.6	20.8	4.45	11368	11.9
TOTAL(3/8" X 0)	100.0	12.2	2.57	12809	8.0

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	12.8	3.3	.54	14283	4.3
FLOAT 1.40	72.7	6.3	1.09	13784	5.2
FLOAT 1.60	90.1	8.4	1.58	13434	6.1
FLOAT 1.90	96.6	10.8	2.33	13034	7.5
CUM(14M X 0)	100.0	12.7	2.64	12718	8.3

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---	TOTAL	2.2
3/8" X 14M	---	AS RECEIVED	1.5
14M X 100M	---		
100M X 0	.1		

----- MOISTURE, % -----

STATE: OHIO
COUNTY: BELMONT
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 140

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.50	--	--	--	--	--
ASH	12.21	--	--	12.40	--	--
VOLATILE MATTER	41.37	--	--	42.00	--	--
FIXED CARBON	44.92	--	--	45.60	--	--
					47.95	--
					52.05	--
BTU/LB	12638	--	--	12830	--	--
					14646	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.89	--	--	4.96	--	--
OXYGEN	--	--	--	--	5.67	--
ASH	12.21	--	--	12.40	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.87	--	--	2.91	--	--
SULFATIC	.25	--	--	.25	--	--
ORGANIC	1.78	--	--	1.80	--	--
TOTAL	4.89	--	--	4.96	--	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES						
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--
MISCELLANEOUS DATA, %						
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	16.12	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 141

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.7	3.9	.70	14245	3.7
FLOAT 1.40	80.2	6.7	2.08	13742	5.8
FLOAT 1.60	93.4	8.2	2.51	13472	6.5
CUM(1-1/2" X 100M)	100.0	10.9	3.26	12987	7.8
100M X 0	.6	17.0	5.68	11890	12.2
TOTAL(1-1/2" X 0)	100.0	10.9	3.27	12980	7.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.0	3.6	.62	14299	3.7
FLOAT 1.40	80.0	6.4	1.78	13796	5.5
FLOAT 1.60	91.7	7.7	2.23	13562	6.1
CUM(3/8" X 100M)	100.0	11.1	3.14	12951	7.8
100M X 0	1.3	17.2	6.35	11855	13.5
TOTAL(3/8" X 0)	100.0	11.2	3.18	12937	7.9

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.7	3.0	.44	14407	3.3
FLOAT 1.40	76.0	5.4	1.17	13975	4.7
FLOAT 1.60	91.4	7.2	1.74	13652	5.6
CUM(14M X 0)	100.0	10.9	3.26	12987	8.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	---

MOISTURE, %

TOTAL	2.9
AS RECEIVED	1.5

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 141

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	1.50	1.90	1.30	--	--	--	--
ASH	11.17	6.78	49.74	11.34	6.91	--	--
VOLATILE MATTER	40.80	41.64	--	41.42	42.45	--	--
FIXED CARBON	46.53	49.68	--	47.24	50.64	46.72	45.60
BTU/LB	12715	13443	--	12908	13704	53.28	54.40
						14559	14721

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--
SULFUR	5.17	3.71	20.74	5.25	3.78	5.92	4.06
OXYGEN	--	--	--	--	--	--	--
ASH	11.17	6.78	49.74	11.34	6.91	--	--
						50.40	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	3.35	1.75	19.16	3.40	1.78	3.84	1.91
SULFATIC	.04	.03	.05	.04	.03	.05	.03
ORGANIC	1.78	1.93	1.52	1.81	1.97	2.04	2.12
TOTAL	5.17	3.71	20.74	5.25	3.78	5.92	4.06

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE AND ASH FREE	
	RAW	FL 1.60		RAW	SK 1.60
OXIDES	--	--		--	--
SiO2 (SILICON OXIDE)	--	--		FL 1.60	SK 1.60
Al2O3 (ALUMINUM OXIDE)	--	--		2010	1990
Fe2O3 (IRON OXIDE)	--	--		2060	2070
TiO2 (TITANIUM OXIDE)	--	--		2240	2260
CaO (CALCIUM OXIDE)	--	--		--	--
MgO (MAGNESIUM OXIDE)	--	--		--	--
Na2O (SODIUM OXIDE)	--	--		--	--
K2O (POTASSIUM OXIDE)	--	--		--	--
SO3 (SULFITES)	--	--		--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE AND ASH FREE	
	RAW	FL 1.60		RAW	SK 1.60
BASE/ACID	--	--		--	--
DOLOMITE	--	--		--	--
HYDROGEN/CARBON	--	--		--	--
OXYGEN/CARBON	--	--		--	--
R250	--	--		--	--
SILICA	--	--		--	--
SILICA/ALUMINA	--	--		--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE AND ASH FREE	
	RAW	FL 1.60		RAW	SK 1.60
FREE SWELLING	--	--		--	--
HARDGROVE GRINDABILITY (HGI)	--	--		--	--

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 142

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.3	4.1	32.1	.44	14002	4.0
FLOAT 1.40	71.0	6.6	78.4	1.54	13630	5.2
FLOAT 1.60	87.5	8.7	94.1	2.43	13287	6.7
CUM(1-1/2" X 100M)	100.0	14.1	100.0	3.97	12351	9.4
100M X 0	1.5	21.5	1.3	4.51	11094	9.8
TOTAL(1-1/2" X 0)	100.0	14.2	100.0	3.98	12332	9.4

--- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.8	4.1	44.2	.53	14017	3.9
FLOAT 1.40	71.2	6.1	79.3	1.24	13700	5.1
FLOAT 1.60	87.0	8.2	94.5	2.09	13352	6.4
CUM(3/8" X 100M)	100.0	14.3	100.0	4.11	12298	9.8
100M X 0	6.9	17.9	6.6	4.76	11707	10.7
TOTAL(3/8" X 0)	100.0	14.5	100.0	4.15	12257	9.9

--- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.4	4.1	44.4	.50	14065	4.2
FLOAT 1.40	68.6	5.6	75.9	1.01	13808	4.9
FLOAT 1.60	87.2	7.8	94.0	1.86	13456	6.2
CUM(14M X 0)	100.0	13.5	100.0	3.97	12481	9.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	76.6
3/8" X 14M	18.0
14M X 100M	3.9
100M X 0	1.5
TOTAL AS RECEIVED	4.1
	2.1

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 142

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.10	1.30	1.30	--	--	--	--	--	--
ASH	13.61	7.90	51.16	13.90	8.00	52.30	--	--	--
VOLATILE MATTER	41.97	44.93	25.31	42.87	45.53	25.70	49.80	49.48	53.88
FIXED CARBON	42.32	45.87	21.71	43.23	46.47	22.00	50.20	50.52	46.12
BTU/LB	12162	13252	5764	12423	13427	5840	14428	14594	12243

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	67.41	72.36	28.52	68.86	73.31	28.90	79.98	79.68	60.59
HYDROGEN	5.02	5.39	2.22	4.89	5.31	2.10	5.68	5.78	4.40
NITROGEN	1.21	1.34	.49	1.24	1.36	.50	1.44	1.48	1.05
SULFUR	5.32	3.84	16.45	5.44	3.89	16.66	6.31	4.23	34.93
OXYGEN	7.43	9.18	--	5.68	8.13	--	6.59	8.83	--
ASH	13.61	7.90	51.62	13.90	8.00	52.30	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.89	2.02	16.30	3.97	2.05	16.51	4.61	2.22	34.61
SULFATIC	--	.00	.01	.01	.00	.01	.01	.00	.01
ORGANIC	1.43	1.82	.15	1.46	1.84	.15	1.70	2.00	.31
TOTAL	5.32	3.84	16.45	5.44	3.89	16.66	6.31	4.23	34.93

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO ₂ (SILICON OXIDE)	32.81	35.80	29.83
Al ₂ O ₃ (ALUMINUM OXIDE)	17.72	21.12	12.45
Fe ₂ O ₃ (IRON OXIDE)	39.18	33.74	46.33
TiO ₂ (TITANIUM OXIDE)	.67	1.00	.33
CaO (CALCIUM OXIDE)	3.55	2.15	4.51
MgO (MAGNESIUM OXIDE)	.80	.90	.56
Na ₂ O (SODIUM OXIDE)	.43	.57	.40
K ₂ O (POTASSIUM OXIDE)	1.47	1.71	1.18
SO ₃ (SULFITES)	2.82	1.28	2.70

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.89	.67
DOLOMITE	.10	.08
HYDROGEN/CARBON	.85	.87
OXYGEN/CARBON	.96	.08
R ₂ S ₀	.54	.61
SILICA	.43	.49
SILICA/ALUMINA	1.85	1.70

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1970	1950	--
SOFTENING TEMPERATURE (ST)	2020	2000	--
FLUID TEMPERATURE (FT)	2070	2050	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.03	--	--
NA (SODIUM) (CALCULATED)	.04	.03	.16
MINERAL MATTER (PARR)	18.00	10.78	65.11

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4	3 1/2	--
HARDGROVE GRINDABILITY (HGI)	53	47	--

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 143

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.7	4.1	.75	14150	4.0
FLOAT 1.40	74.3	6.9	1.81	13684	5.6
FLOAT 1.60	86.5	8.4	2.34	13434	6.4
CUM(1-1/2" X 100M)	100.0	15.1	4.38	12318	10.1
100M X 0	1.0	25.0	5.30	10669	12.6
TOTAL(1-1/2" X 0)	100.0	15.2	4.39	12301	10.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.5	4.5	.79	14083	4.0
FLOAT 1.40	76.9	6.7	1.59	13717	5.2
FLOAT 1.60	88.9	8.3	2.21	13450	6.1
CUM(3/8" X 100M)	100.0	13.7	3.80	12551	9.0
100M X 0	2.3	24.4	7.22	10769	15.7
TOTAL(3/8" X 0)	100.0	13.9	3.88	12510	9.1

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.3	5.5	1.04	13917	4.4
FLOAT 1.40	73.6	6.7	1.57	13717	5.2
FLOAT 1.60	85.5	8.5	2.15	13417	6.2
CUM(14M X 0)	100.0	15.1	4.26	12318	10.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	3.2
3/8" X 14M	1.8
14M X 100M	
100M X 0	

TOTAL
AS RECEIVED

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 143

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	RAW	AS RECEIVED FL 1.60 SK 1.60	RAW	MOISTURE FREE FL 1.60 SK 1.60	MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
MOISTURE	1.80	1.50	1.10	---	---
ASH	14.83	8.04	53.41	8.16	54.00
VOLATILE MATTER	40.65	44.25	---	41.40	44.92
FIXED CARBON	42.72	46.21	---	43.50	46.92
BTU/LB	12049	13177	---	12270	13378
					14452
					14566

ULTIMATE ANALYSIS, %

	RAW	AS RECEIVED FL 1.60 SK 1.60	RAW	MOISTURE FREE FL 1.60 SK 1.60	MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
CARBON	---	---	---	---	---
HYDROGEN	---	---	---	---	---
NITROGEN	---	---	---	---	---
SULFUR	6.09	3.90	17.86	6.21	18.06
OXYGEN	---	---	---	---	---
ASH	14.83	8.04	53.41	15.10	8.16
					54.00

SULFUR FORMS ANALYSIS, %

	RAW	AS RECEIVED FL 1.60 SK 1.60	RAW	MOISTURE FREE FL 1.60 SK 1.60	MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
PYRITIC	4.33	1.91	16.52	4.41	16.70
SULFATIC	.02	.01	.04	.03	.01
ORGANIC	1.74	1.98	1.30	1.77	2.02
TOTAL	6.09	3.90	17.86	6.21	18.06
					7.31
					4.31
					39.25
					2.86
					39.25

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	---	---	---
SiO2 (SILICON OXIDE)	---	---	---
Al2O3 (ALUMINUM OXIDE)	---	---	---
Fe2O3 (IRON OXIDE)	---	---	---
TiO2 (TITANIUM OXIDE)	---	---	---
CaO (CALCIUM OXIDE)	---	---	---
MgO (MAGNESIUM OXIDE)	---	---	---
Na2O (SODIUM OXIDE)	---	---	---
K2O (POTASSIUM OXIDE)	---	---	---
SO3 (SULFITES)	---	---	---

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	---	---
DOLOMITE	---	---
HYDROGEN/CARBON	---	---
OXYGEN/CARBON	---	---
R250	---	---
SILICA	---	---
SILICA/ALUMINA	---	---

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1970	1990	---
SOFTENING TEMPERATURE (ST)	2020	2030	---
FLUID TEMPERATURE (FT)	2170	2250	---
MISCELLANEOUS DATA, %	---	---	---
CL (CHLORINE) (ANALYZED)	---	---	---
NA (SODIUM) (CALCULATED)	---	---	---
MINERAL MATTER (PARR)	19.72	10.99	68.25

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	5	5 1/2	---
HARDGROVE GRINDABILITY (HGI)	---	---	---

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 144

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.4	47.0	5.3	1.06	13950	4.7
FLOAT 1.40	68.0	83.2	7.5	1.95	13584	6.0
FLOAT 1.60	78.6	93.7	9.6	2.57	13234	6.9
FLOAT 1.90	82.2	96.3	11.0	2.84	13001	7.4
CUM(1-1/2" X 100M)	100.0	100.0	22.4	4.62	11102	11.3
100M X 0	.9	.9	22.6	4.64	11072	11.4
TOTAL(1-1/2" X 0)	100.0	100.0	22.4	4.62	11102	11.3

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.7	45.0	5.2	.97	13967	4.4
FLOAT 1.40	68.5	83.5	7.9	1.93	13517	5.8
FLOAT 1.60	77.6	92.5	9.7	2.44	13217	6.5
FLOAT 1.90	82.2	96.3	11.0	2.84	13001	7.4
CUM(3/8" X 100M)	100.0	100.0	22.5	4.62	11085	11.2
100M X 0	4.0	4.0	22.9	4.91	11022	11.7
TOTAL(3/8" X 0)	100.0	100.0	22.5	4.63	11083	11.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.3	38.8	4.2	1.06	14133	4.4
FLOAT 1.40	60.1	74.5	6.9	2.04	13684	5.3
FLOAT 1.60	77.1	91.8	10.2	3.03	13134	6.5
FLOAT 1.90	82.2	96.3	11.0	2.84	13001	7.4
CUM(14M X 0)	100.0	100.0	22.8	5.12	11035	11.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	3.8
3/8" X 14M	2.1
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	

STATE: OHIO
COUNTY: BELMONT

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 144

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.10	--	--	--	--	--
ASH	23.20	--	--	23.70	--	--
VOLATILE MATTER	36.10	--	--	36.87	--	48.33
FIXED CARBON	38.60	--	--	39.43	--	51.67
BTU/LB	10821	--	--	11053	--	14486

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	6.41	--	--	6.55	--	8.58
OXYGEN	--	--	--	--	--	--
ASH	23.20	--	--	23.70	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.96	--	--	5.07	--	6.64
SULFATIC	.14	--	--	.14	--	.18
ORGANIC	1.31	--	--	1.34	--	1.76
TOTAL	6.41	--	--	6.55	--	8.58

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	29.20	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: OHIO
 COUNTY: GALLIA
 BED: PITTSBURGH
 RANK: HIGH VOLATILE B BITUMINOUS
 BED CODE: 36
 SAMPLE NO. 145

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	36.7	3.5	.64	13658	2.6
FLOAT 1.40	90.3	6.2	1.49	13215	3.8
FLOAT 1.60	96.1	7.0	1.75	13084	4.2
CUM(1-1/2" X 100M)	100.0	8.6	2.29	12822	5.1
100M X 0	.8	26.9	7.54	9823	16.7
TOTAL(1-1/2" X 0)	100.0	8.7	2.33	12798	5.2

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.3	3.5	.63	13658	2.5
FLOAT 1.40	88.2	5.3	.94	13363	3.1
FLOAT 1.60	94.3	6.3	1.15	13199	3.4
CUM(3/8" X 100M)	100.0	8.7	2.29	12806	5.3
100M X 0	2.0	18.9	6.27	11134	12.7
TOTAL(3/8" X 0)	100.0	8.9	2.37	12772	5.4

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.7	3.1	.48	13723	2.4
FLOAT 1.40	86.2	4.3	.66	13527	2.7
FLOAT 1.60	92.9	5.4	.79	13346	2.9
CUM(14M X 0)	100.0	9.0	2.24	12756	5.2

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
 3/8" X 14M ---
 14M X 100M ---
 100M X 0 ---

--- MOISTURE, % ---
 TOTAL 7.4
 AS RECEIVED 6.1

STATE: OHIO
COUNTY: GALLIA
BED: PITTSBURGH
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 36
SAMPLE NO. 145

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	RAW	AS RECEIVED FL 1.60	SK 1.60	RAW	MOISTURE FREE FL 1.60	SK 1.60	MOISTURE AND ASH FREE RAW FL 1.60	SK 1.60
MOISTURE	6.10	4.20	1.50	--	--	--	--	--
ASH	8.54	5.27	55.16	9.10	5.50	56.00	--	--
VOLATILE MATTER	37.37	40.14	--	39.80	41.90	--	43.78	44.34
FIXED CARBON	47.98	50.39	--	51.10	52.60	--	56.22	55.66
BTU/LB	11963	12770	--	12740	13330	--	14015	14106

ULTIMATE ANALYSIS, %

	RAW	AS RECEIVED FL 1.60	SK 1.60	RAW	MOISTURE FREE FL 1.60	SK 1.60	MOISTURE AND ASH FREE RAW FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--
SULFUR	2.84	1.77	19.20	3.03	1.85	19.49	3.33	1.96
OXYGEN	--	--	--	--	--	--	--	--
ASH	8.54	5.27	55.16	9.10	5.50	56.00	--	--

SULFUR FORMS ANALYSIS, %

	RAW	AS RECEIVED FL 1.60	SK 1.60	RAW	MOISTURE FREE FL 1.60	SK 1.60	MOISTURE AND ASH FREE RAW FL 1.60	SK 1.60
PYRITIC	1.96	.72	18.80	2.08	.75	19.09	2.29	.79
SULFATIC	.04	.02	.03	.04	.02	.03	.04	.07
ORGANIC	.85	1.03	.36	.90	1.08	.37	.99	1.14
TOTAL	2.84	1.77	19.20	3.03	1.85	19.49	3.33	1.96

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2030	2350	--
SORTENING TEMPERATURE (ST)	2140	2400	--
FLUID TEMPERATURE (FT)	2400	2550	--
MISCELLANEOUS DATA, %	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (FARR)	11.14	6.96	67.35

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4	4	--
HARDGROVE GRINDABILITY (HGI)	46	--	--

STATE: OHIO
 COUNTY: GUERNSEY
 BED: PITTSBURGH
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 36
 SAMPLE NO. 146

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)									
PRODUCT	RECOVERY, %	BTU	ASH, %	SULFUR, %	HEATING VALUE	SO ₂ EMISSION			
	WEIGHT			PYRITIC	BTU/LB	LB/MM BTU			
FLOAT 1.30	42.0	44.6	3.8	.23	13944	4.6			
FLOAT 1.40	82.6	85.8	5.5	.54	13648	5.1			
FLOAT 1.60	96.8	98.3	7.2	1.27	13352	6.1			
CUM(1-1/2" X 100M)	100.0	100.0	8.4	1.62	13142	6.7			
100M X 0	.9	.8	19.1	1.65	11278	6.8			
TOTAL(1-1/2" X 0)	100.0	100.0	8.5	1.62	13126	6.7			

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)									
PRODUCT	RECOVERY, %	BTU	ASH, %	SULFUR, %	HEATING VALUE	SO ₂ EMISSION			
	WEIGHT			PYRITIC	BTU/LB	LB/MM BTU			
FLOAT 1.30	46.0	48.9	3.6	.29	13979	4.6			
FLOAT 1.40	82.3	85.7	5.3	.60	13683	5.1			
FLOAT 1.60	95.5	97.4	6.9	1.23	13404	6.1			
CUM(3/8" X 100M)	100.0	100.0	8.4	1.70	13142	6.9			
100M X 0	3.5	3.3	12.4	1.24	12445	6.4			
TOTAL(3/8" X 0)	100.0	100.0	8.5	1.68	13118	6.8			

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)									
PRODUCT	RECOVERY, %	BTU	ASH, %	SULFUR, %	HEATING VALUE	SO ₂ EMISSION			
	WEIGHT			PYRITIC	BTU/LB	LB/MM BTU			
FLOAT 1.30	31.6	33.9	2.9	.26	14101	4.9			
FLOAT 1.40	84.4	88.0	5.3	.54	13683	5.2			
FLOAT 1.60	94.1	96.7	6.4	.93	13491	5.8			
CUM(14M X 0)	100.0	100.0	8.5	1.57	13125	6.8			

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %		MOISTURE, %	
SAMPLE CRUSHED TO PASS 1-1/2"			
1-1/2" X 3/8"	71.2	TOTAL	3.4
3/8" X 14M	24.0	AS RECEIVED	2.2
14M X 100M	3.9		
100M X 0	.9		

STATE: OHIO
COUNTY: GUERNSEY
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 146

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.20	1.70 1.70	--	--	--	--
ASH	8.65	6.39 41.48	8.84	6.50 42.20	--	--
VOLATILE MATTER	42.84	44.11 27.52	43.80	44.87 28.00	48.05	47.99 48.44
FIXED CARBON	46.32	47.80 29.29	47.36	48.63 29.80	51.95	52.01 51.56
BTU/LB	12814	13212 7127	13102	13440 7250	14372	14374 12543

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	70.91	73.54 37.83	72.51	74.81 38.48	79.54	80.01 66.57
HYDROGEN	5.19	5.33 2.84	5.06	5.23 2.70	5.55	5.59 4.67
NITROGEN	1.31	1.36 .69	1.34	1.38 .70	1.47	1.48 1.21
SULFUR	4.49	3.98 13.51	4.59	4.05 13.75	5.03	4.33 23.78
OXYGEN	9.46	9.40 3.65	7.67	8.03 2.17	8.42	8.59 3.76
ASH	8.65	6.39 41.48	8.84	6.50 42.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.52	.90 11.58	1.55	.91 11.78	1.70	.97 20.38
SULFATIC	.05	.04 .07	.06	.04 .07	.06	.04 .12
ORGANIC	2.91	3.05 1.87	2.98	3.10 1.90	3.27	3.32 3.28
TOTAL	4.49	3.98 13.51	4.59	4.05 13.75	5.03	4.33 23.78

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.84	.84
OXYGEN/CARBON	.08	.08
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	1990	2030
SOFTENING TEMPERATURE (ST)	2040	2080
FLUID TEMPERATURE (FT)	2090	2140

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.03	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	12.07	9.25 53.14

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	4	4 1/2 0
HARDGROVE GRINDABILITY (HGI)	61	--

STATE: OHIO
COUNTY: GUERNSEY
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 147

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.5	3.7	.34	2.81	14110	4.0
FLOAT 1.40	83.0	6.3	1.09	3.47	13730	5.1
FLOAT 1.60	90.4	7.3	1.42	3.76	13564	5.5
CUM(1-1/2" X 100M)	100.0	12.2	2.84	5.06	12699	8.0
100M X 0	1.1	20.8	2.39	4.38	11193	7.8
TOTAL(1-1/2" X 0)	100.0	12.3	2.84	5.05	12682	8.0

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.7	3.9	.32	2.92	14030	4.2
FLOAT 1.40	81.3	5.8	.87	3.38	13743	4.9
FLOAT 1.60	89.1	6.9	1.23	3.70	13565	5.5
CUM(3/8" X 100M)	100.0	12.3	2.70	5.07	12616	8.0
100M X 0	3.9	16.3	2.21	4.66	11965	7.8
TOTAL(3/8" X 0)	100.0	12.5	2.68	5.05	12590	8.0

SAMPLE CRUSHED TO PASS 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.9	3.5	.31	2.86	14150	4.0
FLOAT 1.40	78.6	5.6	.85	3.28	13815	4.7
FLOAT 1.60	88.6	6.8	1.13	3.61	13604	5.3
CUM(14M X 0)	100.0	12.2	2.60	4.82	12673	7.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.9
3/8" X 14M	17.8
14M X 100M	4.2
100M X 0	1.1

TOTAL AS RECEIVED	3.9
MOISTURE, %	2.3

STATE: OHIO
COUNTY: GUERNSEY
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 147

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.30	1.50	1.50	--	--	--
ASH	11.53	6.60	53.78	11.80	6.70	54.60
VOLATILE MATTER	42.02	44.81	21.87	43.01	45.49	22.20
FIXED CARBON	44.15	47.09	22.85	45.19	47.81	23.20
BTU/LB	12438	13414	5308	12731	13618	5389
					14434	14596
						11870

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	68.49	74.02	28.35	70.10	75.15	28.78
HYDROGEN	5.16	5.47	2.12	5.02	5.38	1.98
NITROGEN	1.22	1.33	.49	1.25	1.35	.50
SULFUR	4.75	3.60	13.93	4.87	3.65	14.14
OXYGEN	8.85	8.99	--	6.96	7.77	--
ASH	11.53	6.60	53.78	11.80	6.70	54.60

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.67	1.15	13.70	2.73	1.17	13.91
SULFATIC	.03	.00	.07	.04	.00	.07
ORGANIC	2.05	2.44	.16	2.10	2.48	.16
TOTAL	4.75	3.60	13.93	4.87	3.65	14.14

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.86	.86	.86	.04	.04	.04
OXYGEN/CARBON	.07	.08	.08	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING	4	1/2	4	1/2	4	1/2
HARDGROVE GRINDABILITY (HGI)	56	56	56	56	56	56

STATE: OHIO
 COUNTY: HARRISON
 BED: PITTSBURGH
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 36
 SAMPLE NO. 148

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	6.8	7.8	3.6	.25	14263	1.9
FLOAT 1.40	79.6	84.0	9.9	.55	13134	2.6
FLOAT 1.60	95.1	97.8	11.7	.73	12812	2.9
CUM(1-1/2" X 100M)	100.0	100.0	13.7	1.15	12453	3.6
100M X 0	1.1	.9	25.4	2.63	10357	7.5
TOTAL(1-1/2" X 0)	100.0	100.0	13.8	1.17	12430	3.6

SAMPLE CRUSHED TO PASS 3/8"
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.7	19.1	3.4	.18	14299	1.6
FLOAT 1.40	76.0	81.1	8.6	.49	13367	2.2
FLOAT 1.60	94.0	97.1	11.0	.62	12937	2.4
CUM(3/8" X 100M)	100.0	100.0	13.3	1.14	12525	3.4
100M X 0	3.4	3.1	18.5	1.87	11593	5.5
TOTAL(3/8" X 0)	100.0	100.0	13.5	1.16	12493	3.5

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.3	35.8	3.2	.11	14335	1.6
FLOAT 1.40	74.6	81.3	7.0	.26	13654	1.9
FLOAT 1.60	90.7	95.6	9.5	.41	13206	2.1
CUM(14M X 0)	100.0	100.0	13.3	1.31	12525	3.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.5
3/8" X 14M	17.2
14M X 100M	5.2
100M X 0	1.1

MOISTURE, %

TOTAL	4.3
AS RECEIVED	3.4

STATE: OHIO
COUNTY: HARRISON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 148

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.40	2.00 1.50	--	--	--	--
ASH	13.43	9.68 51.61	13.90	9.88 52.40	--	--
VOLATILE MATTER	35.67	37.71 21.37	36.93	38.48 21.70	42.89	42.70 45.59
FIXED CARBON	47.50	50.61 25.51	49.17	51.64 25.90	57.11	57.30 54.41
BTU/LB	12085	12793 5427	12510	13054 5510	14530	14485 11576

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	67.66	72.62 29.37	70.04	74.11 29.82	81.34	82.23 62.65
HYDROGEN	5.10	5.27 2.33	4.89	5.15 2.20	5.68	5.72 4.62
NITROGEN	1.37	1.47 .59	1.41	1.50 .60	1.64	1.66 1.26
SULFUR	1.97	1.47 10.48	2.04	1.50 10.64	2.37	1.67 22.35
OXYGEN	10.48	9.48 5.61	7.72	7.86 4.34	8.96	8.72 9.12
ASH	13.43	9.68 51.61	13.90	9.88 52.40	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.07	.44 9.94	1.11	.45 10.09	1.29	.50 21.19
SULFATIC	.01	.01 .01	.01	.01 .01	.01	.01 .02
ORGANIC	.89	1.02 .53	.92	1.04 .54	1.07	1.16 1.13
TOTAL	1.97	1.47 10.48	2.04	1.50 10.64	2.37	1.67 22.35

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--
SO3 (SULFITES)	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	.84	.83	--	--
OXYGEN/CARBON	.08	.08	--	--
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSL)	5	5	--	--
HARDGROVE GRINDABILITY (HGI)	57	57	--	--

STATE: OHIO
COUNTY: HARRISON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 149

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.3	4.5	.81	14100	2.5
FLOAT 1.40	86.9	6.0	1.21	13814	3.0
FLOAT 1.60	92.1	7.0	1.26	13648	3.2
CUM(1-1/2" X 100M)	100.0	11.3	1.74	12965	4.1
100M X 0	1.9	14.8	3.12	12403	6.5
TOTAL(1-1/2" X 0)	100.0	11.4	1.77	12954	4.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.1	4.2	.70	14103	2.4
FLOAT 1.40	84.9	5.8	1.03	13847	2.9
FLOAT 1.60	90.6	6.9	1.13	13682	3.1
CUM(3/8" X 100M)	100.0	12.1	1.71	12842	4.2
100M X 0	5.5	12.0	2.69	12854	5.6
TOTAL(3/8" X 0)	100.0	12.1	1.76	12842	4.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.8	3.6	.61	14208	2.2
FLOAT 1.40	84.5	5.5	.94	13908	2.7
FLOAT 1.60	90.4	6.4	1.05	13750	2.9
CUM(14M X 0)	100.0	11.5	1.73	12922	4.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	65.7
3/8" X 14M	25.7
14M X 100M	6.7
100M X 0	1.9

TOTAL AS RECEIVED
4.7
2.7

STATE: OHIO
COUNTY: HARRISON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 149

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.70	1.40	1.50	--	--	--
ASH	11.64	6.51	60.98	11.96	6.60	61.91
VOLATILE MATTER	35.94	38.48	17.23	36.94	39.02	17.49
FIXED CARBON	49.72	53.62	20.29	51.10	54.38	20.60
BTU/LB	12508	13529	4747	12855	13721	4820
				14601	14691	12652

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	69.05	74.90	23.25	70.97	75.97	23.60
HYDROGEN	5.11	5.35	1.94	4.94	5.27	1.80
NITROGEN	1.36	1.48	.39	1.40	1.50	.40
SULFUR	2.69	1.99	9.15	2.76	2.02	9.29
OXYGEN	10.15	9.77	4.29	7.97	8.64	3.00
ASH	11.64	6.51	60.98	11.96	6.60	61.91

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.70	1.00	8.01	1.75	1.01	8.13
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.97	.99	1.13	1.00	1.15	1.14
TOTAL	2.69	1.99	9.15	2.76	2.02	9.29

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	48.79	46.02	49.43
Al2O3 (ALUMINUM OXIDE)	24.51	18.86	18.10
Fe2O3 (IRON OXIDE)	20.30	19.45	23.73
TiO2 (TITANIUM OXIDE)	1.33	1.00	1.00
CaO (CALCIUM OXIDE)	.97	6.16	2.66
MgO (MAGNESIUM OXIDE)	.75	1.13	.60
Na2O (SODIUM OXIDE)	.74	.92	.43
K2O (POTASSIUM OXIDE)	1.86	1.83	1.69
SO3 (SULFITES)	.37	.03	.86

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.33	.45
DOLomite	.07	.25
HYDROGEN/CARBON	.84	.83
OXYGEN/CARBON	.08	.09
R250	.78	.72
SILICA	.69	.64
SILICA/ALUMINA	1.99	2.44

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2070	2090	--
SOFTENING TEMPERATURE (ST)	2190	2210	--
FLUID TEMPERATURE (FT)	2330	2340	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	.11	--	--
NA (SODIUM) (CALCULATED)	.07	.05	.20
MINERAL MATTER (PARR)	14.43	8.24	71.97

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6 1/2	5 1/2	--
HARDGROVE GRINDABILITY (HGI)	59	--	--

STATE: OHIO
COUNTY: HARRISON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 150

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.4	3.7	.40	14166	2.4
FLOAT 1.40	73.8	6.0	1.01	13781	3.6
FLOAT 1.60	90.3	7.5	1.43	13529	4.4
FLOAT 1.90	93.2	8.5	1.56	13362	4.7
CUM(1-1/2" X 100M)	100.0	13.0	2.01	12608	5.5
100M X 0	.2	21.9	3.79	11117	8.8
TOTAL(1-1/2" X 0)	100.0	13.0	2.01	12605	5.5

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.5	3.6	.32	14183	2.4
FLOAT 1.40	81.2	5.1	.74	13932	3.2
FLOAT 1.60	88.9	6.4	.94	13714	3.6
FLOAT 1.90	93.2	8.5	1.56	13362	4.7
CUM(3/8" X 100M)	100.0	12.5	1.89	12692	5.3
100M X 0	.8	19.1	3.19	11586	7.6
TOTAL(3/8" X 0)	100.0	12.6	1.90	12683	5.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.3	2.6	.23	14350	2.2
FLOAT 1.40	78.6	4.9	.56	13965	2.8
FLOAT 1.60	87.3	6.4	.77	13714	3.2
FLOAT 1.90	93.2	8.5	1.56	13362	4.7
CUM(14M X 0)	100.0	13.0	2.00	12608	5.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.2

MOISTURE, %

TOTAL AS RECEIVED	4.9
	2.6

STATE: OHIO
COUNTY: HARRISON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 150

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.60	--	--	--	--	--
ASH	12.66	--	13.00	--	--	--
VOLATILE MATTER	39.15	--	40.20	--	46.21	--
FIXED CARBON	45.58	--	46.80	--	53.79	--
BTU/LB	12579	--	12915	--	14845	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.18	--	3.27	--	3.76	--
OXYGEN	--	--	--	--	--	--
ASH	12.66	--	13.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PIRITIC	2.11	--	2.17	--	2.49	--
SULFATIC	.03	--	.03	--	.03	--
ORGANIC	1.04	--	1.07	--	1.23	--
TOTAL	3.18	--	3.27	--	3.76	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--
SOFTENING TEMPERATURE (ST)	--	--
FLUID TEMPERATURE (FT)	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	15.84	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--
HARDGROVE GRINDABILITY (HGI)	--	--

STATE: OHIO
COUNTY: HARRISON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 151

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.0	4.4	.76	14040	3.0
FLOAT 1.40	84.1	5.8	1.14	13800	3.8
FLOAT 1.60	92.1	7.1	1.44	13596	4.2
CUM(1-1/2" X 100M)	100.0	10.9	1.93	12962	5.1
100M X 0	1.6	16.6	3.02	11925	6.7
TOTAL(1-1/2" X 0)	100.0	11.0	1.95	12945	5.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.0	3.8	.53	14050	2.7
FLOAT 1.40	83.8	5.3	.97	13808	3.7
FLOAT 1.60	91.0	6.4	1.22	13634	4.1
CUM(3/8" X 100M)	100.0	10.7	1.91	12910	5.1
100M X 0	4.4	3.2	2.86	14234	5.6
TOTAL(3/8" X 0)	100.0	10.4	1.95	12968	5.2

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.0	3.2	.47	14240	2.6
FLOAT 1.40	82.3	5.1	.92	13927	3.4
FLOAT 1.60	89.3	6.2	1.18	13744	3.8
CUM(14M X 0)	100.0	11.3	2.17	12853	5.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	69.5
3/8" X 14M	23.6
14M X 100M	5.3
100M X 0	1.6

MOISTURE, %

TOTAL	4.2
AS RECEIVED	2.8

STATE: OHIO
COUNTY: HARRISON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO.: 151

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
MOISTURE	2.80	1.80	1.10	--	--	--	--	--	--	--	--	--
ASH	11.08	6.33	54.79	11.40	6.45	55.40	--	--	--	--	--	--
VOLATILE MATTER	38.60	41.05	20.97	39.71	41.80	21.20	44.82	44.68	47.53	55.18	55.32	52.47
FIXED CARBON	47.52	50.82	23.14	48.89	51.75	23.40	55.18	55.32	52.47	14490	14653	11726
BTU/LB	12479	13461	5172	12838	13708	5230	14490	14653	11726			

ULTIMATE ANALYSIS, %

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
CARBON	69.56	74.56	27.96	71.57	75.92	28.27	80.77	81.16	63.39	5.62	5.67	4.71
HYDROGEN	5.15	5.41	2.20	4.97	5.30	2.10	5.62	5.67	1.35	1.60	1.61	1.35
NITROGEN	1.38	1.48	.59	1.42	1.51	.60	3.93	2.75	24.04	8.08	8.82	6.52
SULFUR	3.39	2.52	10.60	3.48	2.57	10.72	3.93	2.75	24.04	8.08	8.82	6.52
OXYGEN	9.45	9.70	3.85	7.16	8.25	2.91	8.08	8.82	6.52	--	--	--
ASH	11.08	6.33	54.79	11.40	6.45	55.40	--	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
PYRITIC	2.06	1.17	10.32	2.12	1.19	10.43	2.40	1.27	23.39	2.40	1.27	23.39
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	1.31	1.35	.28	1.35	1.37	.28	1.52	1.46	.62	1.52	1.46	.62
TOTAL	3.39	2.52	10.60	3.48	2.57	10.72	3.93	2.75	24.04	3.93	2.75	24.04

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
OXIDES (SILICON OXIDE)	--	--	--	--
AL2O3 (ALUMINUM OXIDE)	--	--	--	--
FE2O3 (IRON OXIDE)	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--
CAO (CALCIUM OXIDE)	--	--	--	--
MGO (MAGNESIUM OXIDE)	--	--	--	--
NA2O (SODIUM OXIDE)	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--
SO3 (SULFITE?)	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	.83	.84	--	--
OXYGEN/CARBON	.08	.08	--	--
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
INITIAL DEFORMATION (ID)	2130	2140	2130	2140
SOFTENING TEMPERATURE (ST)	2180	2190	2180	2190
FLUID TEMPERATURE (FT)	2280	2410	2280	2410

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--
MINERAL MATTER (PAR)	14.23	8.38	14.23	8.38

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	6	5 1/2	6	5 1/2
HARD-GROVE GRINDABILITY (HGI)	55	--	55	--

BED CODE: 36
SAMPLE NO. 152

BED: PITTSBURGH
STATE: OHIO
COUNTY: HARRISON
RANK: HIGH VOLATILE A BITUMINOUS

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.9	4.0	.88	14087	3.2
FLOAT 1.40	82.8	6.2	1.68	13736	4.4
FLOAT 1.60	95.4	8.0	2.12	13450	5.1
CUM(1-1/2" X 100M)	100.0	10.2	2.43	13084	5.7
100M X 0	2.1	19.3	4.87	11529	11.0
TOTAL(1-1/2" X 0)	100.0	10.4	2.48	13051	5.8

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.3	3.5	.73	14029	3.0
FLOAT 1.40	81.6	5.9	1.31	13748	4.1
FLOAT 1.60	93.1	7.5	1.78	13488	4.8
CUM(3/8" X 100M)	100.0	10.6	2.31	12972	5.8
100M X 0	5.8	13.7	3.45	12463	8.2
TOTAL(3/8" X 0)	100.0	10.8	2.38	12943	5.9

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.8	3.4	.64	14231	2.9
FLOAT 1.40	80.5	5.3	1.12	13867	3.6
FLOAT 1.60	92.2	6.9	1.53	13605	4.3
CUM(14M X 0)	100.0	10.4	2.41	13018	6.0

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
--- MOISTURE, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	61.6	4.2
3/8" X 14M	29.5	2.9
14M X 100M	6.8	
100M X 0	2.1	

TOTAL
AS RECEIVED

STATE: OHIO
COUNTY: HARRISON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 152

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.90	2.20	--	--	--	--
ASH	10.29	6.85	10.60	7.00	--	--
VOLATILE MATTER	38.73	40.50	39.89	41.41	44.62	44.53
FIXED CARBON	48.07	50.46	49.51	51.59	55.38	55.47
BTU/LB	12612	13292	12989	13591	14529	14614

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	69.55	73.47	71.63	75.12	80.12	80.78
HYDROGEN	5.16	5.34	4.99	5.21	5.58	5.61
NITROGEN	1.37	1.45	1.41	1.49	1.58	1.60
SULFUR	3.76	2.71	3.87	2.77	4.33	2.98
OXYGEN	9.86	10.18	7.50	8.41	8.39	9.04
ASH	10.29	6.85	10.60	7.00	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.47	1.52	2.54	1.55	2.84	1.67
SULFATIC	.01	.00	.01	.00	.01	.00
ORGANIC	1.28	1.19	1.32	1.22	1.48	1.31
TOTAL	3.76	2.71	3.87	2.77	4.33	2.98

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	43.89	45.17
Al2O3 (ALUMINUM OXIDE)	19.61	21.50
Fe2O3 (IRON OXIDE)	30.03	27.17
TiO2 (TITANIUM OXIDE)	.90	1.00
CaO (CALCIUM OXIDE)	1.37	.95
MgO (MAGNESIUM OXIDE)	.73	.80
Na2O (SODIUM OXIDE)	.38	.43
K2O (POTASSIUM OXIDE)	1.88	2.02
SO3 (SULFITES)	.55	.10

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.53	.46
DOLomite	.06	.06
HYDROGEN/CARBON	.84	.83
OXYGEN/CARBON	.08	.08
R250	.67	.70
SILICA	.58	.61
SILICA/ALUMINA	2.24	2.10

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2010	2120
SOFTENING TEMPERATURE (ST)	2120	2210
FLUID TEMPERATURE (FT)	2220	2300

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.10	--
NA (SODIUM) (CALCULATED)	.03	.02
MINERAL MATTER (PARR)	13.58	9.08
		65.47

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	5	5
HARDGROVE GRINDABILITY (HGI)	52	--

STATE: OHIO
COUNTY: HARRISON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 153

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.4	4.4	.93	14032	3.4
FLOAT 1.40	62.9	7.2	1.74	13557	4.8
FLOAT 1.60	76.3	9.7	2.22	13133	5.5
CUM(1-1/2" X 100M)	100.0	23.5	2.83	10794	7.4
100M X 0	1.2	20.0	3.08	11387	7.4
TOTAL(1-1/2" X 0)	100.0	23.5	2.83	10301	7.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.7	4.2	.83	14066	3.3
FLOAT 1.40	64.6	6.9	1.74	13608	4.6
FLOAT 1.60	75.4	8.8	2.14	13286	5.3
CUM(3/8" X 100M)	100.0	22.8	2.84	10912	7.2
100M X 0	2.0	25.3	4.10	10489	9.9
TOTAL(3/8" X 0)	100.0	22.9	2.87	10904	7.3

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.8	5.5	.83	13846	3.4
FLOAT 1.40	62.9	7.6	1.38	13489	4.3
FLOAT 1.60	74.3	9.6	1.92	13150	5.0
CUM(14M X 0)	100.0	23.8	3.11	10743	8.0

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

--- MOISTURE, % ---
TOTAL
AS RECEIVED
3.1
1.7

STATE: OHIO
COUNTY: HARRISON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 153

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.70	1.80	--	--	--	--
ASH	22.81	9.23	23.20	9.40	--	--
VOLATILE MATTER	33.32	38.79	33.90	39.50	44.14	43.60
FIXED CARBON	42.17	50.18	42.90	51.10	55.86	56.40
BTU/LB	10852	13021	11040	13260	14375	14636

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.06	3.27	4.13	3.33	5.38	3.68
OXYGEN	--	--	--	--	--	--
ASH	22.81	9.23	23.20	9.40	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.85	1.89	2.90	1.92	3.78	2.12
SULFATIC	.03	.03	.03	.03	.04	.03
ORGANIC	1.18	1.36	1.20	1.38	1.56	1.52
TOTAL	4.06	3.27	4.13	3.33	5.38	3.68

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: OHIO
COUNTY: JEFFERSON
BED: PITTSBURGH
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 36
SAMPLE NO. 154

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	73.2	3.7	.20	14203	1.1
FLOAT 1.40	90.5	4.8	.36	14022	1.2
FLOAT 1.60	94.4	5.6	.39	13890	1.2
CUM(1-1/2" X 100M)	100.0	9.0	.43	13330	1.3
100M X 0	1.0	19.5	1.17	11599	4.0
TOTAL(1-1/2" X 0)	100.0	9.1	.44	13312	1.4

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.9	2.9	.18	14335	1.1
FLOAT 1.40	88.3	4.1	.31	14137	1.2
FLOAT 1.60	93.2	5.0	.34	13989	1.2
CUM(3/8" X 100M)	100.0	9.1	.40	13313	1.4
100M X 0	4.4	11.5	.67	12918	2.2
TOTAL(3/8" X 0)	100.0	9.2	.41	13296	1.4

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.6	2.9	.16	14335	1.0
FLOAT 1.40	86.5	4.2	.29	14121	1.3
FLOAT 1.60	94.0	5.4	.36	13923	1.4
CUM(14M X 0)	100.0	9.0	.42	13330	1.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	79.7
3/8" X 14M	15.6
14M X 100M	3.7
100M X 0	1.0

MOISTURE, %

TOTAL	5.8
AS RECEIVED	2.4

STATE: OHIO
COUNTY: JEFFERSON
BED: PITTSBURGH
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 36
SAMPLE NO. 154

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.40	1.60	1.60	--	--	--
ASH	9.14	5.53	65.14	9.36	5.62	66.20
VOLATILE MATTER	35.93	37.61	14.96	36.81	38.22	15.20
FIXED CARBON	52.54	55.26	18.30	53.83	56.16	18.60
BTU/LB	13009	13611	3838	13329	13832	3900
					14705	11538

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	73.20	76.67	23.33	75.00	77.92	23.71
HYDROGEN	5.07	5.22	2.05	4.93	5.12	1.90
NITROGEN	1.49	1.57	.49	1.52	1.59	.50
SULFUR	.99	.93	1.58	1.01	.95	1.61
OXYGEN	10.12	10.08	7.41	8.18	8.80	6.08
ASH	9.14	5.53	65.14	9.36	5.62	66.20

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.43	.36	1.34	.44	.37	1.36
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.55	.56	.23	.56	.57	.24
TOTAL	.99	.93	1.58	1.01	.95	1.61
					1.12	1.01
					.62	.60
					.01	.03
					.49	.39
					4.02	4.02
					5.62	5.62
					1.68	1.69
					1.12	1.01
					9.03	9.32
					18.00	18.00

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.79	.79
OXYGEN/CARBON	.08	.08
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2650	2630	--
SOFTENING TEMPERATURE (ST)	2700	2680	--
FLUID TEMPERATURE (FT)	2780	2740	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.10	--	--
MINERAL MATTER (PARR)	10.67	6.59	72.38
----- PHYSICAL PARAMETERS, INDEX -----			
FREE SWELLING (FSI)	RAW	FL 1.60	SK 1.60
HARDGROVE GRINDABILITY (HGI)	5 1/2	5	0
	51	--	--

STATE: OHIO
COUNTY: JEFFERSON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 155

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.4	4.1	.79	14154	2.1
FLOAT 1.40	91.0	5.3	1.17	13966	2.7
FLOAT 1.60	95.2	6.1	1.25	13835	2.8
CUM(1-1/2" X 100M)	100.0	8.3	1.70	13463	3.6
100M X 0	1.4	14.1	3.77	12502	7.3
TOTAL(1-1/2" X 0)	100.0	8.4	1.73	13450	3.7

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.1	3.6	.61	14171	2.0
FLOAT 1.40	89.8	4.9	.93	13978	2.5
FLOAT 1.60	94.4	5.6	1.05	13863	2.7
CUM(3/8" X 100M)	100.0	8.2	1.57	13426	3.6
100M X 0	4.9	11.4	3.33	12949	6.5
TOTAL(3/8" X 0)	100.0	8.4	1.66	13402	3.7

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.7	3.1	.53	14379	1.9
FLOAT 1.40	86.9	4.5	.82	14140	2.2
FLOAT 1.60	94.2	5.4	.96	13975	2.5
CUM(14M X 0)	100.0	8.3	1.56	13495	3.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	69.6
3/8" X 14M	24.0
14M X 100M	5.0
100M X 0	1.4

--- MOISTURE, % ---

TOTAL AS RECEIVED	4.5
	3.1

STATE: OHIO
COUNTY: JEFFERSON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 155

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.10	2.20	--	--	--	--
ASH	7.85	5.48	8.10	5.60	--	--
VOLATILE MATTER	37.75	39.16	38.96	40.04	42.39	42.42
FIXED CARBON	51.30	53.16	52.94	54.36	57.61	57.58
BTU/LB	13105	13639	13524	13946	14717	14773

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	72.95	76.02	75.28	77.73	81.92	82.34
HYDROGEN	5.27	5.39	5.09	5.26	5.54	5.57
NITROGEN	1.73	1.79	1.78	1.84	1.94	1.94
SULFUR	2.16	1.62	2.23	1.65	2.43	1.75
OXYGEN	10.04	9.71	7.52	7.93	8.18	8.40
ASH	7.85	5.48	8.10	5.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.44	.90	1.48	.92	1.61	.98
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.71	.70	.74	.72	.80	.76
TOTAL	2.16	1.62	2.23	1.65	2.43	1.75

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	48.15	49.43	44.53	44.53	2050	2305
SiO2 (SILICON OXIDE)	23.38	25.83	17.72	17.72	2160	2405
Al2O3 (ALUMINUM OXIDE)	23.73	19.59	32.89	32.89	2290	2515
Fe2O3 (IRON OXIDE)	1.00	1.13	1.03	1.03	--	--
TiO2 (TITANIUM OXIDE)	.73	.93	.25	.25	--	--
CaO (CALCIUM OXIDE)	.60	.63	.50	.50	--	--
MgO (MAGNESIUM OXIDE)	.27	.36	.13	.13	--	--
Na2O (SODIUM OXIDE)	1.69	1.72	1.47	1.47	--	--
K2O (POTASSIUM OXIDE)	.37	.22	.15	.15	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.37	.30	--	--	--	--
DOLOMITE	.05	.07	--	--	--	--
HYDROGEN/CARBON	.81	.81	--	--	--	--
OXYGEN/CARBON	.08	.08	--	--	--	--
R250	.75	.79	--	--	--	--
SILICA	.66	.70	--	--	--	--
SILICA/ALUMINA	2.06	1.91	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	6	1 1/2	55	55	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: OHIO
COUNTY: JEFFERSON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 156

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.6	4.6	.82	14146	2.6
FLOAT 1.40	83.8	6.2	1.34	13870	3.4
FLOAT 1.60	92.4	7.5	1.60	13646	3.7
CUM(1-1/2" X 100M)	100.0	11.6	2.18	12938	4.7
100M X 0	1.3	17.7	5.13	11886	9.3
TOTAL(1-1/2" X 0)	100.0	11.7	2.22	12925	4.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.9	3.9	.74	14267	2.3
FLOAT 1.40	82.3	5.4	1.13	14008	2.9
FLOAT 1.60	90.9	6.8	1.38	13767	3.3
CUM(3/8" X 100M)	100.0	11.8	1.98	12904	4.3
100M X 0	4.6	13.3	4.03	12645	7.2
TOTAL(3/8" X 0)	100.0	11.9	2.07	12892	4.5

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.9	2.9	.38	14439	1.8
FLOAT 1.40	78.7	4.7	.73	14129	2.2
FLOAT 1.60	89.9	6.2	.94	13870	2.6
CUM(14M X 0)	100.0	11.3	2.05	12990	4.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.1
3/8" X 14M	17.2
14M X 100M	4.4
100M X 0	1.3

MOISTURE, %

TOTAL	5.1
AS RECEIVED	4.2

STATE: OHIO
COUNTY: JEFFERSON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 156

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	4.20	1.80	1.70	--	--	--	--
ASH	11.26	6.38	55.64	11.75	6.50	43.01	42.76
VOLATILE MATTER	36.36	39.27	20.35	37.95	20.70	57.00	47.70
FIXED CARBON	48.19	52.55	22.31	50.30	22.70	57.00	52.30
BTU/LB	12422	13522	5082	12966	5170	14693	11912

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	69.36	75.32	27.36	72.40	27.83	82.04	64.12
HYDROGEN	5.21	5.36	2.45	4.96	2.30	5.62	5.30
NITROGEN	1.36	1.49	.59	1.42	1.51	1.61	1.38
SULFUR	2.73	1.67	11.87	2.85	12.08	3.23	27.83
OXYGEN	10.08	9.78	2.09	6.62	.59	7.50	8.91
ASH	11.26	6.38	55.64	11.75	56.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	1.98	.87	11.73	2.07	11.93	2.35	27.49
SULFATIC	.02	.02	.02	.02	.02	.02	.05
ORGANIC	.73	.12	.76	.79	.13	.86	.29
TOTAL	2.73	1.67	11.87	2.85	12.08	3.23	27.83

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
	RAW	FL 1.60		RAW	SK 1.60
OXIDES	--	--	SK 1.60	--	--
SiO2 (SILICON OXIDE)	--	--	--	INITIAL DEFORMATION (ID)	2050
Al2O3 (ALUMINUM OXIDE)	--	--	--	SOFTENING TEMPERATURE (ST)	2100
Fe2O3 (IRON OXIDE)	--	--	--	FLUID TEMPERATURE (FT)	2160
TiO2 (TITANIUM OXIDE)	--	--	--	MISCELLANEOUS DATA, %	
CaO (CALCIUM OXIDE)	--	--	--	CL (CHLORINE) (ANALYZED)	RAW FL 1.60 SK 1.60
MgO (MAGNESIUM OXIDE)	--	--	--	NA (SODIUM) (CALCULATED)	14
Na2O (SODIUM OXIDE)	--	--	--	MINERAL MATTER (PARR)	14.26
K2O (POTASSIUM OXIDE)	--	--	--	PHYSICAL PARAMETERS, INDEX	
SO3 (SULFITES)	--	--	--	FREE SWELLING (FSI)	RAW FL 1.60 SK 1.60
				HARDGROVE GRINDABILITY (HGI)	7 7 1/2 1

COAL UTILIZATION RATIOS

	AS RECEIVED		
	RAW	FL 1.60	
BASE/ACID	--	--	--
DOLOMITE	--	--	--
HYDROGEN/CARBON	.82	.82	--
OXYGEN/CARBON	.07	.08	--
R250	--	--	--
SILICA	--	--	--
SILICA/ALUMINA	--	--	--

STATE: OHIO
COUNTY: JEFFERSON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 157

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.9	3.7	.59	14271	2.1
FLOAT 1.40	89.7	6.2	1.17	13839	3.1
FLOAT 1.60	93.2	6.6	1.33	13770	3.3
CUM(1-1/2" X 100M)	100.0	10.1	2.03	13165	4.5
100M X 0	.7	11.8	3.91	12871	7.7
TOTAL(1-1/2" X 0)	100.0	10.1	2.04	13163	4.5

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.1	3.8	.61	14254	2.2
FLOAT 1.40	88.9	5.9	.99	13891	2.9
FLOAT 1.60	94.0	6.6	1.20	13770	3.2
CUM(3/8" X 100M)	100.0	9.8	1.89	13217	4.3
100M X 0	2.4	14.4	4.64	12422	9.8
TOTAL(3/8" X 0)	100.0	9.9	1.95	13198	4.4

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.7	3.3	.34	14341	2.0
FLOAT 1.40	84.3	5.1	.70	14029	2.5
FLOAT 1.60	92.7	6.0	.88	13874	2.7
CUM(14M X 0)	100.0	9.8	2.04	13217	4.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

MOISTURE, %

TOTAL
AS RECEIVED
2.8
1.4

STATE: OHIO
COUNTY: JEFFERSON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 157

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.40	1.50	1.10	--	--	--	--	--	--
ASH	9.27	5.81	54.79	9.40	5.90	55.40	--	--	--
VOLATILE MATTER	36.78	38.61	--	37.30	39.20	--	41.17	41.66	--
FIXED CARBON	52.55	54.08	--	53.30	54.90	--	58.83	58.34	--
BTU/LB	13203	13731	--	13390	13940	--	14779	14814	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.81	1.83	16.91	2.85	1.86	17.10	3.15	1.98	38.33
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	9.27	5.81	54.79	9.40	5.90	55.40	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.90	.93	16.59	1.93	.94	16.77	2.13	1.00	37.60
SULFATIC	.00	.00	.00	.00	.00	.00	.00	.00	.00
ORGANIC	.91	.91	.32	.92	.92	.33	1.02	.98	.73
TOTAL	2.81	1.83	16.91	2.85	1.86	17.10	3.15	1.98	38.33

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO ₂ (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al ₂ O ₃ (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe ₂ O ₃ (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO ₂ (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na ₂ O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K ₂ O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO ₃ (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

STATE: OHIO
COUNTY: JEFFERSON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 158

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.2	4.3	.71	14168	2.6
FLOAT 1.40	80.6	7.0	1.45	13701	4.2
FLOAT 1.60	90.6	8.4	1.69	13459	4.7
FLOAT 1.90	93.3	9.3	1.78	13303	4.9
CUM(1-1/2" X 100M)	100.0	13.7	2.05	12543	5.5
100M X 0	.1	29.3	3.69	9846	9.7
TOTAL(1-1/2" X 0)	100.0	13.7	2.05	12540	5.5

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.7	3.5	.56	14306	2.5
FLOAT 1.40	80.2	5.4	1.06	13978	3.4
FLOAT 1.60	88.8	6.7	1.31	13753	3.9
FLOAT 1.90	93.3	9.3	1.78	13303	4.9
CUM(3/8" X 100M)	100.0	13.4	1.87	12595	5.1
100M X 0	1.0	20.3	3.14	11402	8.1
TOTAL(3/8" X 0)	100.0	13.5	1.88	12583	5.1

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.3	3.2	.46	14358	2.3
FLOAT 1.40	74.9	5.3	.84	13995	3.0
FLOAT 1.60	87.0	7.1	1.11	13684	3.5
FLOAT 1.90	93.3	9.3	1.78	13303	4.9
CUM(14M X 0)	100.0	14.2	2.08	12456	5.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %		MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"		
1-1/2" X 3/8"	--	
3/8" X 14M	--	
14M X 100M	--	
100M X 0	.1	
TOTAL AS RECEIVED		4.9 2.7

STATE: OHIO
COUNTY: JEFFERSON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 158

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.70	--	--	--	--	--
ASH	13.26	--	--	13.63	--	--
VOLATILE MATTER	36.32	--	--	37.33	--	43.22
FIXED CARBON	47.72	--	--	49.04	--	56.78
BTU/LB	12546	--	--	12894	--	14929

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.12	--	--	3.21	--	3.71
OXYGEN	--	--	--	--	--	--
ASH	13.26	--	--	13.63	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.05	--	--	2.11	--	2.44
SULFATIC	.04	--	--	.04	--	.05
ORGANIC	1.03	--	--	1.06	--	1.23
TOTAL	3.12	--	--	3.21	--	3.71

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO ₂ (SILICON OXIDE)	--	--	--	--	--	--
Al ₂ O ₃ (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe ₂ O ₃ (IRON OXIDE)	--	--	--	--	--	--
TiO ₂ (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na ₂ O (SODIUM OXIDE)	--	--	--	--	--	--
K ₂ O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO ₃ (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--
MISCELLANEOUS DATA, %	--	--	--	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	16.49	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: OHIO
COUNTY: JEFFERSON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 159

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	29.4	3.9	31.9	.63	14237	2.9
FLOAT 1.40	85.9	6.1	90.6	1.32	13857	4.0
FLOAT 1.60	94.3	6.9	98.5	1.78	13718	4.7
CUM(1-1/2" X 100M)	100.0	10.3	100.0	2.03	13131	5.1
100M X 0	.9	12.6	.9	3.44	12733	7.1
TOTAL(1-1/2" X 0)	100.0	10.3	100.0	2.04	13127	5.2

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	40.9	3.8	44.4	.62	14254	2.8
FLOAT 1.40	86.4	5.8	91.5	1.14	13908	3.6
FLOAT 1.60	93.5	6.7	97.9	1.53	13753	4.2
CUM(3/8" X 100M)	100.0	10.3	100.0	1.93	13131	4.9
100M X 0	2.5	11.6	2.5	3.22	12906	6.8
TOTAL(3/8" X 0)	100.0	10.3	100.0	1.96	13125	5.0

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	49.3	3.1	53.5	.48	14375	2.6
FLOAT 1.40	84.5	5.0	89.6	.88	14047	3.3
FLOAT 1.60	93.4	6.2	97.5	1.32	13839	3.9
CUM(14M X 0)	100.0	9.6	100.0	1.99	13252	5.0

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---	---
3/8" X 14M	---	---
14M X 100M	---	---
100M X 0	---	---
TOTAL	2.9	1.5
AS RECEIVED		

STATE: OHIO
COUNTY: JEFFERSON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 159

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	1.50	1.60	--	--	--	--
ASH	9.83	6.00	9.98	6.10	--	--
VOLATILE MATTER	38.60	39.65	39.18	40.30	43.53	42.92
FIXED CARBON	50.07	52.74	50.84	53.60	56.48	57.08
BTU/LB	12993	13599	13191	13820	14654	14718

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.21	2.60	3.26	2.64	3.62	2.81
OXYGEN	--	--	--	--	--	--
ASH	9.83	6.00	9.98	6.10	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	1.95	1.34	1.98	1.36	2.20	1.45
SULFATIC	.00	.00	.01	.01	.01	.00
ORGANIC	1.25	1.26	1.27	1.28	1.41	1.36
TOTAL	3.21	2.60	3.26	2.64	3.62	2.81

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2050	2040	--
SOFTENING TEMPERATURE (ST)	2110	2090	--
FLUID TEMPERATURE (FT)	2160	2150	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	12.57	8.04	68.41
PHYSICAL PARAMETERS, INDEX			
FREE SWELLING (FSI)	7 1/2	7 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: OHIO
COUNTY: JEFFERSON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 160

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	49.5	4.2	.75	14185	2.8
FLOAT 1.40	82.9	5.9	1.25	13885	3.7
FLOAT 1.60	91.9	7.2	1.64	13655	4.3
CUM(1-1/2" X 100M)	100.0	11.2	2.31	12950	5.4
100M X 0	.9	16.7	3.16	11930	8.0
TOTAL(1-1/2" X 0)	100.0	11.2	2.32	12940	5.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	44.6	3.2	.56	14361	2.4
FLOAT 1.40	82.6	5.4	1.06	13973	3.2
FLOAT 1.60	90.8	6.6	1.36	13761	3.7
CUM(3/8" X 100M)	100.0	11.3	2.21	12932	5.2
100M X 0	4.3	14.3	3.50	12403	7.7
TOTAL(3/8" X 0)	100.0	11.4	2.27	12909	5.3

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	56.7	3.5	.58	14308	2.3
FLOAT 1.40	81.0	5.1	.93	14026	2.9
FLOAT 1.60	90.7	6.5	1.27	13779	3.5
CUM(14M X 0)	100.0	11.1	2.40	12967	5.4

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	75.4
3/8" X 14M	19.1
14M X 100M	4.6
100M X 0	.9

--- MOISTURE, % ---

TOTAL	5.0
AS RECEIVED	2.3

STATE: OHIO
COUNTY: JEFFERSON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 161

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.5	24.6	3.9	.77	14210	2.4
FLOAT 1.40	83.4	88.3	6.8	1.41	13743	3.7
FLOAT 1.60	93.7	97.7	8.0	1.76	13540	4.2
CUM(1-1/2" X 100M)	100.0	100.0	11.2	2.20	12979	4.9
100M X 0	.7	.6	19.3	4.26	11400	10.3
TOTAL(1-1/2" X 0)	100.0	100.0	11.3	2.21	12968	5.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.7	34.9	3.4	.56	14210	2.3
FLOAT 1.40	81.2	87.4	6.0	1.19	13881	3.3
FLOAT 1.60	91.5	96.9	7.3	1.50	13659	3.8
CUM(3/8" X 100M)	100.0	100.0	11.5	2.33	12901	5.3
100M X 0	4.1	3.7	17.6	4.62	11714	9.7
TOTAL(3/8" X 0)	100.0	100.0	11.8	2.42	12852	5.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.6	34.2	2.9	.43	14330	2.0
FLOAT 1.40	79.9	86.3	5.9	.96	13867	2.7
FLOAT 1.60	90.6	96.2	7.2	1.20	13627	3.1
CUM(14M X 0)	100.0	100.0	11.5	2.25	12836	4.9

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	69.3
3/8" X 14M	24.7
14M X 100M	5.3
100M X 0	.7

--- MOISTURE, % ---
TOTAL
AS RECEIVED
4.2
2.6

STATE: OHIO
COUNTY: JEFFERSON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 161

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.60	2.70	2.70	--	--	--
ASH	10.81	6.71	50.79	11.10	6.90	52.20
VOLATILE MATTER	36.79	38.36	20.92	37.77	39.43	21.50
FIXED CARBON	49.80	52.23	25.59	51.13	53.67	26.30
BTU/LB	12559	13302	5159	12894	13671	5303
					14504	14684
						11093

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	70.72	75.08	29.73	72.61	77.16	30.56
HYDROGEN	5.06	5.35	2.34	4.89	5.19	2.10
NITROGEN	1.36	1.45	.49	1.40	1.49	.50
SULFUR	3.22	2.18	12.77	3.30	2.24	13.13
OXYGEN	8.83	9.23	3.87	6.69	7.02	1.51
ASH	10.81	6.71	50.79	11.10	6.90	52.20

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.12	1.05	12.04	2.18	1.08	12.37
SULFATIC	.12	.09	.15	.12	.09	.15
ORGANIC	.97	1.04	.59	1.00	1.07	.61
TOTAL	3.22	2.18	12.77	3.30	2.24	13.13

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES (SILICON OXIDE)	--	--	--
AL2O3 (ALUMINUM OXIDE)	--	--	--
FE2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLomite	--	--
HYDROGEN/CARBON	.81	.81
OXYGEN/CARBON	.07	.07
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2040	2040	--
SOFTENING TEMPERATURE (ST)	2090	2080	--
FLUID TEMPERATURE (FT)	2190	2190	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.11	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	13.80	8.68	63.60

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7 1/2	7	0
HARDGROVE GRINDABILITY (HGI)	56	53	--

STATE: OHIO
 COUNTY: JEFFERSON
 BED: PITTSBURGH
 RANK: HIGH VOLATILE B BITUMINOUS
 BED CODE: 36
 SAMPLE NO. 162

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.8	4.2	.93	14196	2.7
FLOAT 1.40	80.4	6.5	1.73	13798	3.8
FLOAT 1.60	90.2	7.8	2.18	13572	4.5
CUM(1-1/2" X 100M)	100.0	13.0	2.76	12671	5.6
100M X 0	1.9	15.4	3.39	12255	6.6
TOTAL(1-1/2" X 0)	100.0	13.0	2.77	12663	5.7

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.9	3.8	.72	14266	2.4
FLOAT 1.40	79.0	5.9	1.35	13902	3.4
FLOAT 1.60	88.9	7.3	1.80	13659	4.1
CUM(3/8" X 100M)	100.0	13.2	2.51	12637	5.4
100M X 0	4.5	13.8	3.88	12533	7.2
TOTAL(3/8" X 0)	100.0	13.2	2.57	12632	5.5

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.9	3.1	.41	14387	1.9
FLOAT 1.40	74.4	5.3	.83	14006	2.5
FLOAT 1.60	87.4	6.9	1.20	13728	3.0
CUM(14M X 0)	100.0	13.1	2.79	12654	5.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	74.9
3/8" X 14M	17.8
14M X 100M	5.4
100M X 0	1.9

--- MOISTURE, % ---

TOTAL	5.6
AS RECEIVED	4.5

STATE: OHIO
COUNTY: JEFFERSON
BED: PITTSBURGH
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 36
SAMPLE NO. 162

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	4.50	1.10	--	--	--	--
ASH	13.01	7.02	13.62	56.20	42.80	49.77
VOLATILE MATTER	35.30	38.87	36.97	21.80	57.20	50.23
FIXED CARBON	47.19	53.01	49.41	22.00		
BTU/LB	12035	13510	12602	5180	14590	11826

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	67.09	75.39	70.25	27.93	81.33	63.76
HYDROGEN	5.02	5.26	4.73	1.67	5.48	3.80
NITROGEN	1.29	1.47	1.35	1.49	1.57	1.12
SULFUR	3.41	2.04	3.58	13.72	4.14	31.32
OXYGEN	10.17	8.82	6.46	7.93	7.48	8.53
ASH	13.01	7.02	13.62	56.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	2.70	1.30	2.83	13.54	3.28	30.92
SULFATIC	.02	.02	.03	.03	.03	.07
ORGANIC	.69	.72	.72	.15	.83	.34
TOTAL	3.41	2.04	3.58	13.72	4.14	31.32

MINERAL ANALYSIS OF ASH, %

OXIDES	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.81	.82	--	--	--	--
OXYGEN/CARBON	.07	.08	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: OHIO
COUNTY: JEFFERSON

RAW COAL, SIZE AND MOISTURE ANALYSES

----- SAMPLE CRUSHED TO PASS 14M -----
 VET COAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
	31.2	34.7	4.0	1.80	1.80	14273	2.5
FLOAT 1.30	79.3	85.4	6.6	1.15	2.33	13815	3.4
FLOAT 1.40	91.8	96.6	8.4	1.47	2.68	13497	4.0
FLOAT 1.60	100.0	100.0	12.2	2.41	3.55	12827	5.5
CUM(3/8" X 100M)							
100M X 0	4.4	4.2	16.1	4.61	6.23	12140	10.3
TOTAL(3/8" X 0)	100.0	100.0	12.4	2.51	3.67	12797	5.7

PRODUCT	RECOVERY, %		ASH, %	SULFUR, %		HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
	WEIGHT	BTU		PYRITIC	TOTAL		
	37.0	41.3	3.2	.50	1.71	14414	2.4
FLOAT 1.30	76.6	83.0	5.7	.85	2.18	13973	3.1
FLOAT 1.40	90.2	95.5	7.5	1.15	2.49	13656	3.6
FLOAT 1.60	100.0	100.0	11.8	2.52	3.79	12898	5.9
CUM(1.4M X 0)							

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

MOISTURE, %

4.1	TOTAL
2.1	AS RECEIVED

STATE: OHIO
COUNTY: JEFFERSON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 163

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.10	1.70 1.70	--	--	--	--
ASH	12.04	7.67 51.41	12.30	7.80 52.30	--	--
VOLATILE MATTER	36.09	37.98 20.94	36.86	38.64 21.30	42.03	41.91 44.65
FIXED CARBON	49.77	52.65 25.95	50.84	53.56 26.40	57.97	58.09 55.35
BTU/LB	12610	13310 5652	12880	13540 5750	14686	14685 12055

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	69.94	74.23 29.58	71.44	75.51 30.09	81.46	81.90 63.08
HYDROGEN	4.92	5.21 1.98	4.79	5.11 1.82	5.46	5.54 3.82
NITROGEN	1.37	1.47 .47	1.40	1.50 .48	1.60	1.63 1.01
SULFUR	3.57	2.41 15.04	3.65	2.45 15.30	4.16	2.66 32.08
OXYGEN	8.16	9.01 1.51	6.43	7.63 .00	7.33	8.27 .01
ASH	12.04	7.67 51.41	12.30	7.80 52.30	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.28	1.17 14.26	2.33	1.19 14.51	2.66	1.29 30.42
SULFATIC	.25	.07 .08	.26	.07 .08	.29	.08 .17
ORGANIC	1.04	1.17 .70	1.06	1.19 .72	1.21	1.29 1.50
TOTAL	3.57	2.41 15.04	3.65	2.45 15.30	4.16	2.56 32.08

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES (SILICON OXIDE)	--	--
AL2O3 (ALUMINUM OXIDE)	--	--
FE2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CAO (CALCIUM OXIDE)	--	--
MGO (MAGNESIUM OXIDE)	--	--
NA2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.80	.81
OXYGEN/CARBON	.07	.08
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	1980	1990
SOFTENING TEMPERATURE (ST)	2030	2040
FLUID TEMPERATURE (FT)	2250	2250

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	15.29	9.77 64.90

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	7 1/2	7
HARDGROVE GRINDABILITY (HGI)	58	--

STATE: OHIO
COUNTY: JEFFERSON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 164

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.4	4.4	.79	14150	3.0
FLOAT 1.40	53.8	8.2	1.58	13494	4.6
FLOAT 1.60	81.7	12.1	2.36	12819	6.4
FLOAT 1.90	87.6	14.0	2.55	12491	6.9
CUM(1-1/2" X 100M)	100.0	21.7	2.97	11160	8.3
100M X 0	.2	32.5	4.77	9293	13.7
TOTAL(1-1/2" X 0)	100.0	21.7	2.97	11156	8.3

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.7	4.1	.79	14202	2.9
FLOAT 1.40	60.2	6.9	1.36	13718	4.1
FLOAT 1.60	80.2	9.8	1.97	13217	5.4
FLOAT 1.90	87.6	14.0	2.55	12491	6.9
CUM(3/8" X 100M)	100.0	20.5	2.87	11367	7.8
100M X 0	1.0	29.4	4.23	9829	11.9
TOTAL(3/8" X 0)	100.0	20.6	2.88	11352	7.9

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	15.5	3.4	.55	14323	2.6
FLOAT 1.40	53.0	7.0	1.12	13701	3.7
FLOAT 1.60	76.6	10.4	1.68	13113	4.9
FLOAT 1.90	87.6	14.0	2.55	12491	6.9
CUM(14M X 0)	100.0	21.6	3.04	11177	8.4

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
3/8" X 14M ---
14M X 100M ---
100M X 0 .2

----- MOISTURE, % -----
TOTAL AS RECEIVED 4.2
2.5

STATE: OHIO
COUNTY: JEFFERSON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 164

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.50	--	--	--	--	--
ASH	20.22	--	--	29.74	--	--
VOLATILE MATTER	33.75	--	--	34.61	--	--
FIXED CARBON	43.53	--	--	44.65	43.67	--
BTU/lb	11472	--	--	11766	56.32	14844

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.03	--	--	4.13	5.22	--
OXYGEN	--	--	--	--	--	--
ASH	20.22	--	--	20.74	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.04	--	--	3.11	3.93	--
SULFATIC	.07	--	--	.07	.09	--
ORGANIC	.93	--	--	.95	1.20	--
TOTAL	4.03	--	--	4.13	5.22	--

MINERAL ANALYSIS OF ASF, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--
MISCELLANEOUS DATA, %						
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	24.67	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

BED CODE: 36
SAMPLE NO. 165

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

STATE: OHIO
COUNTY: JEFFERSON

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	12.5	4.4	1.03	14150	3.0
FLOAT 1.40	84.5	7.9	2.17	13545	4.6
FLOAT 1.60	94.6	8.9	2.55	13373	5.2
CUM(1-1/2" X 100M)	100.0	11.7	2.98	12889	6.1
100M X 0	.9	12.5	6.23	12750	11.1
TOTAL(1-1/2" X 0)	100.0	11.7	3.01	12887	6.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.0	4.3	.97	14168	2.9
FLOAT 1.40	79.8	7.1	1.87	13684	4.3
FLOAT 1.60	92.0	8.6	2.38	13424	5.2
CUM(3/8" X 100M)	100.0	12.2	3.13	12802	6.5
100M X 0	2.4	15.7	5.65	12197	10.9
TOTAL(3/8" X 0)	100.0	12.3	3.19	12788	6.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.9	3.6	.70	14289	2.6
FLOAT 1.40	80.6	6.1	1.27	13857	3.5
FLOAT 1.60	90.8	7.6	1.78	13597	4.2
CUM(14M X 0)	100.0	11.9	3.08	12854	6.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	2.9
3/8" X 14M	1.5
14M X 100M	
100M X 0	

TOTAL
AS RECEIVED

STATE: OHIO
COUNTY: JEFFERSON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 165

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.50	1.40 1.30	--	--	--	--
ASH	11.92	7.30 55.78	12.10	7.40 56.51	--	--
VOLATILE MATTER	36.25	38.26 --	36.80	38.80 --	41.87	41.90
FIXED CARBON	50.33	53.05 --	51.10	53.80 --	58.13	58.10
BTU/LB	12746	13498 --	12940	13690 --	14721	14784

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.10	3.02 14.42	4.16	3.06 14.61	4.73	3.30 33.59
OXYGEN	--	--	--	--	--	--
ASH	11.92	7.30 55.78	12.10	7.40 56.51	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.09	1.87 14.13	3.14	1.90 14.32	3.57	2.05 32.93
SULFATIC	.00	.00 .00	.00	.00 .00	.00	.00 .00
ORGANIC	1.00	1.14 .28	1.02	1.16 .29	1.16	1.25 .66
TOTAL	4.10	3.02 14.42	4.16	3.06 14.61	4.73	3.30 33.59

MINERAL ANALYSIS OF ASH, %

OXIDES	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--

STATE: OHIO
COUNTY: MONROE
BED: PITTSBURGH
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 36
SAMPLE NO. 166

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.5	5.3	.59	13978	3.8
FLOAT 1.40	43.4	9.6	1.20	13212	4.5
FLOAT 1.60	59.4	13.0	1.95	12606	5.6
FLOAT 1.90	67.3	15.5	2.25	12160	6.2
CUM(1-1/2" X 100M)	100.0	37.3	2.70	8275	9.3
100M X 0	.2	58.8	1.46	4442	15.8
TOTAL(1-1/2" X 0)	100.0	37.3	2.70	8267	9.3

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.3	4.3	.39	14157	3.5
FLOAT 1.40	47.3	9.4	1.02	13248	4.5
FLOAT 1.60	60.3	11.7	1.60	12838	5.3
FLOAT 1.90	67.3	15.5	2.25	12160	6.2
CUM(3/8" X 100M)	100.0	38.0	2.49	8150	9.2
100M X 0	.6	47.3	2.33	6492	10.9
TOTAL(3/8" X 0)	100.0	38.1	2.49	8140	9.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	14.6	5.8	.47	13889	3.4
FLOAT 1.40	43.3	8.3	.85	13444	3.8
FLOAT 1.60	58.7	12.4	1.51	12713	4.8
FLOAT 1.90	67.3	15.5	2.25	12160	6.2
CUM(14M X 0)	100.0	37.0	2.57	8328	8.9

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---	MOISTURE, %	---
3/8" X 14M	---	TOTAL	4.0
14M X 100M	---	AS RECEIVED	2.1
100M X 0	.2		

STATE: OHIO
COUNTY: MONROE

BED: PITTSBURGH
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 36
SAMPLE NO. 166

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.10	--	--	--	--	--
ASH	36.42	--	--	37.20	--	--
VOLATILE MATTER	28.39	--	--	29.00	--	--
FIXED CARBON	33.09	--	--	33.80	--	--
BTU/LB	8602	--	--	8787	--	--
					13992	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.03	--	--	4.12	--	--
OXYGEN	--	--	--	--	6.56	--
ASH	36.42	--	--	37.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.52	--	--	2.57	--	--
SULFATIC	.19	--	--	.19	--	--
ORGANIC	1.33	--	--	1.36	--	--
TOTAL	4.03	--	--	4.12	--	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
	RAW	FL 1.60	SK 1.60	RAW
OXIDES	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	RAW
Al2O3 (ALUMINUM OXIDE)	--	--	--	FL 1.60
Fe2O3 (IRON OXIDE)	--	--	--	SK 1.60
TiO2 (TITANIUM OXIDE)	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--
SO3 (SULFITES)	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
	RAW	FL 1.60	SK 1.60	RAW
BASE/ACID	--	--	--	RAW
DOLOMITE	--	--	--	FL 1.60
HYDROGEN/CARBON	--	--	--	SK 1.60
OXYGEN/CARBON	--	--	--	--
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

STATE: OHIO
COUNTY: MONROE

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 167

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	17.3	19.0	4.2	.44	14138	4.0
FLOAT 1.40	79.0	83.6	7.0	1.33	13651	5.4
FLOAT 1.60	92.9	96.5	8.5	2.07	13400	6.5
CUM(1-1/2" X 100M)	100.0	100.0	11.4	2.44	12902	7.3
100M X 0	1.1	1.0	20.3	3.90	11305	10.8
TOTAL(1-1/2" X 0)	100.0	100.0	11.5	2.46	12885	7.3

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	26.0	28.7	3.9	.45	14200	4.1
FLOAT 1.40	77.4	83.0	6.4	1.08	13797	5.1
FLOAT 1.60	90.9	95.5	7.9	1.77	13525	6.2
CUM(3/8" X 100M)	100.0	100.0	11.6	2.47	12871	7.5
100M X 0	6.3	5.9	16.1	3.52	12054	9.2
TOTAL(3/8" X 0)	100.0	100.0	11.9	2.54	12820	7.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	28.1	31.0	3.5	.42	14234	4.0
FLOAT 1.40	78.6	84.4	5.8	.86	13874	4.6
FLOAT 1.60	90.2	95.5	7.2	1.41	13675	5.4
CUM(14M X 0)	100.0	100.0	11.4	2.63	12920	7.4

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	64.9
3/8" X 14M	28.0
14M X 100M	6.0
100M X 0	1.1

--- MOISTURE, % ---

TOTAL	3.6
AS RECEIVED	2.1

STATE: OHIO
COUNTY: MONROE

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 157

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.10	2.00 1.40	--	--	--	--
ASH	11.61	7.34 49.50	11.86	7.49 50.20	--	--
VOLATILE MATTER	40.71	42.51 25.44	41.58	43.38 25.80	47.18	46.89 51.81
FIXED CARBON	45.58	48.15 23.66	46.56	49.13 24.00	52.82	53.11 48.19
BTU/LB	12584	13360 5872	12853	13632 5955	14582	14736 11958

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	68.65	72.88 30.25	70.12	74.37 30.68	79.56	80.39 61.61
HYDROGEN	5.04	5.35 2.23	4.91	5.23 2.10	5.57	5.65 4.22
NITROGEN	1.14	1.22 .49	1.16	1.25 .50	1.32	1.35 1.00
SULFUR	4.39	3.75 14.66	4.49	3.83 14.87	5.09	4.14 29.85
OXYGEN	9.17	9.46 2.87	7.46	7.84 1.65	8.47	8.47 3.32
ASH	11.61	7.34 49.50	11.86	7.49 50.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.55	1.52 13.66	2.60	1.55 13.86	2.95	1.68 27.83
SULFATIC	.05	.01 .10	.06	.01 .10	.06	.01 .20
ORGANIC	1.79	2.22 .90	1.83	2.27 .91	2.08	2.45 1.82
TOTAL	4.39	3.75 14.66	4.49	3.83 14.87	5.09	4.14 29.85

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	37.50	38.78 31.53
Al2O3 (ALUMINUM OXIDE)	21.50	25.64 14.33
Fe2O3 (IRON OXIDE)	29.45	27.45 40.32
TiO2 (TITANIUM OXIDE)	1.40	1.33 1.00
CaO (CALCIUM OXIDE)	3.55	2.18 5.82
MgO (MAGNESIUM OXIDE)	.63	.63 .53
Na2O (SODIUM OXIDE)	.43	.49 .32
K2O (POTASSIUM OXIDE)	1.35	1.35 1.18
SO3 (SULFITES)	.86	1.25 1.70

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.59	.49
DOLOMITE	.12	.09
HYDROGEN/CARBON	.84	.84
OXYGEN/CARBON	.08	.08
R250	.64	.68
SILICA	.53	.56
SILICA/ALUMINA	1.74	1.51

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2030	2080
SOFTENING TEMPERATURE (ST)	2080	2130
FLUID TEMPERATURE (FT)	2280	2320

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.06	--
NA (SODIUM) (CALCULATED)	.04	.03
MINERAL MATTER (PARR)	15.27	10.19

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	6	6 1/2
HARDGROVE GRINDABILITY (HGI)	57	--

STATE: OHIO
COUNTY: JEFFERSON
BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 33
SAMPLE NO. 168

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	36.2	4.0	.70	14176	1.7
FLOAT 1.40	93.2	7.0	1.02	13711	2.2
FLOAT 1.60	98.1	7.7	1.12	13597	2.4
CUM(1-1/2" X 100M)	100.0	8.5	1.31	13465	2.7
100M X 0	1.1	18.4	4.75	11689	9.5
TOTAL(1-1/2" X 0)	100.0	8.6	1.35	13445	2.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.3	3.7	.44	14271	1.6
FLOAT 1.40	90.0	6.5	.68	13730	2.0
FLOAT 1.60	95.4	7.2	.76	13618	2.2
CUM(3/8" X 100M)	100.0	8.4	1.32	13426	3.0
100M X 0	4.2	13.8	3.59	12492	6.7
TOTAL(3/8" X 0)	100.0	8.6	1.42	13387	3.2

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.2	3.1	.35	14372	1.4
FLOAT 1.40	85.7	5.5	.51	13912	1.7
FLOAT 1.60	96.6	7.1	.66	13651	1.8
CUM(14M X 0)	100.0	8.7	1.34	13372	2.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.2
3/8" X 14M	20.4
14M X 100M	5.3
100M X 0	1.1

MOISTURE, %

TOTAL	4.4
AS RECEIVED	3.0

STATE: OHIO
COUNTY: JEFFERSON

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33
SAMPLE NO. 168

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.00	2.30	--	--	--	--
ASH	8.54	7.13	8.80	7.30	--	--
VOLATILE MATTER	38.12	38.98	39.30	39.90	43.09	43.04
FIXED CARBON	50.34	51.59	51.90	52.80	56.91	56.96
BTU/LB	12956	13309	13357	13622	14646	14695

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	73.57	74.21	75.85	75.96	83.17	81.94
HYDROGEN	5.38	5.73	5.20	5.60	5.70	6.04
NITROGEN	1.65	1.76	1.70	1.80	1.86	1.94
SULFUR	1.79	1.31	1.85	1.34	2.03	1.45
OXYGEN	9.07	9.86	6.60	8.00	7.24	8.63
ASH	8.54	7.13	8.80	7.30	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.20	.62	1.24	.63	1.36	.68
SULFATIC	.01	.01	.01	.00	.01	.01
ORGANIC	.58	.68	.60	.70	.66	.76
TOTAL	1.79	1.31	1.85	1.34	2.03	1.45

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	49.43	54.12
Al2O3 (ALUMINUM OXIDE)	24.89	27.53
Fe2O3 (IRON OXIDE)	18.87	12.01
TiO2 (TITANIUM OXIDE)	1.07	1.23
CaO (CALCIUM OXIDE)	1.06	1.20
MgO (MAGNESIUM OXIDE)	.80	.86
Na2O (SODIUM OXIDE)	.30	.32
K2O (POTASSIUM OXIDE)	1.83	2.02
SO3 (SULFITES)	.05	.07

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.30	.20
DOLOMITE	.08	.13
HYDROGEN/CARBON	.82	.88
OXYGEN/CARBON	.07	.08
R250	.79	.86
SILICA	.70	.79
SILICA/ALUMINA	1.99	1.97

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2260	2410
SOFTENING TEMPERATURE (ST)	2350	2500
FLUID TEMPERATURE (FT)	2460	2590

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.09	--
NA (SODIUM) (CALCULATED)	.02	.08
MINERAL MATTER (PARR)	10.52	8.62

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	6	5
HARDGROVE GRINDABILITY (HGI)	53	--

STATE: OHIO
COUNTY: BELMONT

BED: SEMICKLEY
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 29
SAMPLE NO. 169

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	22.1	4.6	.32	13920	1.8
FLOAT 1.40	80.8	8.5	.73	13324	2.5
FLOAT 1.60	95.9	10.6	.85	13004	2.8
CUM(1-1/2" X 100M)	100.0	12.1	1.42	12752	3.6
100M X 0	.9	18.1	3.96	11675	8.1
TOTAL(1-1/2" X 0)	100.0	12.2	1.44	12742	3.7

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	35.9	4.2	.22	13960	1.7
FLOAT 1.40	80.5	7.9	.55	13406	2.1
FLOAT 1.60	94.2	10.0	.70	13074	2.4
CUM(3/8" X 100M)	100.0	12.2	1.53	12708	3.7
100M X 0	4.2	15.8	2.04	12068	5.5
TOTAL(3/8" X 0)	100.0	12.4	1.55	12681	3.8

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	37.6	3.6	.14	14110	1.6
FLOAT 1.40	77.8	7.2	.32	13542	1.9
FLOAT 1.60	92.1	9.4	.47	13180	2.2
CUM(14M X 0)	100.0	12.6	1.43	12632	3.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---		--- MOISTURE, % ---	
SAMPLE CRUSHED TO PASS 1-1/2"			
1-1/2" X 3/8"	71.2	TOTAL	4.9
3/8" X 14M	22.4	AS RECEIVED	2.5
14M X 100M	5.5		
100M X 0	.9		

STATE: OHIO

COUNTY: BELMONT

BED: SEWICKLEY

RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 29

SAMPLE NO. 169

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW

FL 1.60

SK 1.60

MOISTURE

2.50

2.00

1.00

ASH

11.99

9.31

48.61

VOLATILE MATTER

37.55

38.80

24.16

FIXED CARBON

47.96

49.89

26.24

BTU/LB

12359

12902

6287

MOISTURE FREE

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

43.91

43.74

47.94

56.09

56.26

52.06

14453

14547

12477

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

CARBON

69.25

72.32

33.51

HYDROGEN

5.14

5.30

2.39

NITROGEN

1.30

1.36

.59

SULFUR

2.09

1.39

12.34

OXYGEN

10.23

10.32

2.56

ASH

11.99

9.31

48.61

MOISTURE FREE

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

80.98

81.55

66.50

5.69

5.73

4.52

1.52

1.53

1.18

2.45

1.56

24.48

9.37

9.63

3.32

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SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

PYRITIC

1.29

.50

11.25

SULFATIC

.01

.01

.01

ORGANIC

.79

.87

1.08

TOTAL

2.09

1.39

12.34

MOISTURE FREE

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

.51

11.36

22.32

.01

.01

.02

.89

1.09

.92

1.41

12.46

2.45

1.56

24.48

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

OXIDES

SiO2 (SILICON OXIDE)

Al2O3 (ALUMINUM OXIDE)

Fe2O3 (IRON OXIDE)

TiO2 (TITANIUM OXIDE)

CaO (CALCIUM OXIDE)

MgO (MAGNESIUM OXIDE)

Na2O (SODIUM OXIDE)

K2O (POTASSIUM OXIDE)

SO3 (SULFITES)

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

2190

2600

2240

2650

2360

2750

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

AS RECEIVED

RAW

FL 1.60

SK 1.60

INITIAL DEFORMATION (ID)

2190

2600

SOFTENING TEMPERATURE (ST)

2240

2650

FLUID TEMPERATURE (FT)

2360

2750

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

14.08

11.04

54.09

COAL UTILIZATION RATIOS

AS RECEIVED

RAW

FL 1.60

SK 1.60

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

.84

.84

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STATE: OHIO
COUNTY: BELMONT

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 170

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	7.2	2.8	.33	14143	1.8
FLOAT 1.40	93.9	10.9	.85	13366	2.8
FLOAT 1.60	97.6	11.3	.88	13285	2.8
CUM(1-1/2" X 100M)	100.0	12.3	1.05	13155	3.1
100M X 0	.5	29.1	2.79	10431	8.0
TOTAL(1-1/2" X 0)	100.0	12.4	1.06	13141	3.1

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	17.4	2.7	.25	14119	1.8
FLOAT 1.40	80.0	9.0	.52	13433	2.4
FLOAT 1.60	95.4	10.9	.61	13095	2.6
CUM(3/8" X 100M)	100.0	12.8	.93	12840	3.1
100M X 0	4.3	22.9	2.73	11346	7.4
TOTAL(3/8" X 0)	100.0	13.2	1.01	12776	3.3

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	28.1	2.7	.19	14266	1.6
FLOAT 1.40	74.0	6.7	.38	13707	1.9
FLOAT 1.60	94.2	9.6	.49	13262	2.1
CUM(14M X 0)	100.0	12.2	1.04	12875	3.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.4
3/8" X 14M	17.9
14M X 100M	8.2
100M X 0	.5

MOISTURE, %

TOTAL AS RECEIVED	4.9
	3.6

STATE: OHIO
COUNTY: BELMONT
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 170

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.60	1.00	--	--	--	--
ASH	11.28	8.89	11.70	9.20	43.43	46.48
VOLATILE MATTER	36.97	38.01	38.35	39.35	56.57	53.52
FIXED CARBON	48.15	49.70	49.95	51.45	14664	14487
BTU/LB	12483	12867	12949	13320	6577	6577

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	69.33	71.56	71.92	74.08	81.45	81.58
HYDROGEN	5.13	5.27	4.91	5.06	5.56	5.57
NITROGEN	1.29	1.33	1.34	1.38	1.51	1.52
SULFUR	1.99	1.46	2.06	1.51	2.34	1.66
OXYGEN	10.98	11.50	8.07	8.77	9.14	9.66
ASH	11.28	8.89	11.70	9.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.05	.52	1.09	.54	1.23	.59
SULFATIC	.03	.02	.04	.02	.04	.02
ORGANIC	.91	.92	.94	.95	1.06	1.05
TOTAL	1.99	1.46	2.06	1.51	2.34	1.66

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	48.15	54.55
Al2O3 (ALUMINUM OXIDE)	23.00	26.02
Fe2O3 (IRON OXIDE)	23.73	13.44
TiO2 (TITANIUM OXIDE)	1.33	1.33
CaO (CALCIUM OXIDE)	.48	.53
MgO (MAGNESIUM OXIDE)	.73	.83
Na2O (SODIUM OXIDE)	.16	.38
K2O (POTASSIUM OXIDE)	1.98	2.31
SO3 (SULFITES)	.05	.01

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.37	.21
DOLOMITE	.04	.08
HYDROGEN/CARBON	.82	.82
OXYGEN/CARBON	.08	.09
R250	.75	.85
SILICA	.66	.79
SILICA/ALUMINA	2.09	2.10

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2080	2380
SOFTENING TEMPERATURE (ST)	2130	2480
FLUID TEMPERATURE (FT)	2280	2580

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.04	--
NA (SODIUM) (CALCULATED)	.01	.11
MINERAL MATTER (PARR)	13.77	10.77
	65.61	

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	5	4
HARDGROVE GRINDABILITY (HGI)	54	--

STATE: OHIO
COUNTY: BELMONT

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 171

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.0	4.4	.35	14010	2.7
FLOAT 1.40	91.3	7.3	.74	13590	3.4
FLOAT 1.60	96.9	8.1	.89	13470	3.7
CUM(1-1/2" X 100M)	100.0	9.2	1.37	13278	4.4
100M X 0	1.0	17.4	4.21	11739	9.2
TOTAL(1-1/2" X 0)	100.0	9.3	1.40	13262	4.5

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.4	3.6	.30	14170	2.5
FLOAT 1.40	87.4	6.6	.66	13717	3.1
FLOAT 1.60	95.2	7.6	.85	13548	3.4
CUM(3/8" X 100M)	100.0	9.3	1.53	13241	4.5
100M X 0	4.2	12.7	2.94	12568	7.2
TOTAL(3/8" X 0)	100.0	9.4	1.59	13213	4.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.7	2.6	.17	14230	2.4
FLOAT 1.40	82.2	5.0	.29	13846	2.8
FLOAT 1.60	94.6	6.5	.51	13606	3.1
CUM(14M X 0)	100.0	8.6	1.37	13233	4.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.7
3/8" X 14M	18.0
14M X 100M	4.3
100M X 0	1.0

MOISTURE, %

TOTAL	3.7
AS RECEIVED	3.2

STATE: OHIO
COUNTY: BELMONT

BED: SEMICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CO⁷: 29
SAMPLE NO. 171

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.20	2.30	2.20	--	--	--	--	--	--
ASH	8.66	6.60	45.48	8.94	6.76	46.50	--	--	--
VOLATILE MATTER	39.15	40.42	23.96	40.44	41.37	24.50	44.42	44.37	45.79
FIXED CARBON	49.00	50.68	28.36	50.62	51.87	29.00	55.59	55.63	54.21
BTU/LB	12762	13256	6429	13183	13568	6573	14478	14551	12287

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	71.88	74.71	32.18	74.25	76.46	32.90	81.55	82.01	61.50
HYDROGEN	5.31	5.42	2.35	5.12	5.29	2.15	5.62	5.67	4.03
NITROGEN	1.30	1.35	.57	1.34	1.38	.59	1.48	1.48	1.10
SULFUR	2.60	1.90	17.46	2.68	1.94	17.85	2.95	2.08	33.37
OXYGEN	10.26	10.02	--	7.66	8.16	--	8.41	8.75	--
ASH	8.66	6.60	45.48	8.94	6.76	46.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.27	.54	15.74	1.31	.55	16.10	1.44	.59	30.09
SULFATIC	.03	.01	.05	.03	.01	.05	.03	.01	.09
ORGANIC	1.30	1.35	1.67	1.35	1.38	1.71	1.48	1.48	3.19
TOTAL	2.60	1.90	17.46	2.68	1.94	17.85	2.95	2.08	33.37

MINERAL ANALYSIS OF ASH, %

	RAW		FL 1.60		SK 1.60	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
OXIDES	--	--	--	--	--	--
SiO ₂ (SILICON OXIDE)	--	--	--	--	--	--
Al ₂ O ₃ (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe ₂ O ₃ (IRON OXIDE)	--	--	--	--	--	--
TiO ₂ (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na ₂ O (SODIUM OXIDE)	--	--	--	--	--	--
K ₂ O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO ₃ (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	RAW		FL 1.60	
	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	.83	.83	--	--
OXYGEN/CARBON	.08	.08	--	--
R ₂ SO	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW		FL 1.60		SK 1.60	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
INITIAL DEFORMATION (ID)	--	--	2140	2530	--	--
SOFTENING TEMPERATURE (ST)	--	--	2190	2580	--	--
FLUID TEMPERATURE (FT)	--	--	2250	2630	--	--

MISCELLANEOUS DATA, %

	RAW		FL 1.60		SK 1.60	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	11.13	8.37	60.04	--	--	--

PHYSICAL PARAMETERS, INDEX

	RAW		FL 1.60		SK 1.60	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	5	5	5	5	5	5
HARDGROVE GRINDABILITY (HG ₁)	51	51	51	50	--	--

STATE: OHIO
 COUNTY: BELMONT
 BED: SEWICKLEY
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 29
 SAMPLE NO. 172

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.1	5.4	.25	13863	1.8
FLOAT 1.40	92.4	8.2	.75	13426	2.7
FLOAT 1.60	95.8	8.6	.89	13356	2.9
CUM(1-1/2" X 100M)	100.0	10.5	1.64	13012	4.1
100M X 0	.9	16.7	4.68	11859	9.3
TOTAL(1-1/2" X 0)	100.0	10.6	1.67	13002	4.1

----- SAMPLE CRUSHED TO PASS 3/8" -----
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.2	5.0	.20	13951	1.3
FLOAT 1.40	89.6	7.3	.45	13589	1.8
FLOAT 1.60	95.2	8.0	.66	13463	2.2
CUM(3/8" X 100M)	100.0	10.3	1.67	13067	3.8
100M X 0	4.0	13.7	3.80	12401	8.0
TOTAL(3/8" X 0)	100.0	10.4	1.76	13040	3.9

----- SAMPLE CRUSHED TO PASS 14M -----
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.1	3.2	.18	14205	1.4
FLOAT 1.40	85.5	6.2	.26	13724	1.2
FLOAT 1.60	94.1	7.4	.47	13529	1.4
CUM(14M X 0)	100.0	10.4	1.89	12987	3.7

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	72.1
3/8" X 14M	22.0
14M X 100M	5.0
100M X 0	.9

----- MOISTURE, % -----

TOTAL	4.2
AS RECEIVED	2.7

STATE: OHIO
COUNTY: BELMONT
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 172

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	2.70	2.16	--	--	--	--
ASH	10.52	7.24	10.82	58.20	--	--
VOLATILE MATTER	39.13	40.64	40.21	21.80	45.09	52.15
FIXED CARBON	47.65	49.96	48.97	20.00	54.91	47.85
BTU/LB	12578	13237	12927	4351	14495	10409

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	70.21	73.75	72.16	--	80.91	81.40
HYDROGEN	5.13	5.43	4.96	--	5.56	5.72
NITROGEN	1.34	1.41	1.38	40	1.54	1.56
SULFUR	2.65	1.02	2.72	25.45	3.05	60.88
OXYGEN	10.16	11.15	7.97	--	8.94	10.19
ASH	10.52	7.24	10.82	58.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	1.89	.41	1.94	24.54	2.18	58.70
SULFATIC	.09	.02	.09	.16	.10	.38
ORGANIC	.67	.58	.69	.75	.77	1.79
TOTAL	2.65	1.02	2.72	25.45	3.05	60.88

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
OXIDES	53.27	53.27	53.27	24.29	53.27	24.29
SiO2 (SILICON OXIDE)	33.00	33.00	33.00	11.69	33.00	11.69
AL2O3 (ALUMINUM OXIDE)	8.15	8.15	8.15	59.48	8.15	59.48
Fe2O3 (IRON OXIDE)	1.50	1.50	1.50	.33	1.50	.33
TiO2 (TITANIUM OXIDE)	.59	.59	.59	.11	.59	.11
CaO (CALCIUM OXIDE)	.55	.55	.55	.27	.55	.27
MgO (MAGNESIUM OXIDE)	.32	.32	.32	.08	.32	.08
Na2O (SODIUM OXIDE)	2.13	2.13	2.13	.77	2.13	.77
K2O (POTASSIUM OXIDE)	.30	.30	.30	.09	.30	.09
SO3 (SULFITES)						

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
BASE/ACID	.13	.13	.13	.13	.13	.13
DOLOMITE	.10	.10	.10	.10	.10	.10
HYDROGEN/CARBON	.83	.84	.83	.84	.83	.84
OXYGEN/CARBON	.08	.09	.08	.09	.08	.09
R250	.91	.91	.91	.91	.91	.91
SILICA	.85	.85	.85	.85	.85	.85
SILICA/ALUMINA	1.61	1.61	1.61	1.61	1.61	1.61

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CL (CHLORINE) (ANALYZED)	.04	.04	.04	.04	.04	.04
NA (SODIUM) (CALCULATED)	.03	.03	.03	.03	.03	.03
MINERAL MATTER (PARR)	13.18	8.56	13.18	8.56	13.18	8.56
FREE SWELLING (FSI)	4	4	4	4	4	4
HARDGROVE GRINDABILITY (HGI)	49	49	49	49	49	49

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
INITIAL DEFORMATION (ID)	2030	2910+	2030	2910+	2030	2910+
SOFTENING TEMPERATURE (ST)	2100	2910+	2100	2910+	2100	2910+
FLUID TEMPERATURE (FT)	2450	2910+	2450	2910+	2450	2910+

STATE: OHIO
 COUNTY: BELMONT
 BED: SEWICKLEY
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 29
 SAMPLE NO. 173

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	6.2	7.0	4.4	.35	14070	2.3
FLOAT 1.40	79.6	83.9	9.4	.88	13199	3.3
FLOAT 1.60	95.6	98.0	11.5	1.13	12833	3.9
FLOAT 1.90	97.4	99.2	12.0	1.22	12746	4.0
CUM(1-1/2" X 100M)	100.0	100.0	13.3	1.63	12520	4.8
100M X 0	.2	.2	21.2	2.71	11144	6.8
TOTAL(1-1/2" X 0)	100.0	100.0	13.3	1.63	12517	4.8

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.6	28.8	4.0	.34	14139	2.3
FLOAT 1.40	74.6	80.0	7.9	.55	13460	2.7
FLOAT 1.60	93.8	97.1	10.6	.88	12990	3.3
FLOAT 1.90	97.4	99.2	12.0	1.22	12746	4.0
CUM(3/8" X 100M)	100.0	100.0	13.1	1.61	12555	4.8
100M X 0	.7	.7	16.8	2.57	11910	6.5
TOTAL(3/8" X 0)	100.0	100.0	13.1	1.62	12550	4.8

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.8	28.1	3.5	.24	14226	2.1
FLOAT 1.40	70.1	75.7	7.4	.48	13547	2.6
FLOAT 1.60	93.4	96.6	10.7	.81	12973	3.2
FLOAT 1.90	97.4	99.2	12.0	1.22	12746	4.0
CUM(14M X 0)	100.0	100.0	13.2	1.62	12537	4.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"
 1-1/2" X 3/8" --
 3/8" X 14M --
 14M X 100M --
 100M X 0 .2

--- MOISTURE, % ---
 TOTAL
 AS RECEIVED
 4.9
 2.7

STATE: OHIO
COUNTY: BELMONT

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 173

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.70	--	--	--	--	--	--	--	--
ASH	13.43	--	--	13.80	--	--	--	--	--
VOLATILE MATTER	38.04	--	--	39.10	--	--	45.36	--	--
FIXED CARBON	45.83	--	--	47.10	--	--	54.64	--	--
BTU/LB	12520	--	--	12867	--	--	14927	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.77	--	--	2.84	--	--	3.30	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	13.43	--	--	13.80	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.66	--	--	1.70	--	--	1.98	--	--
SULFATIC	.02	--	--	.02	--	--	.02	--	--
ORGANIC	1.09	--	--	1.12	--	--	1.30	--	--
TOTAL	2.77	--	--	2.84	--	--	3.30	--	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	16.47	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

STATE: OHIO
COUNTY: BELMONT

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 174

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	7.5	4.5	.43	14028	2.6
FLOAT 1.40	75.3	10.4	.82	13114	3.4
FLOAT 1.60	91.3	12.7	1.07	12741	3.9
CUM(1-1/2" X 100M)	100.0	16.0	1.48	12195	4.7
100M X 0	1.1	20.4	1.62	11377	6.8
TOTAL(1-1/2" X 0)	100.0	16.0	1.48	12186	4.7

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	16.6	3.7	.26	14121	2.3
FLOAT 1.40	69.1	8.6	.65	13326	2.9
FLOAT 1.60	89.0	11.8	.86	12835	3.4
CUM(3/8" X 100M)	100.0	16.0	1.53	12112	4.7
100M X 0	6.2	18.0	1.43	11779	5.9
TOTAL(3/8" X 0)	100.0	16.1	1.52	12091	4.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	29.4	3.7	.23	14137	2.4
FLOAT 1.40	68.1	7.6	.43	13508	2.7
FLOAT 1.60	87.9	10.9	.63	12959	3.1
CUM(14M X 0)	100.0	15.9	1.64	12115	4.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	74.9
3/8" X 14M	20.0
14M X 100M	4.0
100M X 0	1.1

MOISTURE, %

TOTAL	3.8
AS RECEIVED	3.0

STATE: OHIO
COUNTY: BELMONT

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 174

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.00	3.10	--	--	--	--
ASH	15.71	10.98	16.20	11.34	45.74	50.64
VOLATILE MATTER	37.18	38.99	38.33	40.24	54.26	49.36
FIXED CARBON	44.10	46.92	45.47	48.42	14.405	14.544
BTU/LB	11709	12495	12072	12895	5913	12527

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	65.56	69.43	67.59	71.65	80.66	80.82
HYDROGEN	4.86	5.14	4.66	4.95	5.57	5.58
NITROGEN	1.22	1.31	1.25	1.35	1.50	1.52
SULFUR	2.91	1.91	3.00	1.98	3.58	2.23
OXYGEN	9.74	11.22	7.29	8.74	8.70	9.86
ASH	15.71	10.98	16.20	11.34	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.63	.64	1.68	.66	2.00	.74
SULFATIC	.07	.06	.07	.06	.08	.07
ORGANIC	1.21	1.22	1.25	1.26	1.49	1.42
TOTAL	2.91	1.91	3.00	1.98	3.58	2.23

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	51.99	54.12
Al2O3 (ALUMINUM OXIDE)	26.02	27.53
Fe2O3 (IRON OXIDE)	15.73	9.72
TiO2 (TITANIUM OXIDE)	1.33	1.67
CaO (CALCIUM OXIDE)	.53	.62
MgO (MAGNESIUM OXIDE)	.96	.90
Na2O (SODIUM OXIDE)	.30	.43
K2O (POTASSIUM OXIDE)	2.19	2.31
SO3 (SULFITES)	.43	.27

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.25	.17
DOLOMITE	.08	.11
HYDROGEN/CARBON	.83	.83
OXYGEN/CARBON	.08	.09
R250	.83	.89
SILICA	.75	.83
SILICA/ALUMINA	2.00	1.97

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2590	2790	--
SOFTENING TEMPERATURE (ST)	2640	2910+	--
FLUID TEMPERATURE (FT)	2750	2910+	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.01	--	--
MINERAL MATTER (PARR)	.04	.04	.13
	19.15	13.33	62.54

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4	3 1/2	--
HARDGROVE GRINDABILITY (HGI)	48	--	--

STATE: OHIO
COUNTY: BELMONT

BED: SEWICKLEY
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 29
SAMPLE NO. 175

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	23.6	4.9	.51	13860	2.2
FLOAT 1.40	83.0	8.6	1.32	13309	3.6
FLOAT 1.60	96.4	10.1	1.84	13062	4.4
CUM(1-1/2" X 100M)	100.0	11.2	2.38	12867	5.2
100M X 0	.9	20.1	5.65	11259	12.3
TOTAL(1-1/2" X 0)	100.0	11.3	2.41	12853	5.3

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	31.3	4.4	.29	13930	2.0
FLOAT 1.40	81.7	8.0	.87	13375	2.9
FLOAT 1.60	94.0	9.6	1.27	13115	3.5
CUM(3/8" X 100M)	100.0	11.7	2.38	12760	5.3
100M X 0	4.8	14.5	4.04	12231	8.5
TOTAL(3/8" X 0)	100.0	11.8	2.46	12735	5.5

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	27.6	2.9	.23	14160	1.9
FLOAT 1.40	76.0	6.6	.50	13580	2.3
FLOAT 1.60	91.1	8.6	.79	13252	2.7
CUM(14M X 0)	100.0	12.2	2.58	12617	5.6

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.2
3/8" X 14M	18.2
14M X 100M	4.7
100M X 0	.9

----- MOISTURE, % -----

TOTAL	4.5
AS RECEIVED	2.5

STATE: OHIO
COUNTY: BELMONT

BED: SEWICKLEY
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 29
SAMPLE NO. 175

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.50	1.70	1.40	--	--	--	--	--	--
ASH	11.42	8.06	50.19	11.71	8.20	50.90	--	--	--
VOLATILE MATTER	39.26	40.83	25.64	40.27	41.54	26.00	45.61	45.25	52.95
FIXED CARBON	46.82	49.41	22.78	48.02	50.27	23.10	54.39	54.76	47.05
BTU/LB	12370	13084	5806	12687	13310	5888	14370	14499	11992

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	69.58	73.01	--	71.36	74.27	--	80.83	80.90	--
HYDROGEN	5.04	5.30	--	4.89	5.20	--	5.54	5.66	--
NITROGEN	1.36	1.38	--	1.40	1.40	--	1.58	1.53	--
SULFUR	3.11	1.87	20.63	3.19	1.90	20.92	3.61	2.07	42.61
OXYGEN	9.49	10.39	--	7.45	9.03	--	8.44	9.84	--
ASH	11.42	8.06	50.19	11.71	8.20	50.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.19	.78	20.61	2.25	.79	20.90	2.55	.86	42.57
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.91	1.08	.01	.93	1.10	.01	1.05	1.20	.02
TOTAL	3.11	1.87	20.63	3.19	1.90	20.92	3.61	2.07	42.61

MINERAL ANALYSIS OF ASH, %

	RAW		FL 1.60		SK 1.60	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	RAW		FL 1.60	
	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	.82	.84	--	--
OXYGEN/CARBON	.08	.09	--	--
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW		FL 1.60	
	RAW	FL 1.60	RAW	FL 1.60
INITIAL DEFORMATION (ID)	2090	2530	--	--
SOFTENING TEMPERATURE (ST)	2150	2580	--	--
FLUID TEMPERATURE (FT)	2340	2630	--	--

MISCELLANEOUS DATA, %

	RAW		FL 1.60	
	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	.01	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--
MINERAL MATTER (PARR)	14.40	9.90	--	66.48

PHYSICAL PARAMETERS, INDEX

	RAW		FL 1.60	
	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	5	4 1/2	--	--
HARDGROVE GRINDABILITY (HGI)	51	--	--	--

STATE: OHIO
COUNTY: BELMONT

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 176

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	4.9	3.6	.19	14240	3.1
FLOAT 1.40	88.2	8.8	1.08	13289	4.5
FLOAT 1.60	96.7	9.7	1.34	13124	4.9
CUM(1-1/2" X 100M)	100.0	10.8	1.72	12923	5.5
100M X 0	.3	20.2	4.60	11203	10.8
TOTAL(1-1/2" X 0)	100.0	10.8	1.73	12918	5.5

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.2	4.0	.20	14167	3.2
FLOAT 1.40	83.5	8.1	.71	13417	3.9
FLOAT 1.60	94.6	9.4	1.08	13179	4.5
CUM(3/8" X 100M)	100.0	11.2	1.78	12850	5.6
100M X 0	1.1	16.9	3.97	11807	9.2
TOTAL(3/8" X 0)	100.0	11.3	1.80	12838	5.6

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.6	3.0	.09	14350	3.0
FLOAT 1.40	81.9	6.5	.26	13710	3.2
FLOAT 1.60	93.2	8.3	.60	13380	3.5
CUM(14M X 0)	100.0	10.9	1.87	12905	5.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	3.5
3/8" X 14M	2.1
14M X 100M	
100M X 0	

TOTAL
AS RECEIVED

STATE: OHIO
COUNTY: BELMONT
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 176

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.10	2.20	1.10	--	--	--
ASH	10.87	7.79	46.19	11.10	7.97	46.70
VOLATILE MATTER	40.43	41.25	--	41.30	42.18	--
FIXED CARBON	46.60	48.76	--	47.60	49.85	--
BTU/LB	12598	13145	--	12868	13441	--
					14475	14605

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.58	2.33	17.94	3.66	2.38	18.14
OXYGEN	--	--	--	--	--	--
ASH	10.87	7.79	46.19	11.10	7.97	46.70
					4.11	2.59
					--	34.03

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.79	.55	17.16	1.83	.56	17.35
SULFATIC	.01	.01	.07	.02	.01	.07
ORGANIC	1.77	1.77	.71	1.81	1.81	.72
TOTAL	3.58	2.33	17.94	3.66	2.38	18.14
					4.11	2.59
					--	34.03

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	14.00	9.91	60.09	--	--	--
INITIAL DEFORMATION (ID)	2080	2680	--	--	--	--
SOFTENING TEMPERATURE (ST)	2130	2730	--	--	--	--
FLUID TEMPERATURE (FT)	2180	2780	--	--	--	--
FREE SWELLING (FSI)	6	1/2	7	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: OHIO
COUNTY: BELMONT

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 177

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.5	3.9	.81	14050	4.1
FLOAT 1.40	80.6	6.6	2.03	13579	6.1
FLOAT 1.60	93.1	7.9	2.58	13356	7.0
CUM(1-1/2" X 100M)	100.0	10.4	3.47	12919	8.5
100M X 0	1.0	20.2	3.56	11150	10.4
TOTAL(1-1/2" X 0)	100.0	10.5	3.47	12902	8.5

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	36.7	3.5	.53	14110	4.1
FLOAT 1.40	79.5	5.9	1.32	13712	5.4
FLOAT 1.60	91.5	7.4	1.94	13462	6.3
CUM(3/8" X 100M)	100.0	10.5	3.34	12903	8.5
100M X 0	4.1	14.0	3.80	12248	9.3
TOTAL(3/8" X 0)	100.0	10.6	3.36	12876	8.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.0	2.9	.58	14140	4.2
FLOAT 1.40	77.3	5.4	1.26	13745	5.4
FLOAT 1.60	88.8	6.7	1.85	13519	6.1
CUM(14M X 0)	100.0	11.2	3.79	12711	9.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.3
3/8" X 14M	18.0
14M X 100M	4.7
100M X 0	1.0

--- MOISTURE, % ---

TOTAL AS RECEIVED	3.6
	2.7

STATE: OHIO
COUNTY: BELMONT

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 177

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
MOISTURE	2.70	1.90	2.20	--	--	--	--	--	--	--	--	--
ASH	10.80	6.77	47.68	11.10	6.90	48.75	11.10	6.90	48.75	47.56	47.17	47.56
VOLATILE MATTER	41.14	43.08	27.33	42.28	43.92	27.95	42.28	43.92	27.95	52.44	52.83	52.44
FIXED CARBON	45.36	48.25	22.79	46.62	49.18	23.30	46.62	49.18	23.30	52.44	52.83	52.44
BTU/LB	12382	13233	5953	12726	13490	6087	12726	13490	6087	14314	14489	14314

ULTIMATE ANALYSIS, %

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
CARBON	68.64	73.33	--	70.54	74.75	--	70.54	74.75	--	79.35	80.29	79.35
HYDROGEN	5.07	5.41	--	4.90	5.30	--	4.90	5.30	--	5.51	5.69	5.51
NITROGEN	1.26	1.37	--	1.30	1.40	--	1.30	1.40	--	1.46	1.50	1.46
SULFUR	5.55	3.97	19.22	5.71	4.05	19.65	5.71	4.05	19.65	6.42	4.35	6.42
OXYGEN	8.68	9.14	--	6.46	7.60	--	6.46	7.60	--	7.26	8.16	7.26
ASH	10.80	6.77	47.68	11.10	6.90	48.75	11.10	6.90	48.75	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
PYRLITIC	3.42	1.79	18.75	3.52	1.82	19.17	3.52	1.82	19.17	3.96	1.95	3.96
SULFATIC	.06	.01	.12	.07	.01	.12	.07	.01	.12	.07	.01	.07
ORGANIC	2.06	2.18	.35	2.12	2.22	.36	2.12	2.22	.36	2.38	2.38	2.38
TOTAL	5.55	3.97	19.22	5.71	4.05	19.65	5.71	4.05	19.65	6.42	4.35	6.42

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
OXIDES	--	--	--	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
BASE/ACID	--	--	--	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	.83	.85	--	.83	.85	--	.83	.85	--	.83	.85	.83
OXYGEN/CARBON	.07	.08	--	.07	.08	--	.07	.08	--	.07	.08	.07
R250	--	--	--	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
FREE SWELLING	--	--	--	--	--	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY	--	--	--	--	--	--	--	--	--	--	--	--
(FSI)	--	--	--	--	--	--	--	--	--	--	--	--
(HGI)	--	--	--	--	--	--	--	--	--	--	--	--

STATE: OHIO
COUNTY: HARRISON
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 178

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.5	5.0	.33	13962	1.5
FLOAT 1.40	90.4	8.9	.64	13298	1.9
FLOAT 1.60	95.9	9.5	.83	13196	2.2
CUM(1-1/2" X 100M)	100.0	10.8	1.30	12974	3.0
100M X 0	.9	13.5	2.61	12515	5.8
TOTAL(1-1/2" X 0)	100.0	10.8	1.31	12970	3.0

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.2	4.0	.39	14133	1.5
FLOAT 1.40	85.8	8.0	.55	13451	1.8
FLOAT 1.60	96.0	9.2	.71	13247	2.1
CUM(3/8" X 100M)	100.0	10.6	1.22	13009	2.9
100M X 0	2.4	12.5	2.09	12685	5.2
TOTAL(3/8" X 0)	100.0	10.6	1.24	13001	3.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.8	3.8	.16	14167	1.2
FLOAT 1.40	84.9	7.2	.33	13588	1.7
FLOAT 1.60	95.3	8.5	.48	13366	1.9
CUM(14M X 0)	100.0	10.5	1.21	13026	3.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	
3/8" X 14M	
14M X 100M	
100M X 0	
TOTAL	3.5
AS RECEIVED	2.1

STATE: OHIO	BED: SEWICKLEY	BED CODE: 29
COUNTY: HARRISON	RANK: HIGH VOLATILE A BITUMINOUS	SAMPLE NO. 178
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	2.10 2.30	2.30
ASH	10.28 8.21	49.92
VOLATILE MATTER	37.30 37.71	51.10
FIXED CARBON	50.32 51.78	53.00
BTU/LB	12675 13062	12947 13370
		14466 14596
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	-- --	-- --
HYDROGEN	-- --	-- --
NITROGEN	-- --	-- --
SULFUR	1.74 1.17	1.98 1.31
OXYGEN	-- --	-- --
ASH	10.28 8.21	10.50 51.10
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	1.11 .48	1.26 .53
SULFATIC	.00 .00	.01 .00
ORGANIC	.69 .64	.72 .78
TOTAL	1.74 1.17	1.98 1.31
		32.12
----- MINERAL ANALYSIS OF ASH, % -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES (SILICON OXIDE)	-- --	-- --
AL2O3 (ALUMINUM OXIDE)	-- --	2520 2830
FE2O3 (IRON OXIDE)	-- --	2570 2880
TiO2 (TITANIUM OXIDE)	-- --	2640 2910+
CAO (CALCIUM OXIDE)	-- --	-- --
MGO (MAGNESIUM OXIDE)	-- --	-- --
NA2O (SODIUM OXIDE)	-- --	RAW FL 1.60 SK 1.60
K2O (POTASSIUM OXIDE)	-- --	-- --
SO3 (SULFITES)	-- --	-- --
----- COAL UTILIZATION RATIOS -----		
	RAW FL 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	-- --	-- --
DOLOMITE	-- --	-- --
HYDROGEN/CARBON	-- --	5 1/2
OXYGEN/CARBON	-- --	-- --
R250	-- --	-- --
SILICA	-- --	-- --
SILICA/ALUMINA	-- --	-- --
----- FUSIBILITY OF ASH, DEGREES F -----		
	(IN OXIDIZING ATMOSPHERE)	
INITIAL DEFORMATION (ID)	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
SOFTENING TEMPERATURE (ST)	2520 2830	2570 2880
FLUID TEMPERATURE (FT)	2640 2910+	2640 2910+
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	-- --	-- --
MINERAL MATTER (PARR)	12.30 9.73	61.79
----- PHYSICAL PARAMETERS, INDEX -----		
FREE SWELLING (FSI)	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
HARDGROVE GRINDABILITY (HGI)	5 1/2	-- --

STATE: OHIO
COUNTY: HARRISON
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 179

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.4	4.1	.30	14205	2.1
FLOAT 1.40	86.8	7.9	.79	13536	2.9
FLOAT 1.60	94.0	8.7	1.07	13395	3.4
CUM(1-1/2" X 100M)	100.0	11.0	2.20	12990	5.2
100M X 0	1.1	15.9	2.75	12127	7.5
TOTAL(1-1/2" X 0)	100.0	11.1	2.21	12980	5.2

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.1	3.9	.28	14240	1.9
FLOAT 1.40	86.1	7.7	.66	13571	2.8
FLOAT 1.60	93.5	8.1	.94	13501	3.2
CUM(3/8" X 100M)	100.0	10.9	2.23	13007	5.3
100M X 0	3.5	14.5	3.33	12373	7.3
TOTAL(3/8" X 0)	100.0	11.0	2.27	12985	5.4

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.9	3.5	.22	14311	1.8
FLOAT 1.40	81.3	6.6	.36	13765	2.1
FLOAT 1.60	92.7	7.9	.61	13536	2.5
CUM(14M X 0)	100.0	11.2	2.18	12955	5.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	77.7
3/8" X 14M	16.7
14M X 100M	4.5
100M X 0	1.1
TOTAL AS RECEIVED	3.8
	2.9

STATE: OHIO
COUNTY: HARRISON
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 179

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.90	1.80	.80	--	--	--
ASH	11.31	8.05	53.57	11.65	8.20	54.00
VOLATILE MATTER	37.34	38.90	23.71	38.46	39.61	23.90
FIXED CARBON	48.45	51.25	21.92	49.89	52.19	22.10
BTU/LB	12541	13204	5369	12916	13446	5412
						14647
						11766

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	69.38	73.98	23.01	71.45	75.33	23.20
HYDROGEN	5.16	5.34	1.97	4.98	5.23	1.90
NITROGEN	1.39	1.47	.50	1.43	1.50	.50
SULFUR	3.01	1.71	23.26	3.10	1.74	23.45
OXYGEN	9.75	9.46	--	7.38	8.00	--
ASH	11.31	8.05	53.57	11.65	8.20	54.00

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.94	.60	19.75	2.00	.61	19.91
SULFATIC	.07	.01	.36	.07	.01	.36
ORGANIC	1.01	1.10	3.16	1.04	1.12	3.18
TOTAL	3.01	1.71	23.26	3.10	1.74	23.45

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.84	.83	--	--	--	--
OXYGEN/CARBON	.09	.08	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING	5	5	--	5	5	--
HARDGROVE GRINDABILITY (HGI)	61	61	--	61	61	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2030	2580	--	2030	2580	--
SOFTENING TEMPERATURE (ST)	2080	2630	--	2080	2630	--
FLUID TEMPERATURE (FT)	2140	2680	--	2140	2680	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.03	--	--	.03	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	13.65	9.81	60.85	13.65	9.81	60.85

STATE: OHIO
 COUNTY: HARRISON
 BED: SEWICKLEY
 RANK: HIGH VOLATILE B BITUMINOUS
 BED CODE: 29
 SAMPLE NO. 180

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL)
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	26.3	5.5	.21	13780	1.5
FLOAT 1.40	95.1	8.8	.61	13259	2.3
FLOAT 1.60	98.3	9.2	.67	13199	2.4
CUM(1-1/2" X 100M)	100.0	9.8	1.01	13093	2.9
100M X 0	1.0	15.3	2.89	12183	6.8
TOTAL(1-1/2" X 0)	100.0	9.9	1.03	13084	3.0

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL)
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	33.8	6.6	.28	13610	1.7
FLOAT 1.40	91.5	8.8	.51	13257	2.1
FLOAT 1.60	97.6	9.5	.61	13146	2.3
CUM(3/8" X 100M)	100.0	10.4	1.08	12989	3.0
100M X 0	4.5	12.2	2.28	12698	5.2
TOTAL(3/8" X 0)	100.0	10.5	1.13	12976	3.1

SAMPLE CRUSHED TO PASS 14M X 0 MATERIAL)
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	34.3	4.3	.13	13970	1.7
FLOAT 1.40	89.0	8.0	.28	13423	1.8
FLOAT 1.60	96.9	8.9	.40	13266	2.1
CUM(14M X 0)	100.0	10.2	1.02	13052	3.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	79.3
3/8" X 14M	15.5
14M X 100M	4.2
100M X 0	1.0

MOISTURE, %

TOTAL	4.5
AS RECEIVED	3.6

STATE: OHIO
COUNTY: HARRISON
BED: SEWICKLEY
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 29
SAMPLE NO. 180

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.60	2.20	1.30	--	--	--
ASH	9.83	8.41	48.17	10.20	8.60	48.80
VOLATILE MATTER	37.65	38.77	24.38	39.06	39.64	24.70
FIXED CARBON	48.92	50.62	26.16	50.74	51.76	26.50
BTU/LB	12582	13017	6527	13052	13310	6613
					14534	14562
						12916

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	71.27	72.68	--	73.94	74.31	--
HYDROGEN	5.26	5.23	--	5.05	5.10	--
NITROGEN	1.46	1.47	--	1.51	1.50	--
SULFUR	1.89	1.24	19.26	1.96	1.27	19.51
OXYGEN	10.28	10.97	--	7.34	9.22	--
ASH	9.83	8.41	48.17	10.20	8.60	48.80

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.05	.43	18.12	1.09	.44	18.36
SULFATIC	.02	.02	.14	.03	.02	.15
ORGANIC	.82	.79	1.00	.85	.81	1.01
TOTAL	1.89	1.24	19.26	1.96	1.27	19.51

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.82	.82	--	--	--	--
OXYGEN/CARBON	.07	.09	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4	1/2	4	1/2	4	1/2
HARDGROVE GRINDABILITY (HGI)	49	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	2460	2910+	--
SOFTENING TEMPERATURE (ST)	--	--	--	2520	2910+	--
FLUID TEMPERATURE (FT)	--	--	--	2600	2910+	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	12.10	9.99	62.67	--	--	--

STATE: OHIO
COUNTY: HARRISON
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 181

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.7	5.0	.26	13770	1.6
FLOAT 1.40	90.2	8.3	.64	13358	2.4
FLOAT 1.60	94.2	8.9	.70	13264	2.5
CUM(1-1/2" X 100M)	100.0	11.1	1.28	12888	3.4
100M X 0	.7	15.1	3.10	12186	6.6
TOTAL(1-1/2" X 0)	100.0	11.1	1.29	12883	3.5

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.6	4.4	.15	13940	1.8
FLOAT 1.40	86.6	7.3	.44	13513	2.1
FLOAT 1.60	94.1	8.2	.57	13358	2.4
CUM(3/8" X 100M)	100.0	10.7	1.38	12932	3.6
100M X 0	3.5	12.5	3.00	12623	6.3
TOTAL(3/8" X 0)	100.0	10.8	1.44	12921	3.7

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.2	3.2	.18	14210	1.6
FLOAT 1.40	80.4	5.9	.29	13718	1.7
FLOAT 1.60	93.3	7.7	.42	13440	1.8
CUM(14M X 0)	100.0	10.6	1.22	12945	3.2

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---		--- MOISTURE, % ---	
SAMPLE CRUSHED TO PASS 1-1/2"			
1-1/2" X 3/8"	78.7	TOTAL	3.9
3/8" X 14M	16.2	AS RECEIVED	3.3
14M X 100M	4.4		
100M X 0	.7		

STATE: OHIO
COUNTY: HARRISON
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 181

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.30	2.10	1.10	--	--	--	--	--	--
ASH	10.66	7.84	52.32	11.02	8.01	52.90	--	--	--
VOLATILE MATTER	37.07	38.64	22.35	38.33	39.47	22.60	43.08	42.91	47.98
FIXED CARBON	48.98	51.42	24.23	50.65	52.52	24.50	56.92	57.09	52.02
BTU/LB	12458	13114	5750	12883	13395	5813	14480	14561	12343

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	69.93	73.33	28.35	72.32	74.91	28.67	81.28	81.43	60.87
HYDROGEN	5.12	5.24	2.30	4.92	5.11	2.20	5.52	5.56	4.67
NITROGEN	1.33	1.40	.49	1.37	1.43	.50	1.54	1.56	1.06
SULFUR	2.03	1.07	14.06	2.10	1.10	14.22	2.35	1.19	30.19
OXYGEN	10.93	11.11	2.47	8.27	9.44	1.51	9.30	10.26	3.21
ASH	10.66	7.84	52.32	11.02	8.01	52.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.22	.41	12.22	1.26	.42	12.36	1.42	.46	26.24
SULFATIC	.02	.01	.04	.03	.01	.04	.03	.01	.08
ORGANIC	.78	.65	1.80	.81	.67	1.82	.91	.73	3.86
TOTAL	2.03	1.07	14.06	2.10	1.10	14.22	2.35	1.19	30.19

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60	
OXIDES	--	--	SK 1.60	--	--	--	--	--	SK 1.60
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60	
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	.82	.82	--	--	--	--	--	--	--
OXYGEN/CARBON	.09	.10	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60	
FREE SWELLING	5	5	(FSI)	5	5	(FSI)	5	5	(FSI)
HARDGROVE GRINDABILITY	52	52	(HGI)	52	52	(HGI)	52	52	(HGI)

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60	
INITIAL DEFORMATION (ID)	2410	2410	(ID)	2410	2410	(ID)	2410	2410	(ID)
SOFTENING TEMPERATURE (ST)	2460	2460	(ST)	2460	2460	(ST)	2460	2460	(ST)
FLUID TEMPERATURE (FT)	2520	2520	(FT)	2520	2520	(FT)	2520	2520	(FT)

MISCELLANEOUS DATA, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60	
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PARR)	13.06	13.06	(PARR)	13.06	13.06	(PARR)	13.06	13.06	(PARR)

STATE: OHIO
COUNTY: HARRISON
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 182

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"									
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	RECOVERY, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU		
FLOAT 1.30	20.5	22.0	5.8	.29	1.13	13826	1.6		
FLOAT 1.40	91.4	93.5	9.5	.86	1.76	13196	2.7		
FLOAT 1.60	97.3	98.5	10.3	.98	1.85	13060	2.8		
CUM(1-1/2" X 100M)	100.0	100.0	11.2	1.35	2.22	12906	3.4		
100M X 0	.6	.6	15.6	3.80	4.43	12157	7.3		
TOTAL(1-1/2" X 0)	100.0	100.0	11.2	1.36	2.23	12902	3.5		

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	RECOVERY, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU		
FLOAT 1.30	21.8	23.7	4.4	.26	1.12	14065	1.6		
FLOAT 1.40	87.8	90.6	8.5	.61	1.45	13366	2.2		
FLOAT 1.60	96.8	98.2	9.8	.81	1.60	13145	2.4		
CUM(3/8" X 100M)	100.0	100.0	10.9	1.35	2.13	12957	3.3		
100M X 0	1.8	1.7	13.4	3.52	4.20	12532	6.7		
TOTAL(3/8" X 0)	100.0	100.0	10.9	1.39	2.17	12950	3.3		

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	RECOVERY, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU		
FLOAT 1.30	40.4	44.7	2.4	.24	1.16	14405	1.6		
FLOAT 1.40	84.6	87.7	7.7	.35	1.24	13502	1.8		
FLOAT 1.60	95.8	97.7	9.0	.47	1.35	13281	2.0		
CUM(14M X 0)	100.0	100.0	10.5	1.32	2.19	13026	3.4		

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

MOISTURE, %

TOTAL
AS RECEIVED
3.6
2.2

BED CODE:	29
SAMPLE NO.	182

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

ULTIMATE ANALYSIS, %

SULFUR FORMS ANALYSIS, %

MINERAL ANALYSIS OF ASH, %

COAL UTILIZATION RATIOS

PHYSICAL PARAMETERS, INDEX

STATE: OHIO
COUNTY: HARRISON

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 183

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	19.3	5.1	.52	13860	2.2
FLOAT 1.40	92.0	9.3	.85	13259	2.4
FLOAT 1.60	96.3	10.0	.91	13155	2.5
CUM(1-1/2" X 100M)	100.0	11.3	1.43	12923	3.4
100M X 0	.8	14.5	3.61	12302	7.6
TOTAL(1-1/2" X 0)	100.0	11.3	1.45	12919	3.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	28.1	4.7	.37	13950	2.4
FLOAT 1.40	84.7	8.6	.82	13375	2.6
FLOAT 1.60	95.7	10.0	.91	13154	2.9
CUM(3/8" X 100M)	100.0	11.7	1.41	12873	3.7
100M X 0	2.9	12.8	3.04	12598	6.4
TOTAL(3/8" X 0)	100.0	11.7	1.46	12865	3.7

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	27.5	2.9	.21	14210	1.9
FLOAT 1.40	79.9	6.8	.52	13607	2.3
FLOAT 1.60	94.3	8.8	.68	13280	2.7
CUM(14M X 0)	100.0	11.1	1.40	12880	3.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	79.1
3/8" X 14M	15.8
14M X 100M	4.3
100M X 0	.8

TOTAL AS RECEIVED 4.2 2.8

STATE: OHIO	BED: SEWICKLEY	BED CODE: 29
COUNTY: HARRISON	RANK: HIGH VOLATILE A BITUMINOUS	SAMPLE NO. 183
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE AND ASH FREE
MOISTURE	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
ASH	2.80 1.70 .90	-- --
VOLATILE MATTER	10.89 9.00 48.06	-- --
FIXED CARBON	37.95 39.14 24.48	43.97 43.83 47.96
	48.36 50.16 26.56	56.03 56.17 52.04
BTU/LB	12505 13004 6273	14488 14562 12291
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
CARBON	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
NITROGEN	70.22 73.06 34.41	81.35 81.81 67.42
HYDROGEN	5.15 5.22 2.58	5.61 5.63 4.85
NITROGEN	1.34 1.40 .59	1.55 1.57 1.17
SULFUR	2.20 1.71 13.39	2.55 1.92 26.24
OXYGEN	10.21 9.62 .96	8.94 9.08 .32
ASH	10.89 9.00 48.06	-- --
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
PYRITIC	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
SULFATIC	1.32 .68 13.19	1.54 .76 25.85
ORGANIC	.01 .01 .01	.01 .01 .02
TOTAL	.87 1.02 .19	1.00 1.14 .37
	2.20 1.71 13.39	2.55 1.92 26.24
----- MINERAL ANALYSIS OF ASH, % -----		
OXIDES	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
SiO2 (SILICON OXIDE)	-- --	2410 2580
Al2O3 (ALUMINUM OXIDE)	-- --	2460 2630
Fe2O3 (IRON OXIDE)	-- --	2510 2680
TiO2 (TITANIUM OXIDE)	-- --	-- --
CaO (CALCIUM OXIDE)	-- --	-- --
MgO (MAGNESIUM OXIDE)	-- --	-- --
Na2O (SODIUM OXIDE)	-- --	-- --
K2O (POTASSIUM OXIDE)	-- --	-- --
SO3 (SULFITES)	-- --	-- --
----- COAL UTILIZATION RATIOS -----		
BASE/ACID	RAW FL 1.60	RAW FL 1.60 SK 1.60
DOLOMITE	-- --	.08 --
HYDROGEN/CARBON	.83	-- --
OXYGEN/CARBON	.08	-- --
R250	-- --	13.34 10.84 59.81
SILICA	-- --	-- --
SILICA/ALUMINA	-- --	-- --
----- FUSIBILITY OF ASH, DEGREES F -----		
	(IN OXIDIZING ATMOSPHERE)	
INITIAL DEFORMATION (ID)	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
SOFTENING TEMPERATURE (ST)	2410 2580	2410 2580
FLUID TEMPERATURE (FT)	2460 2630	2460 2630
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.08 --	.08 --
MINERAL MATTER (PARR)	13.34 10.84 59.81	13.34 10.84 59.81
----- PHYSICAL PARAMETERS, INDEX -----		
FREE SWELLING (FSI)	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
HARDGROVE GRINDABILITY (HGI)	5 4 1/2	5 4 1/2
	50 --	50 --

STATE: OHIO
COUNTY: HARRISON
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 184

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.4	4.5	.32	14042	1.9
FLOAT 1.40	82.4	8.4	.69	13387	2.5
FLOAT 1.60	90.4	9.5	.82	13202	2.7
CUM(1-1/2" X 100M)	100.0	15.2	1.26	12243	3.5
100M X 0	2.3	18.9	2.10	11621	4.8
TOTAL(1-1/2" X 0)	100.0	15.3	1.28	12229	3.5

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.9	4.3	.27	14076	1.8
FLOAT 1.40	78.2	7.7	.56	13504	2.3
FLOAT 1.60	89.9	9.3	.75	13235	2.5
CUM(3/8" X 100M)	100.0	15.3	1.32	12227	3.6
100M X 0	4.8	21.0	2.04	11268	5.1
TOTAL(3/8" X 0)	100.0	15.6	1.35	12181	3.7

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.4	3.9	.20	14143	1.8
FLOAT 1.40	72.1	7.1	.35	13605	2.0
FLOAT 1.60	88.2	9.2	.55	13252	2.3
CUM(14M X 0)	100.0	15.7	1.31	12159	3.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	68.1
3/8" X 14M	21.3
14M X 100M	8.3
100M X 0	2.3

--- MOISTURE, % ---

TOTAL	3.9
AS RECEIVED	3.0

STATE: OHIO
COUNTY: HARRISON

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 184

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	3.00	1.90	--	--	--	--
ASH	15.13	9.12	15.60	64.30	--	--
VOLATILE MATTER	35.39	38.17	36.49	17.20	43.23	48.18
FIXED CARBON	46.48	50.80	47.91	18.50	56.77	51.82
BTU/LB	11882	12920	12250	3980	14514	11148

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	66.63	72.24	68.69	22.18	81.38	62.13
HYDROGEN	4.94	5.24	4.75	1.80	5.63	5.04
NITROGEN	1.35	1.47	1.39	1.50	1.65	1.40
SULFUR	2.29	1.53	2.36	8.37	2.79	23.46
OXYGEN	9.66	10.39	7.21	2.85	8.54	7.97
ASH	15.13	9.12	15.60	64.30	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	1.21	.49	1.25	6.99	1.48	19.58
SULFATIC	.03	.02	.03	.04	.04	.11
ORGANIC	1.05	1.03	1.08	1.34	1.28	3.76
TOTAL	2.29	1.53	2.36	8.37	2.79	23.46

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.83	.84
OXYGEN/CARBON	.08	.09
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2460	2710	--
SOFTENING TEMPERATURE (ST)	2520	2760	--
FLUID TEMPERATURE (FT)	2640	2860	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.05	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	18.15	10.90	74.05

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4 1/2	4 1/2	0
HARDGROVE GRINDABILITY (HGI)	49	--	--

STATE: OHIO
 COUNTY: HARRISON
 BED: SEWICKLEY
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 29
 SAMPLE NO.: 185

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	14.4	5.3	.47	13919	2.3
FLOAT 1.40	81.3	9.3	1.16	13331	3.4
FLOAT 1.60	93.3	10.8	1.53	13088	4.1
CUM(1-1/2" X 100M)	100.0	13.4	1.90	12638	4.8
100M X 0	.9	15.6	3.80	12215	8.4
TOTAL(1-1/2" X 0)	100.0	13.4	1.92	12634	4.8

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.2	4.4	.35	14082	2.1
FLOAT 1.40	79.2	8.2	.93	13484	2.9
FLOAT 1.60	92.1	10.0	1.33	13181	3.6
CUM(3/8" X 100M)	100.0	13.1	1.87	12649	4.6
100M X 0	4.6	13.7	3.36	12540	7.0
TOTAL(3/8" X 0)	100.0	13.1	1.94	12644	4.7

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.9	3.6	.30	14233	2.0
FLOAT 1.40	72.2	6.8	.57	13712	2.5
FLOAT 1.60	89.1	9.1	.91	13330	3.0
CUM(14M X 0)	100.0	13.6	1.96	12551	4.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	78.5
3/8" X 14M	16.7
14M X 100M	3.9
100M X 0	.9

--- MOISTURE, % ---
 TOTAL
 AS RECEIVED
 4.2
 2.9

STATE: OHIO
COUNTY: HARRISON
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 185

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.90	2.10	--	--	--	--
ASH	13.11	9.20	13.50	9.40	44.00	43.76
VOLATILE MATTER	36.95	38.81	38.06	39.64	56.00	56.24
FIXED CARBON	47.04	49.89	48.44	50.96	14526	14664
BTU/LB	12201	13007	12565	13286	6009	12466

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	68.01	72.61	70.04	74.17	80.97	81.87
HYDROGEN	5.26	5.44	5.08	5.32	5.83	5.87
NITROGEN	1.27	1.36	1.31	1.39	1.52	1.53
SULFUR	2.88	1.97	2.97	2.01	3.43	2.22
OXYGEN	9.47	9.42	7.10	7.72	8.21	8.52
ASH	13.11	9.20	13.50	9.40	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.85	.92	1.91	.94	2.21	1.04
SULFATIC	.06	.06	.07	.06	.08	.07
ORGANIC	.96	.99	.99	1.01	1.14	1.11
TOTAL	2.88	1.97	2.97	2.01	3.43	2.22

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	49.86	52.84
Al2O3 (ALUMINUM OXIDE)	26.40	27.91
Fe2O3 (IRON OXIDE)	18.59	12.01
TiO2 (TITANIUM OXIDE)	1.23	1.43
CaO (CALCIUM OXIDE)	.70	.53
MgO (MAGNESIUM OXIDE)	.50	.60
Na2O (SODIUM OXIDE)	.49	.57
K2O (POTASSIUM OXIDE)	1.78	2.17
SO3 (SULFITES)	.06	.07

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.28	.19
DOLOMITE	.05	.07
HYDROGEN/CARBON	.87	.86
OXYGEN/CARBON	.08	.08
R250	.80	.87
SILICA	.72	.80
SILICA/ALUMINA	1.85	1.89

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2400	2560
SOFTENING TEMPERATURE (ST)	2510	2650
FLUID TEMPERATURE (FT)	2620	2740
MISCELLANEOUS DATA, %		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.06	--
MINERAL MATTER (FARR)	.05	.04
	16.21	11.26
	62.23	

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	5 1/2	4 1/2
HARDGROVE GRINDABILITY (HGI)	48	--

STATE: OHIO
 COUNTY: MORGAN
 BED: SEMICKLEY
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 29
 SAMPLE NO. 186

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	3.2	5.0	.63	13735	5.5
FLOAT 1.40	56.2	9.5	1.19	12967	6.4
FLOAT 1.60	83.7	13.8	1.75	12233	7.5
FLOAT 1.90	92.4	16.4	2.11	11789	8.2
CUM(1-1/2" X 100M)	100.0	20.5	2.77	11089	9.6
100M X 0	.2	29.4	3.27	9569	10.7
TOTAL(1-1/2" X 0)	100.0	20.5	2.77	11086	9.7

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	22.7	4.7	.57	13786	5.4
FLOAT 1.40	60.1	8.1	.94	13206	6.1
FLOAT 1.60	80.3	11.7	1.40	12591	6.8
FLOAT 1.90	92.4	16.4	2.11	11789	8.2
CUM(3/8" X 100M)	100.0	20.2	2.79	11140	9.7
100M X 0	.7	29.7	3.50	9518	12.0
TOTAL(3/8" X 0)	100.0	20.3	2.79	11128	9.7

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	25.4	4.4	.55	13838	5.4
FLOAT 1.40	57.6	7.7	.89	13274	6.0
FLOAT 1.60	77.4	11.2	1.25	12677	6.6
FLOAT 1.90	92.4	16.4	2.11	11789	8.2
CUM(14M X 0)	100.0	20.8	2.86	11037	9.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	.2

MOISTURE, %	
TOTAL AS RECEIVED	
5.3	3.3

STATE: OHIO
COUNTY: MORGAN

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 186

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.30	--	--	--	--	--
ASH	20.69	--	--	21.40	--	--
VOLATILE MATTER	36.84	--	--	38.10	--	--
FIXED CARBON	39.16	--	--	40.50	--	--
BTU/LB	11071	--	--	11449	--	14566

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	5.17	--	--	5.35	--	--
OXYGEN	--	--	--	--	6.81	--
ASH	20.69	--	--	21.40	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.82	--	--	2.92	--	3.72
SULFATIC	.04	--	--	.04	--	.05
ORGANIC	2.31	--	--	2.39	--	3.04
TOTAL	5.17	--	--	5.35	--	6.81

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	26.05	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

STATE: OHIO
COUNTY: MORGAN

BED: SEWICKLEY
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 29
SAMPLE NO. 187

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.2	3.8	.58	13916	5.6
FLOAT 1.40	67.8	7.2	1.21	13341	6.6
FLOAT 1.60	91.3	10.9	1.94	12714	7.8
CUM(1-1/2" X 100M)	100.0	13.5	2.79	12274	9.3
100M X 0	.6	23.3	2.33	10615	9.0
TOTAL(1-1/2" X 0)	100.0	13.6	2.79	12264	9.3

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.2	3.7	.68	13933	5.7
FLOAT 1.40	71.6	6.5	1.20	13459	6.4
FLOAT 1.60	90.7	9.8	1.78	12900	7.3
CUM(3/8" X 100M)	100.0	12.8	2.75	12393	9.0
100M X 0	2.2	16.9	3.06	11698	9.7
TOTAL(3/8" X 0)	100.0	12.9	2.76	12377	9.0

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.5	4.0	.65	13882	5.6
FLOAT 1.40	69.5	6.3	.99	13493	6.1
FLOAT 1.60	89.4	9.5	1.57	12951	6.6
CUM(14M X 0)	100.0	13.3	2.75	12308	8.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

MOISTURE, %
TOTAL AS RECEIVED
4.1
2.7

STATE: OHIO		BED: SEWICKLEY		BED CODE: 29	
COUNTY: MORGAN		RANK: HIGH VOLATILE B BITUMINOUS		SAMPLE NO. 187	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
MOISTURE ASH VOLATILE MATTER FIXED CARBON BTU/LB	RAW	AS RECEIVED FL 1.60 SK 1.60	RAW	MOISTURE FREE FL 1.60 SK 1.60	MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	2.70	2.60 2.60	--	--	--
	13.04	8.86 44.02	13.40	9.10 45.20	--
	41.45	42.56 --	42.60	43.70 --	49.19 48.07
	42.81	45.97 --	44.00	47.20 --	50.81 51.93
	11959	12681 --	12291	13019 --	14193 14322
----- ULTIMATE ANALYSIS, % -----					
CARBON HYDROGEN NITROGEN SULFUR OXYGEN ASH	RAW	AS RECEIVED FL 1.60 SK 1.60	RAW	MOISTURE FREE FL 1.60 SK 1.60	MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	--	-- --	--	--	--
	--	-- --	--	--	--
	5.50	4.46 14.48	5.66	4.58 14.87	6.53 5.04 27.14
	13.04	8.86 44.02	13.40	9.10 45.20	--
----- SULFUR FORMS ANALYSIS, % -----					
PYRITIC SULFATIC ORGANIC TOTAL	RAW	AS RECEIVED FL 1.60 SK 1.60	RAW	MOISTURE FREE FL 1.60 SK 1.60	MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	2.75	1.46 12.37	2.83	1.50 12.70	3.27 1.65 23.18
	.01	.00 .03	.02	.00 .03	.02 .00 .05
	2.73	3.00 2.08	2.81	3.08 2.14	3.24 3.39 3.90
	5.50	4.46 14.48	5.66	4.58 14.87	6.53 5.04 27.14
----- MINERAL ANALYSIS OF ASH, % -----					
OXIDES SiO2 Al2O3 Fe2O3 TiO2 CaO MgO Na2O K2O SO3	RAW	FL 1.60 SK 1.60	FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)		
	--	-- --	RAW FL 1.60 SK 1.60		
	--	-- --	INITIAL DEFORMATION (ID)		
	--	-- --	SOFTENING TEMPERATURE (ST)		
	--	-- --	FLUID TEMPERATURE (FT)		
	--	-- --	RAW FL 1.60 SK 1.60		
	--	-- --	2050 2130 2180		
	--	-- --	2150 2380		
	--	-- --	MISCELLANEOUS DATA, %		
	--	-- --	CL (CHLORINE) (ANALYZED)		
	--	-- --	NA (SODIUM) (CALCULATED)		
	--	-- --	MINERAL MATTER (PARR)		
----- COAL UTILIZATION RATIOS -----					
BASE/ACID DOLOMITE HYDROGEN/CARBON OXYGEN/CARBON R250 SILICA SILICA/ALUMINA	RAW	FL 1.60	RAW FL 1.60 SK 1.60		
	--	--	17.58 12.35 57.00		
	--	--	PHYSICAL PARAMETERS, INDEX		
	--	--	FREE SWELLING (FSI)		
	--	--	HARDGROVE GRINDABILITY (HGI)		

STATE: OHIO
COUNTY: MORGAN
BED: SEWICKLEY
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 29
SAMPLE NO. 188

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.4	4.0	4.0	.47	13889	5.3
FLOAT 1.40	70.4	8.5	8.5	1.26	13171	7.1
FLOAT 1.60	90.6	11.1	11.1	1.65	12763	7.8
CUM(1-1/2" X 100M)	100.0	14.4	14.4	2.83	12191	9.9
100M X 0	1.0	21.5	21.5	2.93	10915	10.7
TOTAL(1-1/2" X 0)	100.0	14.5	14.5	2.83	12178	9.9

--- SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.2	3.8	3.8	.47	13900	5.5
FLOAT 1.40	69.9	7.8	7.8	1.13	13251	6.8
FLOAT 1.60	89.6	10.5	10.5	1.52	12815	7.5
CUM(3/8" X 100M)	100.0	14.1	14.1	2.78	12200	9.6
100M X 0	4.8	16.4	16.4	2.51	11793	9.6
TOTAL(3/8" X 0)	100.0	14.2	14.2	2.77	12181	9.6

--- SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.4	3.6	3.6	.37	13954	5.4
FLOAT 1.40	66.9	7.1	7.1	.90	13388	6.5
FLOAT 1.60	87.0	9.9	9.9	1.31	12937	7.2
CUM(14M X 0)	100.0	14.6	14.6	2.84	12108	10.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	75.0
3/8" X 14M	19.0
14M X 100M	5.0
100M X 0	1.0

TOTAL
AS RECEIVED
3.9
2.7

STATE: OHIO
COUNTY: MORGAN

BED: SEWICKLEY
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 29
SAMPLE NO. 188

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.70	2.10	1.00	--	--	--	--	--	--
ASH	14.01	10.08	47.42	14.40	10.30	47.90	--	--	--
VOLATILE MATTER	40.75	42.90	25.74	41.88	43.82	26.00	48.92	48.85	49.91
FIXED CARBON	42.54	44.92	25.84	43.72	45.88	26.10	51.08	51.15	50.09
BTU/LB	11809	12609	6272	12136	12880	6335	14178	14359	12158

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	65.06	68.81	31.28	66.87	70.29	31.60	78.12	78.36	60.65
HYDROGEN	4.82	5.09	2.19	4.64	4.96	2.10	5.42	5.53	4.03
NITROGEN	1.04	1.11	.50	1.07	1.13	.50	1.25	1.26	.96
SULFUR	5.89	4.60	16.07	6.06	4.70	16.23	7.07	5.24	31.15
OXYGEN	9.17	10.30	2.55	6.96	8.62	1.67	8.13	9.61	3.21
ASH	14.01	10.08	47.42	14.40	10.30	47.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.80	1.31	12.95	2.88	1.34	13.08	3.36	1.49	25.10
SULFATIC	.04	.01	.08	.05	.01	.08	.05	.01	.15
ORGANIC	3.05	3.28	3.04	3.13	3.35	3.07	3.66	3.73	5.89
TOTAL	5.89	4.60	16.07	6.06	4.70	16.23	7.07	5.24	31.15

MINERAL ANALYSIS OF ASH, %

OXIDES	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
(SILICON OXIDE)	42.19	48.15	28.55	2.88	1.34	13.08	3.36	1.49	25.10
AL2O3 (ALUMINUM OXIDE)	19.99	23.38	12.45	.05	.01	.08	.05	.01	.15
FE2O3 (IRON OXIDE)	27.74	20.30	45.18	3.13	3.35	3.07	3.66	3.73	5.89
TiO2 (TITANIUM OXIDE)	1.00	1.33	.33	6.06	4.70	16.23	7.07	5.24	31.15
CaO (CALCIUM OXIDE)	3.02	1.48	5.63						
MgO (MAGNESIUM OXIDE)	.93	.96	.73						
Na2O (SODIUM OXIDE)	.40	.51	.24						
K2O (POTASSIUM OXIDE)	1.69	2.00	1.06						
SO3 (SULFITES)	.28	.49	3.58						

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	.53	.35		2.88	1.34	13.08	3.36	1.49	25.10
DOLOMITE	.12	.10		.05	.01	.08	.05	.01	.15
HYDROGEN/CARBON	.83	.85		3.13	3.35	3.07	3.66	3.73	5.89
OXYGEN/CARBON	.08	.09		6.06	4.70	16.23	7.07	5.24	31.15
R250	.67	.77							
SILICA	.57	.68							
SILICA/ALUMINA	2.11	2.06							

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING	3	1/2	4	1950	2040	2100	1950	2040	2100
HARDGROVE GRINDABILITY (HGI)	49			2010	2100	2190	2010	2100	2190

STATE: OHIO
COUNTY: MORGAN
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 189

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	1.1	4.0	4.0	.68	13906	5.0
FLOAT 1.40	39.6	9.6	9.6	1.47	12950	6.5
FLOAT 1.60	83.1	15.7	15.7	1.96	11908	7.4
FLOAT 1.90	91.5	17.7	17.7	2.28	11567	8.0
CUM(1-1/2" X 100M)	100.0	21.5	21.5	3.30	10918	10.1
100M X 0	.1	27.4	27.4	3.04	9910	10.6
TOTAL(1-1/2" X 0)	100.0	21.5	21.5	3.30	10917	10.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	4.8	8.5	8.5	.92	13138	6.4
FLOAT 1.40	53.3	14.5	14.5	2.61	12113	8.0
FLOAT 1.60	87.9	19.4	19.4	2.86	11276	8.9
FLOAT 1.90	91.5	17.7	17.7	2.28	11567	8.0
CUM(3/8" X 100M)	100.0	22.9	22.9	3.62	10679	10.4
100M X 0	.6	23.0	23.0	3.28	10662	10.4
TOTAL(3/8" X 0)	100.0	22.9	22.9	3.62	10679	10.4

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	11.5	9.2	9.2	.82	13018	5.3
FLOAT 1.40	47.0	11.7	11.7	1.44	12591	6.6
FLOAT 1.60	79.1	16.8	16.8	1.69	11720	7.1
FLOAT 1.90	91.5	17.7	17.7	2.28	11567	8.0
CUM(14M X 0)	100.0	22.8	22.8	3.31	10696	10.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	5.1
3/8" X 14M	3.4
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	

STATE: OHIO
COUNTY: MORGAN

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 189

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.40	--	--	--	--	--
ASH	20.96	--	--	--	--	--
VOLATILE MATTER	35.16	--	21.70	--	46.49	--
FIXED CARBON	40.48	--	36.40	--	53.51	--
BTU/LB	11013	--	41.90	--	14561	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	5.87	--	6.08	--	7.77	--
OXYGEN	--	--	--	--	--	--
ASH	20.96	--	21.70	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.53	--	3.65	--	4.66	--
SULFATIC	.06	--	.06	--	.08	--
ORGANIC	2.29	--	2.37	--	3.03	--
TOTAL	5.87	--	6.08	--	7.77	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (FARR)	26.78	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

STATE: OHIO
COUNTY: MUSKINGUM

BED: SEMICKLEY
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 29
SAMPLE NO. 190

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.2	4.7	.58	13665	5.9
FLOAT 1.40	61.4	9.8	1.08	12929	6.4
FLOAT 1.60	84.7	13.3	1.54	12360	7.2
CUM(1-1/2" X 100M)	100.0	19.2	3.57	11348	10.8
100M X 0	1.1	23.3	2.87	10714	10.6
TOTAL(1-1/2" X 0)	100.0	19.2	3.56	11341	10.8

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	18.2	4.9	.58	13693	6.0
FLOAT 1.40	65.1	9.4	1.05	13017	6.6
FLOAT 1.60	83.8	12.5	1.43	12517	7.3
CUM(3/8" X 100M)	100.0	19.0	3.50	11408	11.1
100M X 0	4.8	19.8	2.74	11281	9.6
TOTAL(3/8" X 0)	100.0	19.0	3.46	11402	11.0

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	21.1	3.9	.47	13847	5.9
FLOAT 1.40	61.7	7.7	.93	13231	6.4
FLOAT 1.60	81.2	10.8	1.25	12735	6.7
CUM(14M X 0)	100.0	18.8	3.68	11440	11.2

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	66.9
3/8" X 14M	27.0
14M X 100M	5.0
100M X 0	1.1

----- MOISTURE, % -----

TOTAL	4.4
AS RECEIVED	3.0

STATE: OHIO
COUNTY: MUSKINGUM

BED: SEWICKLEY
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 29
SAMPLE NO. 190

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.00	2.20 1.20	--	--	--	--
ASH	17.46	10.98 52.46	18.00	11.23 53.10	--	--
VOLATILE MATTER	38.82	42.16 23.51	40.02	43.11 23.80	48.80	48.57 50.75
FIXED CARBON	40.72	44.65 22.82	41.98	45.66 23.10	51.20	51.43 49.25
BTU/LB	11206	12394 5809	11553	12673 5880	14089	14277 12537

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	61.45	68.27 28.81	63.35	69.80 29.16	77.26	78.63 62.18
HYDROGEN	4.57	4.98 2.07	4.37	4.84 1.96	5.33	5.46 4.19
NITROGEN	.97	1.08 .49	1.00	1.10 .49	1.22	1.24 1.05
SULFUR	6.13	4.22 15.10	6.32	4.32 15.29	7.71	4.87 32.59
OXYGEN	9.42	10.46 --	6.96	8.70 --	8.49	9.80 --
ASH	17.46	10.98 52.46	18.00	11.23 53.10	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.16	1.26 13.75	3.26	1.29 13.92	3.98	1.45 29.68
SULFATIC	.03	.00 .06	.03	.00 .06	.04	.00 .13
ORGANIC	2.94	2.96 1.29	3.03	3.03 1.31	3.70	3.41 2.79
TOTAL	6.13	4.22 15.10	6.32	4.32 15.29	7.71	4.87 32.59

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	42.61	49.86 36.22
Al2O3 (ALUMINUM OXIDE)	20.74	25.64 15.46
Fe2O3 (IRON OXIDE)	26.31	16.87 37.46
TiO2 (TITANIUM OXIDE)	1.00	1.33 .67
CaO (CALCIUM OXIDE)	2.55	1.29 3.27
MgO (MAGNESIUM OXIDE)	.86	.93 .76
Na2O (SODIUM OXIDE)	.49	.65 .32
K2O (POTASSIUM OXIDE)	1.47	1.76 1.18
SO3 (SULFITES)	1.64	.63 1.50

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.49	.28
DOLOMITE	.11	.10
HYDROGEN/CARBON	.83	.83
OXYGEN/CARBON	.08	.09
R250	.69	.81
SILICA	.59	.72
SILICA/ALUMINA	2.05	1.94

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	PAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	1980	2350
SOFTENING TEMPERATURE (ST)	2030	2480
FLUID TEMPERATURE (FT)	2080	2570
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.05	--
MINERAL MATTER (PARR)	.07	.05
	22.92	14.51 65.75

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	5	5
HARDGROVE GRINDABILITY (HGI)	51	--

STATE: OHIO
 COUNTY: NOBLE
 BED: SEWICKLEY
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 29
 SAMPLE NO. 191

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	% PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	3.5	4.3	4.1	.22	2.83	14192	4.0
FLOAT 1.40	43.4	48.8	11.8	1.15	3.61	12895	5.6
FLOAT 1.60	87.9	92.5	16.7	2.36	4.52	12070	7.5
CUM(1-1/2" X 100M)	100.0	100.0	20.3	3.37	5.39	11464	9.4
100M X 0	.5	.5	22.3	5.20	6.63	11127	11.9
TOTAL(1-1/2" X 0)	100.0	100.0	20.3	3.38	5.40	11463	9.4

----- SAMPLE CRUSHED TO PASS 3/8" -----
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	% PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	4.5	5.6	4.9	.29	2.91	14057	4.1
FLOAT 1.40	55.0	63.1	10.9	.60	3.07	13047	4.7
FLOAT 1.60	81.2	88.8	14.6	1.28	3.52	12424	5.7
CUM(3/8" X 100M)	100.0	100.0	20.9	3.35	5.37	11363	9.5
100M X 0	1.1	1.1	21.8	4.79	6.44	11212	11.5
TOTAL(3/8" X 0)	100.0	100.0	20.9	3.37	5.38	11362	9.5

----- SAMPLE CRUSHED TO PASS 14M -----
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	% PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	13.5	16.8	4.2	.16	2.80	14175	4.0
FLOAT 1.40	57.6	67.2	9.4	.31	2.83	13299	4.3
FLOAT 1.60	79.8	89.3	12.6	.61	2.91	12761	4.6
CUM(14M X 0)	100.0	100.0	20.7	3.52	5.56	11397	9.8

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
 3/8" X 14M ---
 14M X 100M ---
 100M X 0 ---

----- MOISTURE, % -----

TOTAL AS RECEIVED 3.2
 1.8

STATE: OHIO
COUNTY: NOBLE

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 191

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.80	2.00	--	--	--	--
ASH	20.43	12.64	20.80	12.90	52.90	--
VOLATILE MATTER	38.89	42.53	39.60	43.40	50.00	49.83
FIXED CARBON	38.89	42.83	39.60	43.70	50.00	50.17
BTU/LB	11175	12456	11380	12710	14369	14592

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	5.41	2.94	5.51	3.00	16.05	--
OXYGEN	--	--	--	--	--	--
ASH	20.43	12.64	20.80	12.90	52.90	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.39	.57	3.45	.58	15.02	31.88
SULFATIC	.03	.01	.03	.01	.05	.11
ORGANIC	1.99	2.36	2.03	2.41	.98	2.77
TOTAL	5.41	2.94	5.51	3.00	16.05	34.07

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2140	2680
SOFTENING TEMPERATURE (ST)	2190	2730
FLUID TEMPERATURE (FT)	2250	2830

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (FARR)	25.49	15.58
		65.96

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	4 1/2	5 1/2
HARDGROVE GRINDABILITY (HGI)	--	--

STATE: OHIO
COUNTY: NOBLE

RED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 192

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% RTU	ASH, %	PYRITIC SULFUR, %	TOTAL SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	3.9	4.3	4.1	.50	3.95	14067	5.6
FLOAT 1.40	71.6	75.5	8.7	1.67	4.71	13300	7.1
FLOAT 1.60	94.9	96.8	11.3	2.55	5.46	12867	8.5
CUM(1-1/2" X 100M)	100.0	100.0	12.8	3.02	5.87	12617	9.3
100M X 0	.5	.5	16.2	4.34	6.50	12050	10.8
TOTAL(1-1/2" X 0)	100.0	100.0	12.8	3.03	5.87	12614	9.3

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% RTU	ASH, %	PYRITIC SULFUR, %	TOTAL SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.6	9.6	3.8	.53	4.26	14117	6.0
FLOAT 1.40	70.0	74.6	8.0	1.43	4.79	13417	7.1
FLOAT 1.60	92.2	95.0	10.7	2.23	5.41	12967	8.3
CUM(3/8" X 100M)	100.0	100.0	13.0	3.09	6.14	12583	9.8
100M X 0	1.0	1.0	15.2	4.13	6.55	12217	10.7
TOTAL(3/8" X 0)	100.0	100.0	13.0	3.10	6.14	12580	9.8

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	TOTAL SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.4	15.0	3.1	.39	3.95	14233	5.6
FLOAT 1.40	67.3	71.8	7.2	.98	4.64	13550	6.8
FLOAT 1.60	94.0	96.5	10.3	1.91	5.21	13033	8.0
CUM(14M X 0)	100.0	100.0	12.3	2.87	6.00	12700	9.4

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---	---
3/8" X 14M	---	---
14M X 100M	---	---
100M X 0	---	---
TOTAL AS RECEIVED	3.1	1.7

----- MOISTURE, % -----

STATE: OHIO
COUNTY: NORLE

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 192

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.70	1.80	--	--	--	--
ASH	12.57	10.02	12.79	10.20	--	--
VOLATILE MATTER	43.16	44.29	43.91	45.10	50.35	50.22
FIXED CARBON	42.57	43.90	43.30	44.70	49.65	49.78
BTU/LB	12403	12815	12618	13050	14469	14532

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	5.53	4.99	5.63	5.09	6.45	5.66
OXYGEN	--	--	--	--	--	--
ASH	12.57	10.02	12.79	10.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.69	1.74	2.74	1.78	3.14	1.98
SULFATIC	.02	.01	.02	.01	.02	.01
ORGANIC	2.82	3.24	2.87	3.30	3.29	3.67
TOTAL	5.53	4.99	5.63	5.09	6.45	5.66

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

FREE SWELLING (FSI) 6 1/2

7

54.93

STATE: OHIO
COUNTY: NOBLE
BED: SEWICKLEY
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 29
SAMPLE NO. 193

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	7.3	3.9	.76	13892	5.9
FLOAT 1.40	70.6	8.7	1.61	13101	7.2
FLOAT 1.60	94.0	11.6	1.98	12623	8.0
CUM(1-1/2" X 100M)	100.0	13.7	2.85	12276	9.5
100M X 0	1.3	18.6	2.58	11469	9.5
TOTAL(1-1/2" X 0)	100.0	13.8	2.85	12266	9.5

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.8	3.4	.68	13975	5.9
FLOAT 1.40	67.8	7.8	1.23	13249	6.9
FLOAT 1.60	91.5	10.9	1.69	12738	7.7
CUM(3/8" X 100M)	100.0	14.0	2.77	12227	9.6
100M X 0	2.7	17.0	2.92	11732	8.0
TOTAL(3/8" X 0)	100.0	14.1	2.77	12214	9.5

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.8	3.1	.72	14024	5.9
FLOAT 1.40	69.2	7.0	1.08	13381	6.5
FLOAT 1.60	90.9	10.2	1.52	12854	7.2
CUM(14M X 0)	100.0	13.7	2.72	12276	9.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	3.9
3/8" X 14M	2.5
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	

STATE: OHIO	BED: SEWICKLEY	BED CODE: 29
COUNTY: NOBLE	RANK: HIGH VOLATILE B BITUMINOUS	SAMPLE NO. 193
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
RAW	FL 1.60 SK 1.60	FL 1.60 SK 1.60
MOISTURE	2.50 2.40	-- --
ASH	13.46 9.86	13.80 10.10
VOLATILE MATTER	39.68 41.28	40.70 42.30
FIXED CARBON	44.36 46.46	45.50 47.60
BTU/LB	11953 12561	12260 12870
		14223 14316
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE FREE
RAW	FL 1.60 SK 1.60	FL 1.60 SK 1.60
CARBON	-- --	-- --
HYDROGEN	-- --	-- --
NITROGEN	-- --	-- --
SULFUR	5.56 4.64	5.70 4.75
OXYGEN	-- --	-- --
ASH	13.46 9.86	13.80 10.10
		47.04 48.20
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE FREE
RAW	FL 1.60 SK 1.60	FL 1.60 SK 1.60
PYRITIC	2.62 1.43	2.69 1.47
SULFATIC	.02 .01	.02 .01
ORGANIC	2.92 3.19	3.27 1.68
TOTAL	5.56 4.64	5.70 4.75
		16.02 16.42
----- MINERAL ANALYSIS OF ASH, % -----		
	RAW	FL 1.60 SK 1.60
OXIDES	-- --	-- --
SiO2 (SILICON OXIDE)	-- --	-- --
Al2O3 (ALUMINUM OXIDE)	-- --	-- --
Fe2O3 (IRON OXIDE)	-- --	-- --
TiO2 (TITANIUM OXIDE)	-- --	-- --
CaO (CALCIUM OXIDE)	-- --	-- --
MgO (MAGNESIUM OXIDE)	-- --	-- --
Na2O (SODIUM OXIDE)	-- --	-- --
K2O (POTASSIUM OXIDE)	-- --	-- --
SO3 (SULFITES)	-- --	-- --
----- COAL UTILIZATION RATIOS -----		
RAW	FL 1.60	
BASE/ACID	-- --	
DOLOMITE	-- --	
HYDROGEN/CARBON	-- --	
OXYGEN/CARBON	-- --	
R250	-- --	
SILICA	-- --	
SILICA/ALUMINA	-- --	
----- FUSIBILITY OF ASH, DEGREES F -----		
	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2040	2140
SOFTENING TEMPERATURE (ST)	2090	2190
FLUID TEMPERATURE (FT)	2280	2580
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	-- --	-- --
MINERAL MATTER (PARR)	18.04	13.52
		61.09
----- PHYSICAL PARAMETERS, INDEX -----		
FREE SWELLING (FSI)	RAW	FL 1.60 SK 1.60
HARDGROVE GRINDABILITY (HGI)	5	6 1/2

STATE: OHIO
COUNTY: WASHINGTON
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 194

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.1	23.0	4.9	.52	3.30	13885	4.8
FLOAT 1.40	71.4	78.2	8.8	.98	3.85	13276	5.8
FLOAT 1.60	89.8	95.1	11.5	1.54	4.34	12840	6.8
CUM(1-1/2" X 100M)	100.0	100.0	15.9	2.51	5.15	12122	8.5
100M X 0	1.1	.9	27.4	2.18	5.31	10250	10.4
TOTAL(1-1/2" X 0)	100.0	100.0	16.0	2.51	5.15	12101	8.5

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.8	28.9	4.3	.52	3.44	14014	4.9
FLOAT 1.40	69.9	78.0	8.2	.89	3.77	13407	5.6
FLOAT 1.60	86.9	93.8	10.9	1.32	4.12	12971	6.4
CUM(3/8" X 100M)	100.0	100.0	16.4	2.70	5.37	12021	8.9
100M X 0	5.5	5.4	17.5	2.10	5.12	11882	8.6
TOTAL(3/8" X 0)	100.0	100.0	16.5	2.67	5.36	12013	8.9

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.6	29.7	3.7	.35	3.53	14148	5.0
FLOAT 1.40	68.3	76.4	7.3	.75	3.81	13637	5.6
FLOAT 1.60	85.9	93.0	9.9	1.04	4.06	13196	6.2
CUM(14M X 0)	100.0	100.0	15.9	2.54	5.38	12189	8.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	74.9
3/8" X 14M	19.0
14M X 100M	5.0
100M X 0	1.1

--- MOISTURE, % ---

TOTAL	2.6
AS RECEIVED	1.6

STATE: OHIO
COUNTY: WASHINGTON

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 194

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
MOISTURE	1.60	1.40	.80									
ASH	16.27	9.96	53.17	16.54	10.10	53.60						
VOLATILE MATTER	40.02	42.62	25.49	40.67	43.23	25.70	48.73	48.09	55.39			
FIXED CARBON	42.11	46.02	20.53	42.79	46.67	20.70	51.27	51.91	44.61			
BTU/LB	11904	12982	5866	12097	13166	5913	14494	14646	12743			

ULTIMATE ANALYSIS, %

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
CARBON	64.25	70.71	30.78	65.29	71.71	31.03	78.23	79.77	39.77	78.23	79.77	78.23
NITROGEN	4.88	5.33	2.01	4.78	5.25	1.94	5.72	5.84	1.84	5.72	5.84	5.72
SULFUR	.91	1.00	.38	.93	1.02	.39	1.11	1.13	.84	1.11	1.13	1.11
OXYGEN	5.16	3.92	12.94	5.24	3.98	13.04	6.28	4.42	28.11	6.28	4.42	6.28
ASH	8.53	9.08	--	7.22	7.94	--	8.65	8.83	--	8.65	8.83	8.65
	16.27	9.96	53.17	16.54	10.10	53.60	--	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
PYRITIC	2.66	1.13	11.23	2.70	1.14	11.33	3.23	1.27	24.41	3.23	1.27	3.23
SULFATIC	.02	.00	.05	.03	.00	.05	.03	.00	.11	.03	.00	.03
ORGANIC	2.48	2.79	1.65	2.52	2.83	1.67	3.02	3.15	3.59	3.02	3.15	3.02
TOTAL	5.16	3.92	12.94	5.24	3.98	13.04	6.28	4.42	28.11	6.28	4.42	6.28

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
OXIDES												
SiO2 (SILICON OXIDE)	42.19	47.73	34.52	42.19	47.73	34.52	42.19	47.73	34.52	42.19	47.73	42.19
Al2O3 (ALUMINUM OXIDE)	20.74	24.51	15.81	20.74	24.51	15.81	20.74	24.51	15.81	20.74	24.51	20.74
Fe2O3 (IRON OXIDE)	24.88	18.87	32.31	24.88	18.87	32.31	24.88	18.87	32.31	24.88	18.87	24.88
TiO2 (TITANIUM OXIDE)	1.00	1.33	.67	1.00	1.33	.67	1.00	1.33	.67	1.00	1.33	1.00
CaO (CALCIUM OXIDE)	3.64	1.93	6.04	3.64	1.93	6.04	3.64	1.93	6.04	3.64	1.93	3.64
MgO (MAGNESIUM OXIDE)	.90	.93	.76	.90	.93	.76	.90	.93	.76	.90	.93	.90
Na2O (SODIUM OXIDE)	.19	.27	.13	.19	.27	.13	.19	.27	.13	.19	.27	.19
K2O (POTASSIUM OXIDE)	1.98	2.14	1.52	1.98	2.14	1.52	1.98	2.14	1.52	1.98	2.14	1.98
SO3 (SULFITES)	3.67	2.29	5.85	3.67	2.29	5.85	3.67	2.29	5.85	3.67	2.29	3.67

COAL UTILIZATION RATIOS

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
BASE/ACID	.49	.33		.49	.33		.49	.33		.49	.33	.49
DOLOMITE	.14	.12		.14	.12		.14	.12		.14	.12	.14
HYDROGEN/CARBON	.88	.88		.88	.88		.88	.88		.88	.88	.88
OXYGEN/CARBON	.08	.08		.08	.08		.08	.08		.08	.08	.08
R250	.69	.78		.69	.78		.69	.78		.69	.78	.69
SILICA	.59	.69		.59	.69		.59	.69		.59	.69	.59
SILICA/ALUMINA	2.03	1.95		2.03	1.95		2.03	1.95		2.03	1.95	2.03

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
FREE SWELLING												
HARDGROVE GRINDABILITY (HGI)												

STATE: OHIO
COUNTY: COLUMBIANA
BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 71
SAMPLE NO. 195

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.0	3.2	.12	14520	.8
FLOAT 1.40	84.0	5.1	.29	14192	1.1
FLOAT 1.60	89.3	5.9	.42	14039	1.3
CUM(1-1/2" X 100M)	100.0	11.7	1.26	13028	2.7
100M X 0	1.8	25.4	5.97	10613	14.1
TOTAL(1-1/2" X 0)	100.0	11.9	1.34	12984	2.9

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.8	2.6	.04	14420	.8
FLOAT 1.40	83.4	4.4	.09	14184	.9
FLOAT 1.60	87.8	5.2	.14	14049	.9
CUM(3/8" X 100M)	100.0	11.8	1.24	12923	2.8
100M X 0	5.9	20.3	1.54	11492	4.2
TOTAL(3/8" X 0)	100.0	12.3	1.26	12839	2.9

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.9	1.9	.03	14660	.7
FLOAT 1.40	82.3	3.9	.21	14308	.9
FLOAT 1.60	88.6	5.0	.25	14115	1.1
CUM(14M X 0)	100.0	11.4	1.32	13013	2.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	66.7
3/8" X 14M	23.6
14M X 100M	7.9
100M X 0	1.8

TOTAL AS RECEIVED 4.3 2.5

STATE: OHIO
COUNTY: COLUMBIANA
BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 71
SAMPLE NO. 195

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.50	2.20 2.40	--	--	--	--
ASH	11.41	5.09 59.73	11.70	5.20 61.20	--	--
VOLATILE MATTER	34.30	36.60 17.86	35.18	37.42 18.30	39.84	39.47 47.16
FIXED CARBON	51.79	56.12 20.01	53.12	57.38 20.50	60.16	60.53 52.84
BTU/LB	12645	13775 4337	12969	14085 4443	14687	14858 11451

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	71.37	77.97 23.57	73.20	79.72 24.15	82.90	84.10 62.24
HYDROGEN	4.97	5.33 2.12	4.81	5.20 1.90	5.45	5.48 4.90
NITROGEN	1.35	1.48 .39	1.39	1.52 .40	1.57	1.60 1.03
SULFUR	1.69	.68 9.58	1.74	.69 9.82	1.97	.73 25.31
OXYGEN	9.21	9.46 4.60	7.16	7.67 2.53	8.11	8.09 6.52
ASH	11.41	5.09 59.73	11.70	5.20 61.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.21	.22 9.40	1.24	.23 9.64	1.41	.24 24.83
SULFATIC	.06	.05 .08	.07	.05 .08	.07	.05 .21
ORGANIC	.42	.41 .10	.43	.42 .10	.49	.44 .27
TOTAL	1.69	.68 9.58	1.74	.69 9.82	1.97	.73 25.31

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLomite	--	--
HYDROGEN/CARBON	.79	.78
OXYGEN/CARBON	.07	.07
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2410	2680
SOFTENING TEMPERATURE (ST)	2460	2810
FLUID TEMPERATURE (FT)	2520	2910+

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.16	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	13.59	5.95 71.50

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	6 1/2	6
HARDGROVE GRINDABILITY (HGI)	56	50

STATE: OHIO
COUNTY: GUERNSEY

BED: UPPER FREEPORT
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 71
SAMPLE NO. 196

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.0	3.6	66.5	.64	14111	1.6
FLOAT 1.40	86.9	5.1	91.6	.89	13872	2.1
FLOAT 1.60	93.4	6.1	97.1	1.05	13690	2.4
CUM(1-1/2" X 100M)	100.0	9.2	100.0	1.98	13165	4.1
100M X 0	1.1	16.3	1.0	4.67	11965	11.0
TOTAL(1-1/2" X 0)	100.0	9.3	100.0	2.01	13152	4.2

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.5	3.0	74.3	.22	14270	1.3
FLOAT 1.40	84.9	4.2	90.7	.37	14064	1.5
FLOAT 1.60	92.0	5.4	96.9	.52	13862	1.7
CUM(3/8" X 100M)	100.0	9.3	100.0	1.80	13159	4.2
100M X 0	4.2	12.8	4.0	4.31	12569	8.6
TOTAL(3/8" X 0)	100.0	9.4	100.0	1.91	13134	4.4

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.7	2.6	69.7	.31	14351	1.2
FLOAT 1.40	83.8	3.8	90.3	.35	14133	1.3
FLOAT 1.60	91.2	5.1	96.8	.43	13920	1.5
CUM(14M X 0)	100.0	9.7	100.0	1.83	13113	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	65.9
3/8" X 14M	27.0
14M X 100M	6.0
100M X 0	1.1

TOTAL
AS RECEIVED
6.4
3.1

STATE: OHIO	BED: UPPER FREEPORT	BED CODE: 71
COUNTY: GUERNSEY	RANK: HIGH VOLATILE B BITUMINOUS	SAMPLE NO. 196
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE AND ASH FREE
MOISTURE	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
ASH	3.10 2.10 .80	-- --
VOLATILE MATTER	9.59 5.09 59.12	59.60
FIXED CARBON	37.05 39.12 19.54	19.70
	50.26 53.68 20.53	20.70
BTU/LB	12678 13613 4461	4497
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
CARBON	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
HYDROGEN	70.37 75.61 18.25	80.60 81.47 45.54
NITROGEN	31 5.59 1.48	5.69 5.77 3.47
SULFUR	4.36 1.47 .30	1.55 1.58 .74
OXYGEN	2.44 1.01 19.27	2.80 1.09 48.09
ASH	10.93 11.24 1.58	9.37 10.10 2.16
	9.59 5.09 59.12	-- --
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
PYRITIC	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
SULFATIC	1.76 .38 16.21	2.02 .41 40.44
ORGANIC	.08 .08 .08	.09 .08 .20
TOTAL	.60 .55 2.99	.69 .59 7.45
	2.44 1.01 19.27	2.80 1.09 48.09
----- MINERAL ANALYSIS OF ASH, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
OXIDES	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
SiO2 (SILICON OXIDE)	-- --	2165 2800 2045
Al2O3 (ALUMINUM OXIDE)	-- --	2255 2800 2125
Fe2O3 (IRON OXIDE)	-- --	2355 2800 2205
TiO2 (TITANIUM OXIDE)	-- --	-- --
CaO (CALCIUM OXIDE)	-- --	-- --
MgO (MAGNESIUM OXIDE)	-- --	-- --
Na2O (SODIUM OXIDE)	-- --	-- --
K2O (POTASSIUM OXIDE)	-- --	-- --
SO3 (SULFITES)	-- --	-- --
----- COAL UTILIZATION RATIOS -----		
	RAW FL 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	-- --	.21 -- --
DOLOMITE	-- --	-- --
HYDROGEN/CARBON	.85	12.08 6.18 75.05
OXYGEN/CARBON	.09	-- --
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--
----- MISCELLANEOUS DATA, % -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2165 2800 2045	2165 2800 2045
SOFTENING TEMPERATURE (ST)	2255 2800 2125	2255 2800 2125
FLUID TEMPERATURE (FT)	2355 2800 2205	2355 2800 2205
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	21	21
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	12.08	6.18 75.05
----- PHYSICAL PARAMETERS, INDEX -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)	4	5
HARDGROVE GRINDABILITY (HGI)	56	47

STATE: OHIO

COUNTY: MUSKINGUM

BED: UPPER FREEPORT

RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 71

SAMPLE NO. 197

CUMULATIVE WASHABILITY DATA (DRY BASIS)

PRODUCT

FLOAT 1.30

FLOAT 1.40

FLOAT 1.60

CUM(1-1/2" X 100M)

100M X 0

TOTAL(1-1/2" X 0)

RECOVERY, %

47.3

79.5

85.7

100.0

2.5

100.0

WEIGHT

54.6

90.0

96.0

100.0

2.1

100.0

BTU

54.6

90.0

96.0

100.0

2.1

100.0

ASH, %

3.9

5.6

6.4

15.3

27.6

15.6

SULFUR, %

1.63

2.53

2.86

3.68

7.92

3.79

PYRITIC

.68

1.47

1.79

2.63

5.38

2.70

HEATING VALUE

13824

13550

13412

11971

9882

11919

BTU/LB

2.4

3.7

4.3

6.1

16.0

6.4

SO2 EMISSION

2.4

3.7

4.3

6.1

16.0

6.4

LB/MM BTU

2.4

3.7

4.3

6.1

16.0

6.4

PRODUCT

FLOAT 1.30

FLOAT 1.40

FLOAT 1.60

CUM(3/8" X 100M)

100M X 0

TOTAL(3/8" X 0)

RECOVERY, %

60.0

80.4

85.7

100.0

5.2

100.0

WEIGHT

69.0

91.1

96.2

100.0

4.3

100.0

BTU

69.0

91.1

96.2

100.0

4.3

100.0

ASH, %

3.3

4.6

5.4

14.4

26.6

15.0

SULFUR, %

1.44

1.92

2.24

3.34

6.86

3.52

PYRITIC

.41

.87

1.16

2.32

5.01

2.46

HEATING VALUE

13946

13751

13621

12132

10049

12024

BTU/LB

2.1

2.8

3.3

5.5

13.7

5.9

SO2 EMISSION

2.1

2.8

3.3

5.5

13.7

5.9

LB/MM BTU

2.1

2.8

3.3

5.5

13.7

5.9

PRODUCT

FLOAT 1.30

FLOAT 1.40

FLOAT 1.60

CUM(14M X 0)

RECOVERY, %

51.8

76.5

85.0

100.0

WEIGHT

60.1

87.4

95.8

100.0

BTU

60.1

87.4

95.8

100.0

ASH, %

2.9

4.1

5.3

14.4

SULFUR, %

.29

.52

.79

2.54

HEATING VALUE

14031

13810

13624

12094

BTU/LB

1.8

2.3

2.8

6.0

SO2 EMISSION

1.8

2.3

2.8

6.0

LB/MM BTU

1.8

2.3

2.8

6.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"

3/8" X 14M

14M X 100M

100M X 0

68.5

22.0

7.0

2.5

MOISTURE, %

TOTAL AS RECEIVED

7.2

4.9

STATE: OHIO
COUNTY: MUSKINGUM

BED: UPPER FREEPORT
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 71
SAMPLE NO. 197

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.90	3.70 .90	--	--	--	--
ASH	14.24	5.10 65.51	14.98	5.30 66.10	--	--
VOLATILE MATTER	38.52	43.04 17.94	40.51	44.69 18.10	47.64	47.19 53.39
FIXED CARBON	42.33	48.15 15.66	44.51	50.00 15.80	52.35	52.80 46.61
BTU/LB	11424	13120 3382	12013	13624 3413	14123	14387 10067

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	63.33	72.25 17.14	66.60	75.03 17.30	78.33	79.23 51.03
NITROGEN	4.55	4.95 1.69	4.22	4.71 1.60	4.96	4.97 4.72
SULFUR	1.21	1.38 1.40	1.27	1.43 .40	1.50	1.51 1.18
OXYGEN	3.41	2.00 13.42	3.59	2.08 13.55	4.22	2.20 39.96
ASH	13.24	14.32 1.84	9.35	11.45 1.05	10.99	12.09 3.11
	14.24	5.10 65.51	14.98	5.30 66.10	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.37	.83 12.34	2.49	.86 12.46	2.93	.91 36.75
SULFATIC	.05	.01 .10	.06	.10	.06	.01
ORGANIC	.99	1.16 .98	1.05	1.20 .99	1.23	1.27 2.29
TOTAL	3.41	2.00 13.42	3.59	2.08 13.55	4.22	2.20 39.96

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	43.04	37.71 41.76
Al2O3 (ALUMINUM OXIDE)	24.51	29.04 20.74
Fe2O3 (IRON OXIDE)	23.73	23.02 27.45
TiO2 (TITANIUM OXIDE)	1.67	1.67 1.67
CaO (CALCIUM OXIDE)	1.09	2.06 2.07
MgO (MAGNESIUM OXIDE)	.63	.61 .70
Na2O (SODIUM OXIDE)	.16	.36 .08
K2O (POTASSIUM OXIDE)	1.49	1.33 1.71
SO3 (SULFITES)	.03	.16 1.36

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.39	.40
DOLOMITE	.06	.10
HYDROGEN/CARBON	.76	.75
OXYGEN/CARBON	.11	.11
R250	.73	.73
SILICA	.63	.59
SILICA/ALUMINA	1.76	1.30

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2040	2130
SOFTENING TEMPERATURE (ST)	2450	2250
FLUID TEMPERATURE (FT)	2570	2480
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	.05	--
NA (SODIUM) (CALCULATED)	.02	.01
MINERAL MATTER (FARR)	18.15	6.95
		78.84

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	2 1/2	3 1/2
HARDGROVE GRINDABILITY (HGI)	49	--

STATE: OHIO
 COUNTY: PERRY
 BED: UPPER FREEPORT
 RANK: HIGH VOLATILE B BITUMINOUS
 BED CODE: 71
 SAMPLE NO. 198

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.9	3.4	.92	13884	3.8
FLOAT 1.40	77.3	7.3	2.95	13200	7.2
FLOAT 1.60	92.2	8.5	3.80	12975	8.7
CUM(1-1/2" X 100M)	100.0	10.9	5.00	12555	10.9
100M X 0	1.0	26.1	8.48	10037	22.0
TOTAL(1-1/2" X 0)	100.0	11.1	5.03	12530	11.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.1	3.4	.85	13829	3.7
FLOAT 1.40	75.0	6.3	2.05	13355	6.1
FLOAT 1.60	92.0	8.0	3.25	13041	8.1
CUM(3/8" X 100M)	100.0	10.5	4.72	12597	10.6
100M X 0	4.2	22.0	7.35	10721	18.3
TOTAL(3/8" X 0)	100.0	11.0	4.83	12518	10.9

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.7	3.1	.73	13815	3.5
FLOAT 1.40	73.0	5.6	1.66	13483	5.0
FLOAT 1.60	89.6	7.3	2.73	13178	6.8
CUM(14M X 0)	100.0	10.8	4.89	12587	10.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.0
3/8" X 14M	17.0
14M X 100M	5.0
100M X 0	1.0

--- MOISTURE, % ---

TOTAL	8.3
AS RECEIVED	5.8

STATE: OHIO
COUNTY: PERRY

BED: UPPER FREEPORT
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 71
SAMPLE NO. 198

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	5.80	5.20	1.20	--	--	--	--
ASH	10.08	7.02	42.19	10.70	42.70	--	--
VOLATILE MATTER	42.71	44.32	31.12	45.34	31.50	50.78	54.97
FIXED CARBON	41.41	43.46	25.49	43.96	25.80	49.22	45.03
BTU/LB	11871	12480	7188	12602	7275	14112	12697

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	64.12	68.28	29.90	68.07	30.26	76.23	52.81
HYDROGEN	5.46	5.68	2.46	5.11	2.35	5.73	4.10
NITROGEN	1.15	1.22	.56	1.22	.56	1.36	.98
SULFUR	6.03	4.43	23.83	6.40	24.12	7.17	42.10
OXYGEN	13.16	13.37	1.07	8.50	.00	9.52	.01
ASH	10.08	7.02	42.19	10.70	42.70	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRLITIC	4.36	2.78	21.83	4.63	22.09	5.18	38.55
SULFATIC	.08	.05	.11	.08	.11	.09	.19
ORGANIC	1.59	1.60	1.90	1.69	1.92	1.89	3.35
TOTAL	6.03	4.43	23.83	6.40	24.12	7.17	42.10

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		
	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	18.75	22.16	12.36
Al2O3 (ALUMINUM OXIDE)	12.82	15.46	7.92
Fe2O3 (IRON OXIDE)	60.05	52.90	74.35
TiO2 (TITANIUM OXIDE)	.33	.67	.33
CaO (CALCIUM OXIDE)	1.51	2.01	.84
MgO (MAGNESIUM OXIDE)	.46	.56	.23
Na2O (SODIUM OXIDE)	.27	.38	.05
K2O (POTASSIUM OXIDE)	.96	1.22	.48
SO3 (SULFITES)	1.00	1.02	.20

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	1.98	1.49
DOLOMITE	.03	.05
HYDROGEN/CARBON	.90	.90
OXYGEN/CARBON	.09	.10
R250	.34	.41
SILICA	.23	.29
SILICA/ALUMINA	1.46	1.43

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW		FL 1.60	
	2140	2030	2140	2030
INITIAL DEFORMATION (ID)	2140	2030	2140	2030
SOFTENING TEMPERATURE (ST)	2190	2080	2190	2080
FLUID TEMPERATURE (FT)	2360	2140	2360	2140
----- MISCELLANEOUS DATA, % -----				
CL (CHLORINE) (ANALYZED)	.04	--	RAW	FL 1.60
NA (SODIUM) (CALCULATED)	.02	--	.04	--
MINERAL MATTER (PARR)	15.08	10.56	.02	.02
			59.38	

PHYSICAL PARAMETERS, INDEX

	RAW		FL 1.60	
	2	3	2	3
FREE SWELLING (FSI)	49	--	49	--
HARDGROVE GRINDABILITY (HGI)				

STATE: OHIO
COUNTY: ATHENS

BED: VARIOUS
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 1
SAMPLE NO. 199

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.1	3.5	.80	14019	3.8
FLOAT 1.40	81.1	5.5	1.45	13689	5.1
FLOAT 1.60	92.6	7.0	1.84	13442	5.8
FLOAT 1.90	94.8	7.7	1.95	13327	6.0
CUM(1-1/2" X 100M)	100.0	10.8	2.57	12817	7.1
100M X 0	.1	21.8	3.50	11006	10.3
TOTAL(1-1/2" X 0)	100.0	10.8	2.57	12815	7.1

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.3	3.2	.59	14068	3.4
FLOAT 1.40	81.2	4.4	.98	13871	4.2
FLOAT 1.60	90.2	5.7	1.30	13656	4.7
FLOAT 1.90	94.8	7.7	1.95	13327	6.0
CUM(3/8" X 100M)	100.0	10.6	2.58	12850	7.0
100M X 0	.8	17.4	3.67	11730	9.9
TOTAL(3/8" X 0)	100.0	10.7	2.59	12841	7.0

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.3	2.6	.42	14167	3.0
FLOAT 1.40	78.8	4.3	.76	13887	3.9
FLOAT 1.60	89.2	5.8	1.06	13640	4.4
FLOAT 1.90	94.8	7.7	1.95	13327	6.0
CUM(14M X 0)	100.0	11.3	2.74	12734	7.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.1

--- MOISTURE, % ---

TOTAL	6.9
AS RECEIVED	4.6

STATE: OHIO
COUNTY: ATHENS

BED: VARIOUS
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 1
SAMPLE NO. 199

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	4.60	--	--	--	--	--
ASH	10.40	--	10.90	--	--	--
VOLATILE MATTER	40.83	--	42.80	--	48.04	--
FIXED CARBON	44.17	--	46.30	--	51.96	--
BTU/LB	12638	--	13247	--	14868	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.39	--	4.60	--	5.16	--
OXYGEN	--	--	--	--	--	--
ASH	10.40	--	10.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	2.69	--	2.82	--	3.16	--
SULFATIC	.04	--	.04	--	.04	--
ORGANIC	1.66	--	1.74	--	1.95	--
TOTAL	4.39	--	4.60	--	5.16	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (FARR)	14.30	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

STATE: OHIO
COUNTY: BELMONT

BED: WASHINGTON
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 17
SAMPLE NO. 200

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	1.6	5.1	.54	13963	2.6
FLOAT 1.40	32.6	12.7	1.08	12798	3.3
FLOAT 1.60	75.7	20.6	1.10	11510	4.0
CUM(1-1/2" X 100M)	100.0	27.6	1.95	10342	6.0
100M X 0	.6	29.9	3.15	9940	8.6
TOTAL(1-1/2" X 0)	100.0	27.6	1.96	10339	6.0

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	4.9	4.8	.39	13983	2.5
FLOAT 1.40	34.4	11.7	.90	12883	3.1
FLOAT 1.60	70.3	18.8	.98	11770	3.7
CUM(3/8" X 100M)	100.0	28.4	1.95	10168	6.0
100M X 0	4.5	29.3	2.42	10038	7.2
TOTAL(3/8" X 0)	100.0	28.4	1.97	10162	6.0

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	10.6	3.7	.25	14111	2.4
FLOAT 1.40	36.1	8.7	.57	13370	3.0
FLOAT 1.60	70.1	15.8	.74	12243	3.4
CUM(14M X 0)	100.0	26.7	1.86	10452	5.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.6
3/8" X 14M	17.9
14M X 100M	4.9
100M X 0	.6

TOTAL
AS RECEIVED

3.5
2.1

MOISTURE, %

STATE: OHIO
COUNTY: BELMONT
BED: WASHINGTON
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 17
SAMPLE NO. 200

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.10	1.50	--	--	--	--
ASH	27.18	16.19	27.77	16.43	--	--
VOLATILE MATTER	32.64	37.73	33.34	38.31	46.16	45.84
FIXED CARBON	38.07	44.58	38.89	45.26	53.84	54.16
BTU/LB	10083	11969	10299	12151	14259	14541

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	57.22	66.45	58.45	67.46	80.92	80.73
HYDROGEN	4.32	4.97	4.18	4.88	5.78	5.84
NITROGEN	1.11	1.29	1.13	1.31	1.57	1.57
SULFUR	3.30	2.08	3.37	2.11	4.66	2.52
OXYGEN	6.86	9.02	5.10	7.81	7.06	9.34
ASH	27.18	16.19	27.77	16.43	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.08	.78	2.12	.79	2.94	.95
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	1.21	1.29	1.23	1.31	1.71	1.53
TOTAL	3.30	2.08	3.37	2.11	4.66	2.52

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	52.83	54.96
SiO2 (SILICON OXIDE)	26.40	28.28
Al2O3 (ALUMINUM OXIDE)	13.15	8.28
Fe2O3 (IRON OXIDE)	1.33	1.67
TiO2 (TITANIUM OXIDE)	.59	.57
CaO (CALCIUM OXIDE)	.99	.93
MgO (MAGNESIUM OXIDE)	.22	.24
Na2O (SODIUM OXIDE)	2.48	2.41
K2O (POTASSIUM OXIDE)	.06	.03
SO3 (SULFITES)		

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.22	.15
DOLOMITE	.09	.13
HYDROGEN/CARBON	.86	.87
OXYGEN/CARBON	.07	.09
R250	.85	.90
SILICA	.78	.85
SILICA/ALUMINA	2.00	1.94

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2430	2910+
SOFTENING TEMPERATURE (ST)	2530	2910+
FLUID TEMPERATURE (FT)	2910+	2910+
CL (CHLORINE) (ANALYZED)	.04	--
NA (SODIUM) (CALCULATED)	.05	.03
MINERAL MATTER (PARR)	31.84	18.91
		59.47

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	3	5
HARDGROVE GRINDABILITY (HGI)	48	44

STATE: OHIO
COUNTY: BELMONT

BED: WAYNESBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 23
SAMPLE NO. 201

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.0	4.4	.37	13721	1.9
FLOAT 1.40	50.9	12.8	.74	12391	2.3
FLOAT 1.60	89.8	17.5	.82	11647	2.6
CUM(1-1/2" X 100M)	100.0	20.9	1.06	11109	3.2
100M X 0	.8	25.3	1.64	10412	5.3
TOTAL(1-1/2" X 0)	100.0	20.9	1.06	11103	3.2

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.1	4.2	.39	13752	1.9
FLOAT 1.40	52.4	11.0	.64	12676	2.2
FLOAT 1.60	84.6	15.9	.71	11900	2.4
CUM(3/8" X 100M)	100.0	21.1	1.12	11077	3.3
100M X 0	4.2	22.9	1.58	10792	4.4
TOTAL(3/8" X 0)	100.0	21.2	1.14	11065	3.4

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.6	3.5	.27	13863	1.7
FLOAT 1.40	45.0	8.3	.49	13103	2.0
FLOAT 1.60	80.0	14.4	.58	12138	2.2
CUM(14M X 0)	100.0	21.0	1.06	11093	3.3

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.0
3/8" X 14M	17.3
14M X 100M	3.9
100M X 0	.8

----- MOISTURE, % -----

TOTAL	5.0
AS RECEIVED	2.8

STATE: OHIO
COUNTY: BELMONT

BED: WAYNESBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 23
SAMPLE NO. 201

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.80	1.80	--	--	--	--
ASH	21.23	14.71	21.84	14.98	42.88	41.41
VOLATILE MATTER	32.58	35.86	33.51	36.51	57.12	58.59
FIXED CARBON	43.40	47.64	44.65	48.51	42.95	57.05
BTU/LB	10857	11665	11170	11879	14291	13972

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	60.86	67.55	62.61	68.78	80.10	80.90
HYDROGEN	4.45	4.75	4.26	4.63	5.45	5.45
NITROGEN	1.22	1.35	1.25	1.37	1.60	1.62
SULFUR	1.75	1.36	1.80	1.39	2.31	1.63
OXYGEN	10.49	10.29	8.24	8.85	10.54	10.40
ASH	21.23	14.71	21.84	14.98	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.00	.59	1.03	.60	1.32	.70
SULFATIC	.02	.01	.02	.03	.03	.01
ORGANIC	.73	.77	.75	.78	.96	.92
TOTAL	1.75	1.36	1.80	1.39	2.31	1.63

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.82	.81	--	--	--	--
OXYGEN/CARBON	.10	.10	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	51	51	--	--	--	--

STATE: OHIO
COUNTY: BELMONT

BED: WAYNESBURG
RANK: HIGH VOLATILE B ELIANTHINOUS

BED CODE: 23
SAMPLE NO. 202

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.1	4.6	.54	13885	2.3
FLOAT 1.40	67.3	10.2	.87	13061	3.0
FLOAT 1.60	91.6	13.9	.94	12483	3.1
CUM(1-1/2" X 100M)	100.0	17.5	1.26	11874	3.9
100M X 0	1.0	25.5	2.21	10520	8.2
TOTAL(1-1/2" X 0)	100.0	17.6	1.27	11860	3.9

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.6	3.2	.31	14139	2.0
FLOAT 1.40	65.1	9.0	.64	13259	2.6
FLOAT 1.60	88.8	12.8	.77	12652	3.0
CUM(3/8" X 100M)	100.0	17.4	1.23	11882	4.0
100M X 0	5.6	23.5	1.90	10849	6.8
TOTAL(3/8" X 0)	100.0	17.7	1.27	11824	4.1

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.8	2.9	.25	14187	1.9
FLOAT 1.40	60.7	7.6	.50	13449	2.4
FLOAT 1.60	86.0	11.9	.64	12766	2.7
CUM(14M X 0)	100.0	17.8	1.38	11781	4.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	77.0
3/8" X 14M	18.0
14M X 100M	4.0
100M X 0	1.0

TOTAL AS RECEIVED 4.9 3.4

STATE: OHIO
COUNTY: BELMONT

BED: WAYNESBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 23
SAMPLE NO. 202

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.40	3.50 2.40	--	--	--	--
ASH	17.48	11.48 53.97	18.10	11.90 55.30	--	--
VOLATILE MATTER	35.38	37.90 20.11	36.63	39.27 20.60	44.72	44.58 46.09
FIXED CARBON	43.73	47.12 23.52	45.27	48.83 24.10	55.28	55.42 53.91
BTU/LB	11339	12319 5442	11738	12766 5576	14333	14490 12475

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	63.31	68.94 29.89	65.54	71.44 30.62	80.02	81.09 68.50
HYDROGEN	4.84	5.20 2.61	4.61	4.99 2.40	5.63	5.66 5.37
NITROGEN	1.26	1.35 .59	1.30	1.40 .60	1.59	1.59 1.34
SULFUR	2.36	1.70 6.71	2.45	1.76 6.88	2.99	2.00 15.39
OXYGEN	10.75	11.33 6.23	8.00	8.51 4.20	9.77	9.66 9.40
ASH	17.48	11.48 53.97	18.10	11.90 55.30	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.33	.62 5.78	1.38	.64 5.93	1.68	.73 13.26
SULFATIC	.06	.05 .08	.07	.05 .08	.08	.06 .18
ORGANIC	.97	1.03 .85	1.00	1.07 .87	1.22	1.21 1.95
TOTAL	2.36	1.70 6.71	2.45	1.76 6.88	2.99	2.00 15.39

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES						
SiO2 (SILICON OXIDE)	53.27	53.69 50.29				
Al2O3 (ALUMINUM OXIDE)	24.51	27.53 20.36				
Fe2O3 (IRON OXIDE)	12.58	10.01 19.16				
TiO2 (TITANIUM OXIDE)	1.33	1.67 1.00				
CaO (CALCIUM OXIDE)	1.01	.76 .90				
MgO (MAGNESIUM OXIDE)	1.09	1.03 1.06				
Na2O (SODIUM OXIDE)	.49	.46 .43				
K2O (POTASSIUM OXIDE)	2.55	2.58 2.46				
SO3 (SULFITES)	.27	.04 .72				

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	.22	.18		
DOLOMITE	.12	.12		
HYDROGEN/CARBON	.84	.84		
OXYGEN/CARBON	.09	.09		
R250	.85	.85		
SILICA	.78	.82		
SILICA/ALUMINA	2.17	1.95		

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)	5 1/2	4	RAW	FL 1.60	SK 1.60
HARDGROVE GRINDABILITY (HGI)	54	--			

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

INITIAL DEFORMATION (ID)	2360	2570	RAW	FL 1.60	SK 1.60
SOFTENING TEMPERATURE (ST)	2420	2680			
FLUID TEMPERATURE (FT)	2520	2890			

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)	.03	--	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.07	.04			
MINERAL MATTER (PARR)	20.89	13.82			

STATE: OHIO		BED: WAYNESBURG		BED CODE: 23	
COUNTY: BELMONT		RANK: HIGH VOLATILE B BITUMINOUS		SAMPLE NO. 203	
CUMULATIVE WASHABILITY DATA (DRY BASIS)					

STATE: OHIO

COUNTY: BELMONT

BED: WAYNESBURG

RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 23

SAMPLE NO. 203

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW

FL 1.60

SK 1.60

MOISTURE

3.40

2.00

1.50

ASH

19.13

12.45

52.01

VOLATILE MATTER

32.08

35.39

18.81

FIXED CARBON

45.40

50.17

27.68

BTU/LB

11093

12191

5900

MOISTURE FREE

RAW

FL 1.60

SK 1.60

FL 1.60

SK 1.60

19.80

12.70

52.80

33.21

36.11

19.10

46.99

51.19

28.10

11483

12440

5990

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

FL 1.60

SK 1.60

41.40

41.36

40.47

58.60

58.64

59.53

14318

14250

12691

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

CARBON

61.87

68.36

33.02

HYDROGEN

4.50

4.84

2.33

NITROGEN

1.26

1.40

.69

SULFUR

2.46

1.85

6.44

OXYGEN

10.79

11.11

5.51

ASH

19.13

12.45

52.01

MOISTURE FREE

RAW

FL 1.60

SK 1.60

FL 1.60

SK 1.60

64.05

4.71

2.20

4.27

1.30

1.43

2.54

1.89

6.54

8.04

9.52

4.24

19.80

12.70

52.80

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

FL 1.60

SK 1.60

79.86

79.90

71.02

5.33

5.40

4.66

1.62

1.63

1.48

3.17

2.16

13.86

10.02

10.91

8.98

--

--

--

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

PYRITIC

1.44

.69

5.54

SULFATIC

.00

.00

.00

ORGANIC

1.01

1.17

.91

TOTAL

2.46

1.85

6.44

MOISTURE FREE

RAW

FL 1.60

SK 1.60

FL 1.60

SK 1.60

1.49

.70

5.62

.00

.00

.00

1.05

1.19

.92

2.54

1.89

6.54

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

FL 1.60

SK 1.60

1.86

.80

11.91

.00

.00

.00

1.31

1.36

1.95

3.17

2.16

13.86

MINERAL ANALYSIS OF ASH, %

RAW

FL 1.60

SK 1.60

OXIDES

SiO2 (SILICON OXIDE)

--

--

--

Al2O3 (ALUMINUM OXIDE)

--

--

--

Fe2O3 (IRON OXIDE)

--

--

--

TiO2 (TITANIUM OXIDE)

--

--

--

CaO (CALCIUM OXIDE)

--

--

--

MgO (MAGNESIUM OXIDE)

--

--

--

Na2O (SODIUM OXIDE)

--

--

--

K2O (POTASSIUM OXIDE)

--

--

--

SO3 (SULFITES)

--

--

--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

INITIAL DEFORMATION (ID)

RAW

FL 1.60

SK 1.60

2330

2410

--

SOFTENING TEMPERATURE (ST)

RAW

FL 1.60

SK 1.60

2380

2460

--

FLUID TEMPERATURE (FT)

RAW

FL 1.60

SK 1.60

2500

2640

--

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)

RAW

FL 1.60

SK 1.60

.02

--

--

NA (SODIUM) (CALCULATED)

RAW

FL 1.60

SK 1.60

--

--

--

MINERAL MATTER (PARR)

RAW

FL 1.60

SK 1.60

22.78

14.76

60.62

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)

RAW

FL 1.60

SK 1.60

3

3

1/2

HARDGROVE GRINDABILITY (HGI)

RAW

FL 1.60

SK 1.60

55

--

--

COAL UTILIZATION RATIOS

RAW

FL 1.60

BASE/ACID

--

--

DOLOMITE

--

--

HYDROGEN/CARBON

.80

--

OXYGEN/CARBON

.09

--

R250

--

--

SILICA

--

--

SILICA/ALUMINA

--

--

STATE: OHIO
COUNTY: BELMONT

BED: WAYNESBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 23
SAMPLE NO. 204

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	7.2	8.5	4.7	.44	14057	2.0
FLOAT 1.40	68.6	74.5	10.9	1.05	12987	3.0
FLOAT 1.60	91.0	94.8	14.0	1.15	12453	3.2
CUM(1-1/2" X 100M)	100.0	100.0	16.9	1.82	11952	4.4
100M X 0	.9	.9	20.4	4.32	11348	9.6
TOTAL(1-1/2" X 0)	100.0	100.0	16.9	1.84	11947	4.4

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.0	12.0	3.9	.27	14195	1.8
FLOAT 1.40	65.9	73.4	9.6	.68	13212	2.5
FLOAT 1.60	87.6	93.3	12.9	.89	12642	2.8
CUM(3/8" X 100M)	100.0	100.0	17.4	2.06	11866	4.8
100M X 0	5.8	5.9	16.8	3.13	11969	6.6
TOTAL(3/8" X 0)	100.0	100.0	17.4	2.12	11872	4.9

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.4	27.9	3.6	.27	14247	1.8
FLOAT 1.40	64.2	72.8	7.6	.47	13557	2.0
FLOAT 1.60	84.7	91.7	11.2	.59	12936	2.3
CUM(14M X 0)	100.0	100.0	16.9	1.96	11952	4.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	75.3	TOTAL AS RECEIVED
3/8" X 14M	19.3	
14M X 100M	4.5	
100M X 0	.9	

MOISTURE, %

6.5
5.2

STATE: OHIO
COUNTY: BELMONT

BED: WAYNESBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 23
SAMPLE NO. 204

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	5.20	2.50 1.60	--	--	--	--
ASH	15.74	11.36 49.59	16.60	11.65 50.39	--	--
VOLATILE MATTER	33.37	36.23 21.75	35.20	37.16 22.11	42.21	42.06
FIXED CARBON	45.69	49.91 27.06	48.20	51.19 27.50	57.79	57.94
BTU/LB	11452	12472 6064	12080	12792 6163	14484	14478
					12424	

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	64.04	70.70 33.40	67.55	72.52 33.94	81.00	82.08
HYDROGEN	4.93	5.07 2.54	4.59	4.92 2.40	5.51	5.56
NITROGEN	1.23	1.37 .69	1.30	1.40 .70	1.56	1.59
SULFUR	2.61	1.47 9.49	2.75	1.51 9.64	3.30	1.70
OXYGEN	11.45	10.03 4.30	7.21	8.01 2.93	8.64	9.07
ASH	15.74	11.36 49.59	16.60	11.65 50.39	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.90	.63 9.39	2.00	.65 9.54	2.40	.73 19.24
SULFATIC	.01	.01 .01	.01	.01 .01	.01	.01 .02
ORGANIC	.70	.83 .08	.74	.85 .09	.89	.96 .17
TOTAL	2.61	1.47 9.49	2.75	1.51 9.64	3.30	1.70 19.43

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	.30	.20	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLomite	--	--	--	--	--	--
HYDROGEN/CARBON	.82	.81	--	--	--	--
OXYGEN/CARBON	.08	.08	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING	5	1/2	5	1/2	5	1/2
HARDGROVE GRINDABILITY (HGI)	53	53	53	53	53	53

STATE: CHIO
COUNTY: BELMONT
BED: WAYNESBURG
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 23
SAMPLE NO. 205

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SO ₂ EMISSION LB/MM BTU	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	1.8	2.8	1.28	14230	1.8
FLOAT 1.40	63.6	11.3	.87	12799	2.9
FLOAT 1.60	89.1	13.9	1.08	12420	3.3
CUM(1-1/2" X 100M)	100.0	18.1	1.78	11735	4.7
100M X 0	1.1	29.1	2.79	9890	8.4
TOTAL(1-1/2" X 0)	100.0	18.2	1.79	11715	4.7

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SO ₂ EMISSION LB/MM BTU	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	4.4	2.7	.25	14271	1.8
FLOAT 1.40	59.1	10.2	.56	13095	2.5
FLOAT 1.60	88.4	13.6	.75	12521	2.9
CUM(3/8" X 100M)	100.0	18.1	1.61	11777	4.6
100M X 0	6.2	22.9	2.73	10923	7.6
TOTAL(3/8" X 0)	100.0	18.4	1.68	11724	4.7

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SO ₂ EMISSION LB/MM BTU	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	11.5	2.7	.19	14287	1.6
FLOAT 1.40	50.7	7.7	.43	13440	1.9
FLOAT 1.60	87.2	12.9	.62	12582	2.4
CUM(14M X 0)	100.0	18.3	1.82	11683	4.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	71.9
3/8" X 14M	22.0
14M X 100M	5.0
100M X 0	1.1

MOISTURE, %

TOTAL AS RECEIVED	5.1
	3.5

STATE: OHIO
COUNTY: BELMONT

BED: WAYNESBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 23
SAMPLE NO. 205

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.50	3.40 2.20	--	--	--	--
ASH	17.47	13.04 53.40	18.10	13.50 54.60	--	--
VOLATILE MATTER	33.94	35.67 20.64	35.17	36.93 21.10	42.94	42.69 46.48
FIXED CARBON	45.09	47.89 23.77	46.73	49.57 24.30	57.06	57.31 53.52
BTU/LB	11302	12071 5496	11712	12495 5619	14300	14446 12377

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	63.47	67.90 29.61	65.77	70.29 30.28	80.31	81.26 66.70
HYDROGEN	4.61	4.84 2.49	4.38	4.62 2.30	5.35	5.35 5.07
NITROGEN	1.25	1.35 .59	1.30	1.40 .60	1.59	1.62 1.32
SULFUR	2.70	1.55 11.87	2.80	1.61 12.14	3.42	1.86 26.73
OXYGEN	10.50	11.31 2.04	7.65	8.58 .09	9.34	9.92 .19
ASH	17.47	13.04 53.40	18.10	13.50 54.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.70	.63 9.78	1.76	.66 10.00	2.15	.76 22.02
SULFATIC	.04	.01 .07	.04	.01 .07	.05	.01 .15
ORGANIC	.97	.91 2.02	1.00	.94 2.07	1.22	1.09 4.56
TOTAL	2.70	1.55 11.87	2.80	1.61 12.14	3.42	1.86 26.73

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	51.56	53.27 47.30
SiO2 (SILICON OXIDE)	26.40	31.17 20.74
Al2O3 (ALUMINUM OXIDE)	15.16	8.86 26.02
Fe2O3 (IRON OXIDE)	1.33	1.67 1.00
TiO2 (TITANIUM OXIDE)	.62	.67 .62
CaO (CALCIUM OXIDE)	.86	.90 .83
MgO (MAGNESIUM OXIDE)	2.55	.30 .27
Na2O (SODIUM OXIDE)	2.55	2.75 2.31
K2O (POTASSIUM OXIDE)	.14	.21 .28
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.27	.16
DOLOMITE	.07	.12
HYDROGEN/CARBON	.80	.79
OXYGEN/CARBON	.09	.09
R250	.83	.90
SILICA	.76	.84
SILICA/ALUMINA	1.95	1.71

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2600	2910+
SOFTENING TEMPERATURE (ST)	2550	2910+
FLUID TEMPERATURE (FT)	2840	2910+
MISCELLANEOUS DATA, %		
CL (CHLORINE) (ANALYZED)	.01	--
NA (SODIUM) (CALCULATED)	.34	.03
MINERAL MATTER (PARR)	21.09	15.46

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	4 1/2	5 1/2
HARDGROVE GRINDABILITY (HGI)	51	--

STATE: OHIO
 COUNTY: BELMONT
 BED: WAYNESBURG
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 23
 SAMPLE NO. 206

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK CRUSHED TO PASS 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	8.8	5.7	10.4	.67	1.85	13775	2.7
FLOAT 1.40	69.5	10.0	77.4	1.20	2.43	13035	3.7
FLOAT 1.60	85.7	12.2	92.6	1.48	2.73	12656	4.3
CUM(1-1/2" X 100M)	100.0	17.7	100.0	2.11	3.29	11708	5.6
100M X 0	.9	19.9	.9	2.12	3.94	11329	7.0
TOTAL(1-1/2" X 0)	100.0	17.7	100.0	2.11	3.30	11705	5.6

(FLOAT-SINK CRUSHED TO PASS 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	16.6	5.1	19.9	.47	1.68	13879	2.4
FLOAT 1.40	67.5	10.0	75.9	1.08	2.22	13035	3.4
FLOAT 1.60	84.0	12.3	91.6	1.44	2.57	12638	4.1
CUM(3/8" X 100M)	100.0	18.4	100.0	2.37	3.45	11588	6.0
100M X 0	3.9	19.0	3.9	2.35	4.44	11484	7.7
TOTAL(3/8" X 0)	100.0	18.4	100.0	2.37	3.49	11584	6.0

(FLOAT-SINK CRUSHED TO PASS 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	19.4	3.5	23.7	.24	1.50	14154	2.1
FLOAT 1.40	60.7	8.1	70.0	.55	1.83	13362	2.7
FLOAT 1.60	83.4	11.6	91.8	.94	2.16	12759	3.4
CUM(14M X 0)	100.0	18.4	100.0	2.19	3.23	11588	5.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	69.7
3/8" X 14M	23.7
14M X 100M	5.7
100M X 0	.9

MOISTURE, %

TOTAL	3.5
AS RECEIVED	2.0

STATE: OHIO
COUNTY: BELMONT

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 206

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.00	1.80	1.20	--	--	--
ASH	17.54	11.29	53.15	17.90	11.50	53.80
VOLATILE MATTER	34.85	37.65	19.36	35.56	38.34	19.60
FIXED CARBON	45.61	49.26	26.28	46.54	50.16	26.60
BTU/LB	11505	12491	5414	11740	12720	5480
				14300	14373	11861

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	64.19	69.54	29.73	65.50	70.81	30.09
NITROGEN	4.57	4.96	2.21	4.44	4.85	2.10
HYDROGEN	1.27	1.37	.59	1.30	1.40	.60
SULFUR	3.20	2.11	8.51	3.26	2.15	8.62
OXYGEN	9.23	10.73	5.80	7.61	9.29	4.79
ASH	17.54	11.29	53.15	17.90	11.50	53.80

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.07	.90	8.37	2.11	.92	8.47
SULFATIC	.02	.01	.03	.02	.01	.03
ORGANIC	1.11	1.20	.11	1.13	1.22	.12
TOTAL	3.20	2.11	8.51	3.26	2.15	8.62

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.81	.82
OXYGEN/CARBON	.09	.10
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2140	2460	--
SOFTENING TEMPERATURE (ST)	2250	2520	--
FLUID TEMPERATURE (FT)	2540	2620	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.15	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	21.13	13.60	62.84

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6 1/2	5	0
HARDGROVE GRINDABILITY (HGI)	56	--	--

STATE: OHIO
COUNTY: BELMONT

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 207

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	4.7	3.8	.65	14082	3.2
FLOAT 1.40	56.7	11.2	1.24	12926	4.4
FLOAT 1.60	84.3	14.9	1.85	12340	5.4
CUM(1-1/2" X 100M)	100.0	20.8	2.43	11360	6.8
100M X 0	1.5	24.4	3.51	10713	8.7
TOTAL(1-1/2" X 0)	100.0	20.9	2.45	11350	6.8

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	11.5	3.5	.49	14072	3.1
FLOAT 1.40	56.2	9.6	.98	13133	3.9
FLOAT 1.60	81.9	13.5	1.56	12515	4.8
CUM(3/8" X 100M)	100.0	20.6	2.42	11337	6.6
100M X 0	5.3	20.2	3.04	11410	7.4
TOTAL(3/8" X 0)	100.0	20.6	2.45	11341	6.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.9	3.3	.34	14149	2.6
FLOAT 1.40	55.1	7.8	.71	13506	3.2
FLOAT 1.60	80.7	12.0	1.05	12817	3.7
CUM(14M X 0)	100.0	19.9	2.45	11474	6.5

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	69.7
3/8" X 14M	23.0
14M X 100M	5.8
100M X 0	1.5

--- MOISTURE, % ---
TOTAL
AS RECEIVED

3.8
2.4

STATE: OHIO
COUNTY: BELMONT

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 207

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.40	2.20 1.50	--	--	--	--
ASH	19.72	12.03 53.68	20.20	12.30 54.50	--	--
VOLATILE MATTER	34.91	38.27 20.78	35.77	39.13 21.10	44.82	44.62 46.37
FIXED CARBON	42.98	47.50 24.03	44.03	48.57 24.40	55.18	55.38 53.63
BTU/LB	11157	12492 5580	11431	12774 5665	14325	14565 12450

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	62.11	69.25 28.23	63.63	70.81 28.66	79.74	80.74 62.99
HYDROGEN	4.64	5.16 2.14	4.49	5.03 2.00	5.62	5.73 4.40
NITROGEN	1.16	1.29 .59	1.19	1.32 .60	1.49	1.50 1.32
SULFUR	3.71	2.44 9.21	3.80	2.49 9.35	4.76	2.84 20.56
OXYGEN	8.67	9.83 6.15	6.69	8.05 4.89	8.39	9.18 10.74
ASH	19.72	12.03 53.68	20.20	12.30 54.50	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.51	1.09 8.18	2.57	1.11 8.30	3.22	1.27 18.25
SULFATIC	.04	.01 .07	.04	.07	.05	.01 .15
ORGANIC	1.16	1.34 .96	1.19	1.37 .98	1.49	1.56 2.15
TOTAL	3.71	2.44 9.21	3.80	2.49 9.35	4.76	2.84 20.56

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	50.29	53.69 44.75
Al2O3 (ALUMINUM OXIDE)	21.12	24.89 16.97
Fe2O3 (IRON OXIDE)	18.87	12.58 27.74
TiO2 (TITANIUM OXIDE)	1.00	1.33 1.00
CaO (CALCIUM OXIDE)	1.51	1.04 2.35
MgO (MAGNESIUM OXIDE)	.93	.99 .83
Na2O (SODIUM OXIDE)	2.70	.35 .32
K2O (POTASSIUM OXIDE)	2.70	2.89 2.22
SO3 (SULFITES)	.15	.15 .59

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.37	.22
DOLOMITE	.09	.11
HYDROGEN/CARBON	.85	.85
OXYGEN/CARBON	.08	.09
R250	.78	.85
SILICA	.70	.79
SILICA/ALUMINA	2.38	2.16

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2140	--
SOFTENING TEMPERATURE (ST)	2190	--
FLUID TEMPERATURE (FT)	2510	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.04	--
NA (SODIUM) (CALCULATED)	.40	.13
MINERAL MATTER (FARR)	23.91	14.65 64.00

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	5	5 1/2
HARDGROVE GRINDABILITY (HGI)	55	52

STATE: OHIO
COUNTY: BELMONT

BED: WAYNESBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 23
SAMPLE NO. 208

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.6	3.8	.34	14049	2.2
FLOAT 1.40	59.2	10.6	1.27	13016	4.0
FLOAT 1.60	84.8	13.7	1.67	12510	4.9
CUM(1-1/2" X 100M)	100.0	20.2	2.70	11396	7.0
100M X 0	1.4	24.5	3.35	10575	11.6
TOTAL(1-1/2" X 0)	100.0	20.3	2.71	11384	7.1

--- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.0	2.9	.20	14252	1.8
FLOAT 1.40	58.7	9.2	.74	13167	3.1
FLOAT 1.60	82.8	12.6	1.20	12616	4.0
CUM(3/8" X 100M)	100.0	19.9	2.44	11354	6.4
100M X 0	6.3	26.0	3.78	10321	11.6
TOTAL(3/8" X 0)	100.0	20.3	2.52	11289	6.7

--- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.1	2.8	.25	14115	2.1
FLOAT 1.40	57.0	7.7	.58	13377	2.7
FLOAT 1.60	80.4	11.4	.91	12767	3.3
CUM(14M X 0)	100.0	20.0	2.64	11301	6.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.0
3/8" X 14M	20.5
14M X 100M	5.1
100M X 0	1.4

--- MOISTURE, %

TOTAL	5.1
AS RECEIVED	3.5

STATE: OHIO
COUNTY: BELMONT

BED: WAYNESBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 23
SAMPLE NO. 208

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.50	3.80	2.50	--	--	--
ASH	19.69	11.16	54.60	20.40	11.60	56.00
VOLATILE MATTER	32.81	35.88	19.89	34.00	37.30	20.40
FIXED CARBON	44.00	49.16	23.01	45.60	51.10	23.60
BTU/LB	10851	12254	5074	11245	12738	5205
				11245	14127	11829

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	61.13	68.83	27.11	63.35	71.55	27.80
HYDROGEN	4.55	5.13	2.23	4.31	4.89	2.00
NITROGEN	1.13	1.28	.49	1.17	1.33	.50
SULFUR	3.73	2.01	10.59	3.87	2.09	10.86
OXYGEN	9.77	11.59	4.99	6.90	8.54	2.84
ASH	19.69	11.16	54.60	20.40	11.60	56.00

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.64	.91	9.49	2.74	.95	9.74
SULFATIC	.12	.16	.16	.13	.09	.16
ORGANIC	.97	1.01	.94	1.00	1.05	.96
TOTAL	3.73	2.01	10.59	3.87	2.09	10.86

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	47.30	52.84	41.34
Al2O3 (ALUMINUM OXIDE)	22.25	26.40	17.72
Fe2O3 (IRON OXIDE)	20.59	13.73	28.88
TiO2 (TITANIUM OXIDE)	1.33	1.67	1.00
CaO (CALCIUM OXIDE)	1.90	.67	3.39
MgO (MAGNESIUM OXIDE)	.99	.99	.93
Na2O (SODIUM OXIDE)	.30	.32	.22
K2O (POTASSIUM OXIDE)	2.53	2.87	2.14
SO3 (SULFITES)	1.19	.16	1.85

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.37	.23
DOLOMITE	.11	.09
HYDROGEN/CARBON	.82	.82
OXYGEN/CARBON	.08	.09
R250	.76	.85
SILICA	.67	.77
SILICA/ALUMINA	2.13	2.00

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2080	2360	--
SOFTENING TEMPERATURE (ST)	2130	2460	--
FLUID TEMPERATURE (FT)	2300	2580	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.01	--	--
NA (SODIUM) (CALCULATED)	.05	.03	.09
MINERAL MATTER (PARR)	24.16	13.68	66.45

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4	1/2	--
HARDGROVE GRINDABILITY (HGI)	55	--	--

STATE: OHIO
COUNTY: BELMONT

BED: WAYNESBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 23
SAMPLE NO. 209

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	4.7	3.5	5.9	.53	14201	2.5
FLOAT 1.40	49.3	10.6	56.8	1.53	12976	4.2
FLOAT 1.60	84.0	14.5	91.7	2.23	12304	5.5
CUM(1-1/2" X 100M)	100.0	20.5	100.0	2.98	11269	7.3
100M X 0	1.0	31.6	.8	2.24	9355	9.4
TOTAL(1-1/2" X 0)	100.0	20.6	100.0	2.97	11250	7.3

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	12.7	3.8	15.9	.58	14149	2.7
FLOAT 1.40	52.3	9.1	61.1	1.25	13235	3.8
FLOAT 1.60	81.7	13.2	90.4	1.87	12528	4.9
CUM(3/8" X 100M)	100.0	20.2	100.0	2.86	11321	7.1
100M X 0	2.9	29.0	2.5	3.00	9803	10.0
TOTAL(3/8" X 0)	100.0	20.5	100.0	2.86	11277	7.2

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.9	3.4	12.7	.41	14218	2.2
FLOAT 1.40	39.4	7.1	48.1	.93	13580	3.2
FLOAT 1.60	75.7	12.6	86.0	1.49	12631	4.2
CUM(14M X 0)	100.0	21.4	100.0	2.99	11114	7.2

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.3
3/8" X 14M	20.3
14M X 100M	5.4
100M X 0	1.0

--- MOISTURE, % ---
TOTAL
AS RECEIVED

7.1
2.5

STATE: OHIO
COUNTY: BELMONT

BED: WAYNESBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 23
SAMPLE NO. 209

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.50	1.90	--	--	--	--
ASH	20.96	12.46	21.50	12.70	43.70	43.18
VOLATILE MATTER	33.45	36.98	34.30	37.70	56.30	56.82
FIXED CARBON	43.09	48.66	44.20	49.60	56.30	54.03
BTU/LB	10900	12312	11180	12550	14242	14376

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	60.66	69.04	62.22	70.38	79.26	80.62
HYDROGEN	4.43	4.96	4.26	4.84	5.43	5.54
NITROGEN	1.17	1.37	1.20	1.40	1.53	1.60
SULFUR	4.27	2.77	4.38	2.82	5.58	3.23
OXYGEN	8.50	9.40	6.44	7.86	8.20	9.00
ASH	20.96	12.46	21.50	12.70	50.77	50.77

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.90	1.38	2.97	1.41	3.78	1.62
SULFATIC	.00	.00	.00	.00	.00	.00
ORGANIC	1.37	1.38	1.41	1.41	1.80	1.62
TOTAL	4.27	2.77	4.38	2.82	5.58	3.23

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLomite	--	--	--	--	--	--
HYDROGEN/CARBON	.82	.83	--	--	--	--
OXYGEN/CARBON	.08	.08	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	25.63	15.27	25.63	15.27	59.37	59.37

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	5	5	5	5	5	5
HARDGROVE GRINDABILITY (HGI)	56	56	56	56	56	56

STATE: OHIO
COUNTY: JEFFERSON
BED: WAYNESBURG
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 23
SAMPLE NO. 210

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	2.5	3.1	3.2	.23	14197	2.4
FLOAT 1.40	60.4	67.6	10.5	.51	12957	3.1
FLOAT 1.60	89.4	95.2	14.2	.70	12328	3.5
CUM(1-1/2" X 100M)	100.0	100.0	18.6	1.24	11581	4.6
100M X 0	1.1	.9	31.8	2.22	9339	7.9
TOTAL(1-1/2" X 0)	100.0	100.0	18.7	1.25	11556	4.6

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	9.2	11.2	3.3	.22	14180	2.4
FLOAT 1.40	60.1	67.7	9.4	.47	13144	2.9
FLOAT 1.60	87.1	93.6	13.0	.54	12532	3.1
CUM(3/8" X 100M)	100.0	100.0	18.1	1.20	11666	4.3
100M X 0	3.9	3.3	29.5	2.53	9729	8.0
TOTAL(3/8" X 0)	100.0	100.0	18.5	1.25	11590	4.4

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	13.5	16.5	3.7	.24	14112	2.5
FLOAT 1.40	55.2	63.6	8.2	.36	13347	2.8
FLOAT 1.60	82.9	90.4	12.4	.50	12634	3.0
CUM(14M X 0)	100.0	100.0	18.6	1.36	11581	4.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.8
3/8" X 14M	19.9
14M X 100M	5.2
100M X 0	1.1

MOISTURE, %
TOTAL AS RECEIVED
5.7
3.5

STATE: OHIO
COUNTY: JEFFERSON

BED: WAYNESBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 23
SAMPLE NO. 210

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.50	1.90	1.60	--	--	--	--	--	--
ASH	18.82	12.65	49.79	19.50	12.90	50.60	--	--	--
VOLATILE MATTER	33.65	36.84	21.35	34.87	37.55	21.70	43.31	43.11	43.92
FIXED CARBON	44.04	48.61	27.26	45.63	49.56	27.70	56.69	56.89	56.08
BTU/LB	11107	12245	6032	11510	12482	6131	14298	14330	12411

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	62.49	68.53	32.45	64.76	69.86	32.98	80.44	80.20	66.77
NITROGEN	4.61	4.90	2.54	4.37	4.78	2.40	5.43	5.49	4.86
HYDROGEN	1.16	1.28	.69	1.21	1.31	.70	1.50	1.50	1.42
SULFUR	2.44	1.82	6.17	2.53	1.85	6.27	3.14	2.13	12.70
OXYGEN	10.48	10.82	8.35	7.64	9.31	7.04	9.49	10.68	14.26
ASH	18.82	12.65	49.79	19.50	12.90	50.60	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.30	.52	5.44	1.35	.53	5.53	1.68	.61	11.19
SULFATIC	.08	.04	.13	.09	.04	.13	.11	.05	.26
ORGANIC	1.05	1.26	.60	1.09	1.28	.61	1.35	1.47	1.24
TOTAL	2.44	1.82	6.17	2.53	1.85	6.27	3.14	2.13	12.70

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
	RAW	FL 1.60		RAW	FL 1.60
OXIDES	--	--	SK 1.60	--	--
SiO2 (SILICON OXIDE)	--	--	--	INITIAL DEFORMATION (ID)	2480
Al2O3 (ALUMINUM OXIDE)	--	--	--	SOFTENING TEMPERATURE (ST)	2530
Fe2O3 (IRON OXIDE)	--	--	--	FLUID TEMPERATURE (FT)	2580
TiO2 (TITANIUM OXIDE)	--	--	--	MISCELLANEOUS DATA, %	
CaO (CALCIUM OXIDE)	--	--	--	CL (CHLORINE) (ANALYZED)	RAW FL 1.60 SK 1.60
MgO (MAGNESIUM OXIDE)	--	--	--	NA (SODIUM) (CALCULATED)	-- -- --
Na2O (SODIUM OXIDE)	--	--	--	MINERAL MATTER (PAR)	22.45 14.95 58.10
K2O (POTASSIUM OXIDE)	--	--	--	PHYSICAL PARAMETERS, INDEX	
SO3 (SULFITES)	--	--	--	FREE SWELLING (FSI)	RAW FL 1.60 SK 1.60

COAL UTILIZATION RATIOS

	AS RECEIVED		
	RAW	FL 1.60	
BASE/ACID	--	--	--
DOLOMITE	--	--	--
HYDROGEN/CARBON	.81	.82	--
OXYGEN/CARBON	.09	.10	--
R250	--	--	--
SILICA	--	--	--
SILICA/ALUMINA	--	--	--

STATE: OHIO
COUNTY: JEFFERSON
BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 23
SAMPLE NO. 211

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	6.8	5.5	.53	13905	2.9
FLOAT 1.40	52.8	10.3	.94	13087	3.7
FLOAT 1.60	88.3	14.2	1.43	12422	4.8
CUM(1-1/2" X 100M)	100.0	19.1	1.81	11588	5.7
100M X 0	.8	30.7	1.92	9611	7.7
TOTAL(1-1/2" X 0)	100.0	19.2	1.81	11572	5.7

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	15.6	4.7	.47	14041	2.8
FLOAT 1.40	56.5	9.1	.85	13291	3.6
FLOAT 1.60	85.2	12.9	1.21	12644	4.5
CUM(3/8" X 100M)	100.0	19.1	1.73	11588	5.6
100M X 0	4.2	26.3	1.82	10361	7.7
TOTAL(3/8" X 0)	100.0	19.4	1.73	11536	5.7

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.2	3.7	.35	14211	2.6
FLOAT 1.40	61.8	8.6	.83	13376	3.4
FLOAT 1.60	84.7	12.2	1.12	12763	4.0
CUM(14M X 0)	100.0	18.9	1.96	11622	5.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	80.4
3/8" X 14M	15.2
14M X 100M	3.6
100M X 0	.8

MOISTURE, %

TOTAL AS RECEIVED	4.2
	2.7

STATE: OHIO
COUNTY: JEFFERSON

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 211

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.70	1.80 1.60	--	--	--	--
ASH	19.17	12.18 55.60	19.70	12.40 56.50	--	--
VOLATILE MATTER	38.82	38.31 18.89	35.79	39.01 19.20	44.57	44.14
FIXED CARBON	43.31	47.71 23.91	44.51	48.59 24.30	55.43	55.86
BTU/LB	11267	12422 5117	11580	12650 5200	14421	14441 11954

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	61.94	69.24 28.90	63.66	70.51 29.37	79.28	80.49 67.52
HYDROGEN	4.66	5.03 2.34	4.48	4.92 2.20	5.57	5.62 5.06
NITROGEN	1.24	1.40 .49	1.28	1.42 .50	1.59	1.63 1.15
SULFUR	3.29	2.74 7.46	3.39	2.79 7.58	4.22	3.18 17.43
OXYGEN	9.70	9.41 5.21	7.50	7.95 3.85	9.34	9.08 8.85
ASH	19.17	12.18 55.60	19.70	12.40 56.50	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.79	.99 6.50	1.84	1.01 6.61	2.29	1.15 15.20
SULFATIC	.07	.02 .13	.08	.02 .13	.09	.02 .30
ORGANIC	1.43	1.73 .83	1.47	1.76 .84	1.83	2.01 1.94
TOTAL	3.29	2.74 7.46	3.39	2.79 7.58	4.22	3.18 17.43

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	2250	2350
Al2O3 (ALUMINUM OXIDE)	--	--	2310	2410
Fe2O3 (IRON OXIDE)	--	--	2420	2510
TiO2 (TITANIUM OXIDE)	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--
SO3 (SULFITES)	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	.06	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	.84	.84	23.14	14.93 65.19
OXYGEN/CARBON	.09	.08	--	--
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	5	5	5	0
HARDGROVE GRINDABILITY (HGI)	56	56	56	--

STATE: OHIO
COUNTY: JEFFERSON
BED: WAYNESBURG
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 23
SAMPLE NO. 212

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	RECOVERY, % BTU	BTU	ASH, %	BTU	RECOVERY, % PYRITIC	PYRITIC	SULFUR, %	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	1.3	2.9	2.9	1.6	1.6	2.9	1.6	.47	.47	1.4148	1.65	14148	2.3
FLOAT 1.40	47.0	10.0	10.0	52.9	52.9	10.0	52.9	1.44	1.44	13092	2.20	13092	3.4
FLOAT 1.60	90.3	14.8	14.8	95.8	95.8	14.8	95.8	2.30	2.30	12333	3.17	12333	5.1
CUM(1-1/2" X 100M)	100.0	18.9	18.9	100.0	100.0	18.9	100.0	2.69	2.69	11628	3.58	11628	6.2
100M X 0	1.3	25.1	25.1	1.1	1.1	25.1	1.1	2.90	2.90	9845	5.00	9845	10.2
TOTAL(1-1/2" X 0)	100.0	19.0	19.0	100.0	100.0	19.0	100.0	2.69	2.69	11605	3.60	11605	6.2

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	RECOVERY, % BTU	BTU	ASH, %	BTU	RECOVERY, % PYRITIC	PYRITIC	SULFUR, %	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	5.5	2.5	2.5	6.7	6.7	2.5	6.7	.43	.43	1.4232	.92	14232	1.3
FLOAT 1.40	54.4	9.0	9.0	62.1	62.1	9.0	62.1	1.20	1.20	13282	2.30	13282	3.5
FLOAT 1.60	86.8	13.5	13.5	93.5	93.5	13.5	93.5	2.00	2.00	12535	3.04	12535	4.9
CUM(3/8" X 100M)	100.0	18.8	18.8	100.0	100.0	18.8	100.0	2.64	2.64	11638	3.63	11638	6.2
100M X 0	5.0	25.8	25.8	4.5	4.5	25.8	4.5	3.18	3.18	10401	4.53	10401	8.7
TOTAL(3/8" X 0)	100.0	19.2	19.2	100.0	100.0	19.2	100.0	2.67	2.67	11576	3.68	11576	6.3

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	RECOVERY, % BTU	BTU	ASH, %	BTU	RECOVERY, % PYRITIC	PYRITIC	SULFUR, %	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	7.9	1.9	1.9	9.8	9.8	1.9	9.8	.28	.28	1.4341	1.42	14341	2.0
FLOAT 1.40	51.7	7.4	7.4	60.4	60.4	7.4	60.4	.89	.89	13493	2.04	13493	3.0
FLOAT 1.60	82.4	12.1	12.1	90.8	90.8	12.1	90.8	1.39	1.39	12733	2.48	12733	3.9
CUM(14M X 0)	100.0	18.9	18.9	100.0	100.0	18.9	100.0	2.79	2.79	11558	3.75	11558	6.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.7
3/8" X 14M	17.0
14M X 100M	4.0
100M X 0	1.3

MOISTURE, %

TOTAL	4.9
AS RECEIVED	3.4

STATE: OHIO
COUNTY: JEFFERSON
BED: WAYNESBURG
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 23
SAMPLE NO. 212

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.40	3.40 1.70	--	--	--	--
ASH	18.55	11.98 50.92	19.20	12.40 51.80	--	--
VOLATILE MATTER	34.22	36.69 22.71	35.42	37.98 23.10	43.84	43.35
FIXED CARBON	43.83	47.94 24.67	45.38	49.62 25.10	56.16	56.65
BTU/LB	11123	12258 5825	11515	12689 5926	14251	14485

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	62.48	67.64 32.05	64.68	70.02 32.60	80.05	79.93
HYDROGEN	4.61	5.01 2.45	4.38	4.79 2.30	5.42	5.47
NITROGEN	1.19	1.31 .59	1.24	1.36 .60	1.53	1.55
SULFUR	3.27	2.16 9.54	3.39	2.23 9.70	4.19	2.55
OXYGEN	9.90	11.91 4.46	7.12	9.20 3.00	8.81	10.50
ASH	18.55	11.98 50.92	19.20	12.40 51.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.83	1.38 9.19	2.93	1.43 9.34	3.63	1.63
SULFATIC	.07	.07 .08	.08	.07 .08	.09	.08
ORGANIC	.37	.71 .27	.38	.73 .28	.47	.84
TOTAL	3.27	2.16 9.54	3.39	2.23 9.70	4.19	2.55

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60
OXIDES		
SiO2 (SILICON OXIDE)	50.71	53.27
Al2O3 (ALUMINUM OXIDE)	20.74	23.00
Fe2O3 (IRON OXIDE)	19.73	16.59
TiO2 (TITANIUM OXIDE)	1.00	1.33
CaO (CALCIUM OXIDE)	2.04	1.78
MgO (MAGNESIUM OXIDE)	.99	1.03
Na2O (SODIUM OXIDE)	.24	.27
K2O (POTASSIUM OXIDE)	2.53	2.70
SO3 (SULFITES)	.71	.06

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.35	.28
DOLomite	.12	.08
HYDROGEN/CARBON	.81	.82
OXYGEN/CARBON	.08	.10
R250	.77	.81
SILICA	.69	.74
SILICA/ALUMINA	2.45	2.32

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2020	2150	--
SOFTENING TEMPERATURE (ST)	2080	2210	--
FLUID TEMPERATURE (FT)	2270	2540	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.05	--	--
NA (SODIUM) (CALCULATED)	.03	.02	.09
MINERAL MATTER (PARR)	22.60	14.48	61.28

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6	5	--
HARDGROVE GRINDABILITY (HGI)	55	--	--

STATE: PENNSYLVANIA
COUNTY: WESTMORELAND
BED: BAKERSTOWN
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 62
SAMPLE NO. 213

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.1	3.7	.17	15033	1.1
FLOAT 1.40	75.0	6.5	.36	14550	1.5
FLOAT 1.60	83.5	7.8	.58	14325	1.7
CUM(1-1/2" X 100M)	100.0	17.7	.97	12616	2.5
100M X 0	1.1	17.8	2.03	12599	4.6
TOTAL(1-1/2" X 0)	100.0	17.7	.98	12616	2.5

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.8	3.2	.11	15119	1.1
FLOAT 1.40	72.6	6.0	.27	14636	1.3
FLOAT 1.60	81.5	7.3	.46	14412	1.5
CUM(3/8" X 100M)	100.0	18.6	.96	12461	2.4
100M X 0	4.7	14.9	1.46	13100	3.3
TOTAL(3/8" X 0)	100.0	18.4	.98	12491	2.4

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.1	2.9	.09	15171	1.0
FLOAT 1.40	70.0	5.9	.20	14653	1.1
FLOAT 1.60	82.9	7.9	.33	14308	1.3
CUM(14M X 0)	100.0	17.8	1.04	12599	2.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	62.1
3/8" X 14M	29.2
14M X 100M	7.6
100M X 0	1.1

MOISTURE, %

TOTAL	3.7
AS RECEIVED	2.6

STATE: PENNSYLVANIA
COUNTY: WESTMORELAND

BED: BAKERSTOWN
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 62
SAMPLE NO. 213

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.60	1.50	1.50	--	--	--
ASH	17.82	7.88	66.00	18.30	8.00	67.00
VOLATILE MATTER	27.99	31.28	14.28	28.74	31.76	14.50
FIXED CARBON	51.58	59.34	18.22	52.96	60.24	18.50
BTU/LB	12224	14046	4038	12550	14260	4100

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	68.02	78.31	23.21	69.84	79.51	23.56
HYDROGEN	4.55	5.02	1.94	4.37	4.93	1.80
NITROGEN	1.14	1.31	.39	1.17	1.33	.40
SULFUR	1.51	.98	4.47	1.55	.99	4.54
OXYGEN	6.95	6.50	4.00	4.77	5.24	2.70
ASH	17.82	7.88	66.00	18.30	8.00	67.00

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.02	.35	4.41	1.05	.35	4.48
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.48	.62	.04	.49	.60	.04
TOTAL	1.51	.98	4.47	1.55	.99	4.54

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO ₂ (SILICON OXIDE)	--	--	--
Al ₂ O ₃ (ALUMINUM OXIDE)	--	--	--
Fe ₂ O ₃ (IRON OXIDE)	--	--	--
TiO ₂ (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na ₂ O (SODIUM OXIDE)	--	--	--
K ₂ O (POTASSIUM OXIDE)	--	--	--
SO ₃ (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.75	.74
OXYGEN/CARBON	.05	.05
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2430	2500	2410
SOFTENING TEMPERATURE (ST)	2480	2600	2460
FLUID TEMPERATURE (FT)	2680	2790	2630

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.15	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	20.62	9.19	74.85

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	8 1/2	0
HARDGROVE GRINDABILITY (HGI)	71	--	--

STATE: PENNSYLVANIA
COUNTY: WESTMORELAND

BED: BAKERSTOWN
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 62
SAMPLE NO. 214

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.4	3.4	.28	15064	1.2
FLOAT 1.40	67.8	5.6	.51	14676	1.6
FLOAT 1.60	77.6	7.4	1.05	14358	2.3
CUM(1-1/2" X 100M)	100.0	20.3	1.98	12080	4.1
100M X 0	1.6	16.8	1.32	12698	4.6
TOTAL(1-1/2" X 0)	100.0	20.2	1.97	12090	4.1

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.5	2.9	.17	15152	1.1
FLOAT 1.40	64.2	5.7	.37	14658	1.4
FLOAT 1.60	74.2	7.5	.77	14340	2.0
CUM(3/8" X 100M)	100.0	22.5	2.01	11691	4.3
100M X 0	10.6	12.0	1.39	13545	3.3
TOTAL(3/8" X 0)	100.0	21.4	1.94	11888	4.2

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.8	3.0	.11	15135	1.2
FLOAT 1.40	64.5	5.6	.27	14676	1.4
FLOAT 1.60	77.3	8.1	.53	14234	1.8
CUM(14M X 0)	100.0	21.3	2.01	11903	4.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
--- SAMPLE CRUSHED TO PASS 1-1/2" ---	
1-1/2" X 3/8"	59.5
3/8" X 14M	30.9
14M X 100M	8.0
100M X 0	1.6
TOTAL AS RECEIVED	4.0
	2.5

STATE: PENNSYLVANIA	BED: BAKERSTOWN	BED CODE: 62
COUNTY: WESTMORELAND	RANK: HIGH VOLATILE A BITUMINOUS	SAMPLE NO. 214
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	2.50 1.00	-- --
ASH	21.16 8.02	66.60 66.60
VOLATILE MATTER	27.02 31.17	15.20 15.20
FIXED CARBON	49.32 59.81	18.20 18.20
BTU/LB	11593 14048	3890 3890
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	64.71 78.73	84.76 86.53
HYDROGEN	4.38 4.97	5.37 5.34
NITROGEN	1.08 1.29	1.41 1.42
SULFUR	2.42 1.17	3.17 1.28
OXYGEN	6.25 5.83	5.28 5.43
ASH	21.16 8.02	-- --
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	2.02 .55	2.65 .60
SULFATIC	.08 .06	.10 .07
ORGANIC	.32 .56	.42 .62
TOTAL	2.42 1.17	3.17 1.28
----- MINERAL ANALYSIS OF ASH, % -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	-- --	-- --
SiO2 (SILICON OXIDE)	-- --	2380 2600
Al2O3 (ALUMINUM OXIDE)	-- --	2480 2760
Fe2O3 (IRON OXIDE)	-- --	2780 2910+
TiO2 (TITANIUM OXIDE)	-- --	-- --
CaO (CALCIUM OXIDE)	-- --	-- --
MgO (MAGNESIUM OXIDE)	-- --	-- --
Na2O (SODIUM OXIDE)	-- --	-- --
K2O (POTASSIUM OXIDE)	-- --	-- --
SO3 (SULFITES)	-- --	-- --
----- COAL UTILIZATION RATIOS -----		
	RAW FL 1.60	RAW FL 1.60
BASE/ACID	-- --	-- --
DOLOMITE	-- --	-- --
HYDROGEN/CARBON	.76	7 1/2
OXYGEN/CARBON	.05	80
R250	-- --	-- --
SILICA	-- --	-- --
SILICA/ALUMINA	-- --	-- --
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2380 2600	2190 2190
SOFTENING TEMPERATURE (ST)	2480 2760	2290 2290
FLUID TEMPERATURE (FT)	2780 2910+	2600 2600
----- MISCELLANEOUS DATA, % -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.21	-- --
NA (SODIUM) (CALCULATED)	-- --	-- --
MINERAL MATTER (PAR)	24.80	9.39 75.93
----- PHYSICAL PARAMETERS, INDEX -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)	7 1/2	80
HARDGROVE GRINDABILITY (HGI)	70	-- --

STATE: PENNSYLVANIA
COUNTY: BUTLER
BED: BROOKVILLE
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 95
SAMPLE NO. 215

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	4.5	2.2	.04	13731	2.0
FLOAT 1.40	86.8	4.6	.01	13358	1.3
FLOAT 1.60	94.1	5.6	.02	13202	1.3
CUM(1-1/2" X 100M)	100.0	8.3	.03	12783	1.3
100M X 0	.7	22.1	.46	10638	1.2
TOTAL(1-1/2" X 0)	100.0	8.4	.03	12768	1.3

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	7.8	1.7	.04	13808	1.5
FLOAT 1.40	85.4	4.0	.05	13451	1.2
FLOAT 1.60	93.2	5.1	.05	13280	1.2
CUM(3/8" X 100M)	100.0	8.2	.06	12798	1.2
100M X 0	2.7	15.1	.20	11726	1.1
TOTAL(3/8" X 0)	100.0	8.4	.06	12769	1.2

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.6	1.6	.04	13824	1.5
FLOAT 1.40	83.3	3.6	.04	13513	1.2
FLOAT 1.60	92.9	4.9	.04	13311	1.2
CUM(14M X 0)	100.0	8.4	.04	12767	1.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	72.7
3/8" X 14M	22.4
14M X 100M	4.2
100M X 0	.7

MOISTURE, %

TOTAL	6.1
AS RECEIVED	3.8

STATE: PENNSYLVANIA		BED: BROOKVILLE		BED CODE: 95	
COUNTY: BUTLER		RANK: HIGH VOLATILE B BITUMINOUS		SAMPLE NO. 215	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
	RAW	AS RECEIVED	RAW	MOISTURE FREE	MOISTURE AND ASH FREE
	FL 1.60	FL 1.60	FL 1.60	FL 1.60	FL 1.60
MOISTURE	3.80	3.40	--	--	--
ASH	8.18	4.92	8.50	52.90	--
VOLATILE MATTER	33.05	34.09	34.35	22.30	37.54
FIXED CARBON	54.98	57.59	57.15	24.80	62.82
BTU/LB	12294	12804	12780	5850	13966
					12420
----- ULTIMATE ANALYSIS, % -----					
	RAW	AS RECEIVED	RAW	MOISTURE FREE	MOISTURE AND ASH FREE
	FL 1.60	FL 1.60	FL 1.60	FL 1.60	FL 1.60
CARBON	--	--	--	--	--
HYDROGEN	--	--	--	--	--
NITROGEN	--	--	--	--	--
SULFUR	.83	.83	.86	.40	.91
OXYGEN	--	--	--	--	--
ASH	8.18	4.92	8.50	52.90	--
----- SULFUR FORMS ANALYSIS, % -----					
	RAW	AS RECEIVED	RAW	MOISTURE FREE	MOISTURE AND ASH FREE
	FL 1.60	FL 1.60	FL 1.60	FL 1.60	FL 1.60
PYRITIC	.05	.04	.05	.04	.05
SULFATIC	.01	.01	.01	.01	.01
ORGANIC	.77	.78	.80	.85	.88
TOTAL	.83	.83	.86	.86	.91
----- MINERAL ANALYSIS OF ASH, % -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
OXIDES	--	--	--	SK 1.60	SK 1.60
SiO2 (SILICON OXIDE)	--	--	--	2480	2900
Al2O3 (ALUMINUM OXIDE)	--	--	--	2530	2910
Fe2O3 (IRON OXIDE)	--	--	--	2630	2200
TiO2 (TITANIUM OXIDE)	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--
----- COAL UTILIZATION RATIOS -----					
	RAW	FL 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--
DOLOMITE	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--
R250	--	--	--	--	--
SILICA	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--
----- MISCELLANEOUS DATA, % -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--
MINERAL MATTER (PARR)	9.65	5.98	57.35	--	--
----- PHYSICAL PARAMETERS, INDEX -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
FREE SWELLING	0	--	--	57	--
HARDGROVE GRINDABILITY	(FSI)	--	--	(HGI)	54

STATE: PENNSYLVANIA

COUNTY: CENTRE

BED: BROOKVILLE

RANK: MED VOLATILE BITUMINOUS

BED CODE: 95

SAMPLE NO. 216

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	52.1	2.2	.07	15258	1.0
FLOAT 1.40	74.7	3.1	.16	15104	1.0
FLOAT 1.60	92.0	7.2	.18	14403	1.1
CUM(1-1/2" X 100M)	100.0	10.5	.25	13839	1.2
100M X 0	1.2	8.7	.95	14147	2.2
TOTAL(1-1/2" X 0)	100.0	10.5	.26	13843	1.2

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	56.1	2.0	.03	15292	.9
FLOAT 1.40	73.7	2.9	.07	15138	.9
FLOAT 1.60	89.3	6.3	.10	14557	.9
CUM(3/8" X 100M)	100.0	10.9	.24	13771	1.1
100M X 0	2.1	8.1	.81	14249	1.9
TOTAL(3/8" X 0)	100.0	10.8	.25	13781	1.1

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	44.1	1.5	.03	15377	.9
FLOAT 1.40	72.7	2.7	.03	15172	.9
FLOAT 1.60	89.9	5.9	.13	14625	1.0
CUM(14M X 0)	100.0	10.4	.26	13856	1.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	58.5	TOTAL AS RECEIVED
3/8" X 14M	29.8	
14M X 100M	10.5	
100M X 0	1.2	

MOISTURE, %

3.0

.6

STATE: PENNSYLVANIA
COUNTY: CENTRE
BED: BROOKVILLE
RANK: MED VOLATILE BITUMINOUS
BED CODE: 95
SAMPLE NO. 216

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.60	.70	--	--	--	--
ASH	9.92	5.86	9.98	48.44	--	--
VOLATILE MATTER	23.50	24.41	23.64	14.36	26.26	26.13
FIXED CARBON	65.98	59.03	66.38	37.20	73.74	73.88
BTU/LB	13882	14488	13966	7292	15515	15505

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.76	.69	.76	1.71	.84	.73
OXYGEN	--	--	--	--	--	--
ASH	9.92	5.86	9.98	48.44	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.27	.13	.27	.13	.30	.14
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.48	.55	.48	.55	.53	.58
TOTAL	.76	.69	.76	.69	.84	.73

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: CENTRE

BED: BROOKVILLE
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 95
SAMPLE NO. 217

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.0	3.2	.46	15176	1.4
FLOAT 1.40	56.4	6.5	.84	14586	1.9
FLOAT 1.60	72.4	10.5	1.25	13889	2.6
CUM(1-1/2" X 100M)	100.0	21.0	3.01	11951	5.8
100M X 0	2.6	15.6	1.92	12866	4.4
TOTAL(1-1/2" X 0)	100.0	20.9	2.98	11975	5.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.9	2.8	.46	15191	1.3
FLOAT 1.40	55.3	5.5	.54	14764	1.6
FLOAT 1.60	68.4	8.6	.79	14210	2.0
CUM(3/8" X 100M)	100.0	22.2	2.91	11798	5.9
100M X 0	13.5	12.9	2.03	13364	4.0
TOTAL(3/8" X 0)	100.0	20.9	2.79	11932	5.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.5	2.4	.37	15338	1.3
FLOAT 1.40	56.9	5.0	.45	14852	1.5
FLOAT 1.60	71.9	8.0	.58	14094	1.8
CUM(14M X 0)	100.0	21.0	2.99	11747	5.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	51.8
3/8" X 14M	31.1
14M X 100M	14.5
100M X 0	2.6
TOTAL AS RECEIVED	1.1
	.9

STATE: PENNSYLVANIA
COUNTY: CENTRE

BED: BROOKVILLE
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 95
SAMPLE NO. 217

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.90	1.20	--	--	--	--
ASH	21.31	7.61	21.50	7.70	23.81	21.56
VOLATILE MATTER	18.52	19.66	16.30	19.90	76.19	78.44
FIXED CARBON	59.27	71.53	29.44	72.40	23.81	21.56
BTU/LB	11769	13970	5742	14140	15129	15319

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	67.03	80.25	67.64	81.22	86.17	88.00
HYDROGEN	4.14	4.93	4.08	4.86	5.19	5.26
NITROGEN	.90	1.10	.91	1.12	1.16	1.21
SULFUR	3.59	1.26	3.62	1.28	4.61	1.39
OXYGEN	3.03	4.85	2.25	3.83	2.87	4.14
ASH	21.31	7.61	21.50	7.70	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.04	.52	3.07	.52	3.91	.57
SULFATIC	.03	.03	.04	.04	.04	.03
ORGANIC	.52	.72	.52	.73	.66	.79
TOTAL	3.59	1.26	3.62	1.28	4.61	1.39

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	46.87	49.01	--	--	--	--
SiO2 (SILICON OXIDE)	27.15	34.70	25.27	29.10	2350	2910+
Al2O3 (ALUMINUM OXIDE)	19.45	9.44	21.73	2400	2400	2910+
Fe2O3 (IRON OXIDE)	2.00	2.66	1.33	2500	2500	2910+
TiO2 (TITANIUM OXIDE)	.56	1.44	.30	--	--	--
CaO (CALCIUM OXIDE)	.90	.80	.93	--	--	--
MgO (MAGNESIUM OXIDE)	.13	--	--	--	--	--
Na2O (SODIUM OXIDE)	2.41	1.54	2.55	--	--	--
K2O (POTASSIUM OXIDE)	.17	.19	.21	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.31	--	--	--	--	--
DOLomite	.06	--	--	--	--	--
HYDROGEN/CARBON	.72	.72	--	--	--	--
OXYGEN/CARBON	.02	.04	--	--	--	--
R250	.79	.89	--	--	--	--
SILICA	.69	.81	--	--	--	--
SILICA/ALUMINA	1.73	1.41	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	9	8 1/2	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	86	93	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: LAWRENCE

BED: BROOKVILLE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 95
SAMPLE NO. 218

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.5	2.5	.11	14493	1.0
FLOAT 1.40	90.0	4.1	.43	14217	1.5
FLOAT 1.60	94.2	4.8	.60	14096	1.8
CUM(1-1/2" X 100M)	100.0	7.7	1.04	13596	2.5
100M X 0	1.5	13.7	1.73	12561	4.2
TOTAL(1-1/2" X 0)	100.0	7.8	1.05	13581	2.5

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	70.9	2.2	.12	14545	1.0
FLOAT 1.40	88.7	3.6	.34	14304	1.2
FLOAT 1.60	93.8	4.5	.54	14148	1.6
CUM(3/8" X 100M)	100.0	7.6	1.13	13613	2.5
100M X 0	4.3	9.4	1.61	13303	2.9
TOTAL(3/8" X 0)	100.0	7.7	1.15	13600	2.5

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.5	1.8	.12	14614	1.0
FLOAT 1.40	85.5	3.0	.30	14407	1.4
FLOAT 1.60	93.5	4.5	.56	14148	1.7
CUM(14M X 0)	100.0	7.4	1.15	13648	2.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	77.7
3/8" X 14M	14.9
14M X 100M	5.9
100M X 0	1.5

TOTAL AS RECEIVED 4.7 2.3

STATE: PENNSYLVANIA
COUNTY: LAWRENCE

BED: BROOKVILLE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 95
SAMPLE NO. 218

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW FL 1.60 SK 1.60

2.30 2.40 2.20

7.43 4.29 49.96

37.60 38.76 21.54

52.67 54.55 26.31

13317 13810 5976

MOISTURE FREE

RAW FL 1.60 SK 1.60

-- --

7.60 4.40 51.08

38.49 39.71 22.02

53.91 55.89 26.90

13630 14150 6110

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

-- --

41.65 41.54 45.01

58.35 58.46 54.99

14751 14801 12490

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

-- --

1.19 9.82

7.43 4.29 49.96

MOISTURE FREE

RAW FL 1.60 SK 1.60

-- --

1.22 10.04

7.60 4.40 51.08

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

-- --

1.95 1.28 20.53

-- --

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

1.06 .50 9.42

.08 .04 .13

.62 .65 .27

1.76 1.19 9.82

MOISTURE FREE

RAW FL 1.60 SK 1.60

1.09 .51 9.64

.09 .04 .13

.63 .67 .28

1.81 1.22 10.04

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

1.18 .53 19.70

.09 .04 .27

.68 .70 .57

1.95 1.28 20.53

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW FL 1.60 SK 1.60

-- --

-- --

-- --

-- --

-- --

-- --

-- --

-- --

-- --

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

2190 2460 2030

2440 2570 2140

2590 2670 2190

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

RAW FL 1.60 SK 1.60

-- --

-- --

9.20 5.42 60.69

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

RAW FL 1.60 SK 1.60

5 1/2 49

6 1/2 49

COAL UTILIZATION RATIOS

RAW FL 1.60

-- --

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-- --

-- --

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-- --

-- --

-- --

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

STATE: PENNSYLVANIA
 COUNTY: LAWRENCE
 BED: BROOKVILLE
 RANK: HIGH VOLATILE A BITUMINOUS
 RED CODE: 95
 SAMPLE NO. 219

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	80.1	2.3	.57	14569	1.3
FLOAT 1.40	94.2	3.1	.94	14428	1.9
FLOAT 1.60	96.6	3.4	1.10	14375	2.2
CUM(1-1/2" X 100M)	100.0	4.8	1.88	14128	3.3
100M X 0	.5	11.7	4.24	12909	7.5
TOTAL(1-1/2" X 0)	100.0	4.8	1.89	14122	3.3

SAMPLE CRUSHED TO PASS 3/8"
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	86.2	1.7	.18	14675	1.0
FLOAT 1.40	92.9	2.2	.37	14587	1.2
FLOAT 1.60	95.0	2.5	.51	14534	1.4
CUM(3/8" X 100M)	100.0	4.7	1.80	14145	3.3
100M X 0	2.5	8.0	2.83	13563	5.1
TOTAL(3/8" X 0)	100.0	4.8	1.83	14131	3.4

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	89.2	.9	.07	14816	.7
FLOAT 1.40	93.0	1.3	.13	14745	.8
FLOAT 1.60	94.3	1.6	.20	14693	.9
CUM(14M X 0)	100.0	4.9	1.85	14110	3.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---	---
3/8" X 14M	---	---
14M X 100M	---	---
100M X 0	---	---
TOTAL AS RECEIVED	4.2	1.8

STATE: PENNSYLVANIA	BED: BROOKVILLE	BED CODE: 95
COUNTY: LAWRENCE	RANK: HIGH VOLATILE A BITUMINOUS	SAMPLE NO. 219
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
MOISTURE	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
ASH	1.80 1.90 1.90	--- --
VOLATILE MATTER	4.62 1.51 58.17	4.70 1.54 59.30
FIXED CARBON	37.51 38.83 --	38.20 39.59 --
	56.07 57.76 --	57.10 58.88 --
BTU/LB	13693 14268 --	13944 14545 --
		14632 14772 --
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE FREE
CARBON	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
HYDROGEN	-- -- --	-- -- --
NITROGEN	-- -- --	-- -- --
SULFUR	2.41 .57 32.65	.58 33.29 2.58
OXYGEN	-- -- --	-- -- --
ASH	4.62 1.51 58.17	4.70 1.54 59.30
		-- -- --
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE FREE
PYRITIC	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
SULFATIC	1.92 .18 28.59	1.96 .18 29.15
ORGANIC	.01 .00 .03	.02 .00 .07
TOTAL	.47 .39 4.03	.40 4.11 .50
	2.41 .57 32.65	2.46 .58 33.29
		2.58 .58 81.79
----- MINERAL ANALYSIS OF ASH, % -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	-- -- --	-- -- --
SiO2 (SILICON OXIDE)	-- -- --	RAW FL 1.60 SK 1.60
AL2O3 (ALUMINUM OXIDE)	-- -- --	1930 2560
FE2O3 (IRON OXIDE)	-- -- --	1970 2610
TiO2 (TITANIUM OXIDE)	-- -- --	2010 2680
CaO (CALCIUM OXIDE)	-- -- --	---
MgO (MAGNESIUM OXIDE)	-- -- --	---
Na2O (SODIUM OXIDE)	-- -- --	---
K2O (POTASSIUM OXIDE)	-- -- --	---
SO3 (SULFITES)	-- -- --	---
----- COAL UTILIZATION RATIOS -----		
	RAW FL 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	-- -- --	---
DOLOMITE	-- -- --	---
HYDROGEN/CARBON	-- -- --	---
OXYGEN/CARBON	-- -- --	---
R250	-- -- --	---
SILICA	-- -- --	---
SILICA/ALUMINA	-- -- --	---
----- FUSIBILITY OF ASH, DEGREES F -----		
	(IN OXIDIZING ATMOSPHERE)	---
INITIAL DEFORMATION (ID)	RAW FL 1.60 SK 1.60	---
SOFTENING TEMPERATURE (ST)	1930 2560	---
FLUID TEMPERATURE (FT)	1970 2610	---
	2010 2680	---
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW FL 1.60 SK 1.60	---
NA (SODIUM) (CALCULATED)	---	---
MINERAL MATTER (PARR)	6.43 1.95	82.35
----- PHYSICAL PARAMETERS, INDEX -----		
FREE SWELLING (FSI)	RAW FL 1.60 SK 1.60	---
HARDGROVE GRINDABILITY (HGI)	4 1/2 5 1/2	---

STATE: PENNSYLVANIA
COUNTY: MERCER

BED: BROOKVILLE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 95
SAMPLE NO. 220

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	72.6	77.8	2.6	.35	1.75	14242	2.5
FLOAT 1.40	87.9	93.3	3.5	.52	1.92	14116	2.7
FLOAT 1.60	91.7	96.6	4.1	.68	2.10	14008	3.0
CUM(1-1/2" X 100M)	100.0	100.0	7.4	2.22	3.96	13296	6.0
100M X 0	.9	.8	16.4	2.36	4.86	11700	8.3
TOTAL(1-1/2" X 0)	100.0	100.0	7.5	2.22	3.97	13282	6.0

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	71.4	76.8	2.3	.29	1.65	14358	2.3
FLOAT 1.40	85.9	91.6	3.0	.40	1.80	14240	2.5
FLOAT 1.60	91.1	96.1	3.8	.62	2.04	14090	2.9
CUM(3/8" X 100M)	100.0	100.0	7.3	2.26	3.90	13354	5.8
100M X 0	5.5	5.1	12.4	2.37	4.68	12462	7.5
TOTAL(3/8" X 0)	100.0	100.0	7.6	2.27	3.94	13305	5.9

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	72.1	78.0	1.7	.29	1.71	14564	2.3
FLOAT 1.40	84.7	90.6	2.5	.40	1.86	14406	2.6
FLOAT 1.60	91.1	96.2	3.5	.63	2.10	14221	3.0
CUM(14M X 0)	100.0	100.0	7.5	2.32	4.02	13464	6.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	79.9
3/8" X 14M	15.4
14M X 100M	3.8
100M X 0	.9

MOISTURE, %

TOTAL	4.4
AS RECEIVED	3.4

STATE: PENNSYLVANIA
COUNTY: MERCER

BED: BROOKVILLE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 95
SAMPLE NO. 220

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.40	3.60 3.60	--	--	--	--
ASH	7.05	3.51 45.40	7.30	3.64 47.10	--	--
VOLATILE MATTER	41.54	42.77 27.47	43.00	44.36 28.50	46.39	46.04 53.88
FIXED CARBON	48.01	50.12 23.52	49.70	52.00 24.40	53.61	53.96 46.12
BTU/LB	13034	13689 5653	13493	14200 5864	14555	14737 11085

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	73.01	76.18 25.04	75.58	79.02 25.97	81.53	82.01 49.09
HYDROGEN	5.47	5.75 2.42	5.27	5.55 2.10	5.68	5.76 3.97
NITROGEN	1.27	1.34 .39	1.31	1.40 .40	1.41	1.45 .76
SULFUR	3.87	1.97 22.85	4.01	2.04 23.70	4.33	2.12 44.81
OXYGEN	9.33	11.25 3.90	6.53	8.35 .73	7.05	8.66 1.37
ASH	7.05	3.51 45.40	7.30	3.64 47.10	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.38	.62 18.91	2.46	.64 19.62	2.65	.66 37.09
SULFATIC	.13	.10 .15	.13	.10 .16	.14	.10 .30
ORGANIC	1.37	1.25 3.78	1.42	1.30 3.92	1.53	1.35 7.42
TOTAL	3.87	1.97 22.85	4.01	2.04 23.70	4.33	2.12 44.81

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO ₂ (SILICON OXIDE)	29.83	38.35 21.31
Al ₂ O ₃ (ALUMINUM OXIDE)	18.10	24.89 9.43
Fe ₂ O ₃ (IRON OXIDE)	42.89	25.74 65.77
TiO ₂ (TITANIUM OXIDE)	1.33	2.00 .67
CaO (CALCIUM OXIDE)	1.90	2.04 .40
MgO (MAGNESIUM OXIDE)	.46	.73 .27
Na ₂ O (SODIUM OXIDE)	.70	1.60 .60
K ₂ O (POTASSIUM OXIDE)	.77	.92 .72
SO ₃ (SULFITES)	1.67	1.99 .13

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.95	.48
DOLomite	.05	.09
HYDROGEN/CARBON	.84	.84
OXYGEN/CARBON	.06	.08
R ₂ SO	.52	.69
SILICA	.40	.58
SILICA/ALUMINA	1.65	1.54

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	1950	2000
SOFTENING TEMPERATURE (ST)	2050	2130
FLUID TEMPERATURE (FT)	2250	2430
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	.17	--
NA (SODIUM) (CALCULATED)	.04	.04
MINERAL MATTER (PARR)	10.09	5.05 63.90

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	5 1/2	5 1/2
HARDGROVE GRINDABILITY (HGI)	51	45

STATE: PENNSYLVANIA BED: BROOKVILLE BED CODE: 95
COUNTY: MERCER RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 221

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.9	46.9	3.6	1.36	2.10	14431	2.9
FLOAT 1.40	83.5	88.8	5.8	1.88	2.68	14034	3.8
FLOAT 1.60	93.5	97.3	7.4	2.16	2.97	13745	4.3
CUM(1-1/2" X 100M)	100.0	100.0	10.4	3.49	4.32	13203	6.5
100M X 0	.9	.8	19.1	4.04	4.66	11632	8.0
TOTAL(1-1/2" X 0)	100.0	100.0	10.5	3.49	4.32	13189	6.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.7	57.8	3.3	.79	1.78	14485	2.5
FLOAT 1.40	81.7	87.3	5.4	1.54	2.45	14106	3.5
FLOAT 1.60	91.9	96.2	7.0	1.89	2.76	13817	4.0
CUM(3/8" X 100M)	100.0	100.0	10.4	3.37	4.18	13203	6.3
100M X 0	3.0	2.8	14.4	3.97	4.74	12481	7.6
TOTAL(3/8" X 0)	100.0	100.0	10.5	3.39	4.20	13181	6.4

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.4	56.6	2.8	.70	1.61	14575	2.2
FLOAT 1.40	79.9	85.9	4.7	1.16	2.07	14232	2.9
FLOAT 1.60	91.0	95.7	6.4	1.54	2.42	13925	3.5
CUM(14M X 0)	100.0	100.0	10.2	3.39	4.20	13239	6.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---

SAMPLE CRUSHED TO PASS 1-1/2"	MOISTURE, %
1-1/2" X 3/8"	78.0
3/8" X 14M	16.1
14M X 100M	5.0
100M X 0	.9

TOTAL AS RECEIVED 4.2
3.7

STATE: PENNSYLVANIA
COUNTY: MERCER

BED: BROOKVILLE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 95
SAMPLE NO. 221

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.70	1.60	3.10	--	--	--
ASH	9.43	6.20	49.00	9.79	6.30	50.57
VOLATILE MATTER	39.46	41.76	23.00	40.98	42.43	23.73
FIXED CARBON	47.41	50.45	24.90	49.23	51.27	25.70
BTU/LB	12886	13658	5760	13382	13880	5944

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	70.88	75.77	25.76	73.61	77.00	26.58
HYDROGEN	5.37	5.53	1.98	5.15	5.44	1.68
NITROGEN	1.35	1.47	.36	1.41	1.49	.37
SULFUR	3.87	2.46	20.15	4.02	2.50	20.79
OXYGEN	9.09	8.57	--	6.03	7.27	--
ASH	9.43	6.20	49.00	9.79	6.30	50.57

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.09	1.45	20.04	3.21	1.47	20.68
SULFATIC	.02	.01	.03	.02	.01	.03
ORGANIC	.76	1.00	.07	.79	1.02	.08
TOTAL	3.87	2.46	20.15	4.02	2.50	20.79

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.84	.85	--	--	--	--
OXYGEN/CARBON	.06	.07	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING	6	6	6	6	6	6
HARDGROVE GRINDABILITY (HGI)	48	48	48	48	48	48

STATE: PENNSYLVANIA
COUNTY: MERCER

BED: BROOKVILLE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 95
SAMPLE NO. 222

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.7	3.5	.63	14314	2.6
FLOAT 1.40	78.2	4.7	1.20	14103	3.4
FLOAT 1.60	86.3	6.0	1.83	13874	4.3
CUM(1-1/2" X 100M)	100.0	12.1	4.37	12801	8.8
100M X 0	1.1	27.8	4.33	10038	10.8
TOTAL(1-1/2" X 0)	100.0	12.3	4.37	12771	8.8

--- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.2	2.8	.41	14438	2.3
FLOAT 1.40	78.0	3.9	.82	14244	3.0
FLOAT 1.60	85.8	5.2	1.33	14015	3.8
CUM(3/8" X 100M)	100.0	11.9	4.36	12836	8.7
100M X 0	3.4	21.0	4.35	11235	10.0
TOTAL(3/8" X 0)	100.0	12.2	4.36	12782	8.7

--- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.4	2.1	.34	14561	2.2
FLOAT 1.40	68.4	3.4	.75	14332	2.7
FLOAT 1.60	83.6	5.4	1.52	13980	3.9
CUM(14M X 0)	100.0	12.7	4.50	12695	8.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	81.8
3/8" X 14M	12.9
14M X 100M	4.2
100M X 0	1.1

--- MOISTURE, % ---
TOTAL
AS RECEIVED
5.0
4.1

STATE: PENNSYLVANIA
COUNTY: MERCER
BED: BROOKVILLE
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 95
SAMPLE NO. 222

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.10	2.40	1.70	--	--	--	--	--	--
ASH	12.47	5.06	48.86	13.00	5.18	49.70	--	--	--
VOLATILE MATTER	39.71	43.54	26.34	41.41	44.61	26.80	47.59	47.05	53.28
FIXED CARBON	43.73	49.00	23.10	45.59	50.20	23.50	52.41	52.95	46.72
BTU/LB	12124	13682	--	12643	14018	--	14532	14784	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	67.73	75.75	--	70.63	77.61	--	81.18	81.85	--
HYDROGEN	5.17	5.62	--	4.92	5.48	--	5.65	5.78	--
NITROGEN	1.20	1.36	--	1.26	1.40	--	1.44	1.47	--
SULFUR	4.96	2.41	19.84	5.18	2.47	20.18	5.95	2.60	40.13
OXYGEN	8.46	9.80	--	5.03	7.86	--	5.78	8.29	--
ASH	12.47	5.06	48.86	13.00	5.18	49.70	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.44	1.37	19.36	4.63	1.40	19.69	5.32	1.48	39.15
SULFATIC	--	.08	.09	.09	.08	.09	.10	.08	.18
ORGANIC	.44	.96	.40	.46	.99	.40	.53	1.04	.80
TOTAL	4.96	2.41	19.84	5.18	2.47	20.18	5.95	2.60	40.13

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	.84	.85	--	--	--	--	--	--	--
OXYGEN/CARBON	.05	.08	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4	5	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	44	--	--	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PAR)	16.89	6.89	64.78	--	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: MERCER
BED: BROOKVILLE
RANK: HIGH VOLATILE B BITUMINOUS
BED CODE: 95
SAMPLE NO. 223

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.1	62.6	4.6	.37	2.14	14065	3.0
FLOAT 1.40	80.1	87.7	6.1	.73	2.49	13804	3.6
FLOAT 1.60	86.0	93.1	7.0	1.15	2.88	13647	4.2
CUM(1-1/2" X 100M)	100.0	100.0	13.0	5.12	6.61	12602	10.5
100M X 0	.9	.9	15.0	4.01	5.13	12254	8.4
TOTAL(1-1/2" X 0)	100.0	100.0	13.0	5.11	6.60	12599	10.5

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.0	67.2	4.2	.33	1.96	14135	2.8
FLOAT 1.40	79.7	87.6	5.7	.60	2.21	13873	3.2
FLOAT 1.60	85.3	92.7	6.6	.96	2.55	13717	3.7
CUM(3/8" X 100M)	100.0	100.0	12.9	5.38	6.74	12620	10.7
100M X 0	6.5	6.5	12.5	3.46	5.09	12689	8.0
TOTAL(3/8" X 0)	100.0	100.0	12.9	5.26	6.63	12624	10.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.2	61.2	3.5	.33	1.88	14256	2.6
FLOAT 1.40	77.5	85.7	5.2	.52	2.07	13960	3.0
FLOAT 1.60	85.2	93.0	6.3	.87	2.39	13769	3.5
CUM(14M X 0)	100.0	100.0	12.9	5.23	6.65	12620	10.5

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	80.5
3/8" X 14M	14.1
14M X 100M	4.5
100M X 0	.9

--- MOISTURE, % ---

TOTAL	4.3
AS RECEIVED	1.9

STATE: PENNSYLVANIA
COUNTY: MERCER

BED: BROOKVILLE
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 95
SAMPLE NO. 223

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.90	1.70	1.70	--	--	--	--	--	--
ASH	12.15	6.09	48.66	12.38	6.20	49.50	--	--	--
VOLATILE MATTER	42.59	45.66	24.97	43.41	46.45	25.40	49.55	49.52	50.30
FIXED CARBON	43.37	46.54	24.67	44.21	47.35	25.10	50.46	50.48	49.70
BTU/LB	12266	13725	6170	12504	13962	6276	14271	14885	12428

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	6.08	2.41	30.73	6.20	2.45	31.26	7.08	2.61	61.91
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	12.15	6.09	48.66	12.38	6.20	49.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.65	.86	29.81	4.74	.87	30.33	5.41	.93	60.06
SULFATIC	.21	.12	.09	.21	.12	.09	.24	.13	.19
ORGANIC	1.23	1.44	.83	1.25	1.46	.84	1.43	1.56	1.67
TOTAL	6.08	2.41	30.73	6.20	2.45	31.26	7.08	2.61	61.91

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	RAW	FL 1.60	SK 1.60
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	2040	2460	2080
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	2090	2500	2140
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	2140	2540	2190
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	MISCELLANEOUS DATA, %		
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	RAW	FL 1.60	SK 1.60
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	CL (CHLORINE) (ANALYZED)	--	--
SO3 (SULFITES)	--	--	--	--	--	--	NA (SODIUM) (CALCULATED)	--	--
	--	--	--	--	--	--	MINERAL MATTER (PARR)	16.78	8.04
	--	--	--	--	--	--		70.66	

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	RAW	FL 1.60	SK 1.60
DOLOMITE	--	--	--	--	--	--	4	4	4
HYDROGEN/CARBON	--	--	--	--	--	--	FSI	43	43
OXYGEN/CARBON	--	--	--	--	--	--	HARDGROVE GRINDABILITY (HGI)	43	43
R250	--	--	--	--	--	--			
SILICA	--	--	--	--	--	--			
SILICA/ALUMINA	--	--	--	--	--	--			

STATE: PENNSYLVANIA
COUNTY: VENANGO
BED: BROOKVILLE
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 95
SAMPLE NO.: 224

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.3	3.6	.88	14342	3.4
FLOAT 1.40	73.5	8.2	2.05	14338	5.0
FLOAT 1.60	84.8	9.3	2.57	14018	5.8
CUM(1-1/2" X 100M)	100.0	15.7	5.27	12689	10.7
100M X 0	2.1	27.5	6.83	9885	17.9
TOTAL(1-1/2" X 0)	100.0	15.9	5.30	12631	10.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.1	2.6	.53	14522	2.8
FLOAT 1.40	70.9	4.4	1.15	14189	3.9
FLOAT 1.60	81.2	5.8	1.74	13923	4.8
CUM(3/8" X 100M)	100.0	14.9	5.57	12144	11.9
100M X 0	8.0	21.7	6.08	11009	14.2
TOTAL(3/8" X 0)	100.0	15.4	5.61	12053	12.1

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.5	2.2	.41	14568	2.6
FLOAT 1.40	68.0	3.3	.70	14342	3.1
FLOAT 1.60	78.1	4.6	1.13	14073	3.9
CUM(14M X 0)	100.0	15.4	5.57	12019	12.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	71.4
3/8" X 14M	21.7
14M X 100M	4.8
100M X 0	2.1
TOTAL	3.4
AS RECEIVED	2.5

STATE: PENNSYLVANIA	BED: BROOKVILLE	BED CODE: 95
COUNTY: VENANGO	RANK: HIGH VOLATILE A BITUMINOUS	SAMPLE NO. 224
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	2.50 2.30 2.30	---
ASH	14.63 4.67 50.57	---
VOLATILE MATTER	38.64 43.35 22.12	46.63 46.60 46.93
FIXED CARBON	44.23 49.68 25.01	53.37 53.40 53.07
BTU/LB	12433 13723 4802	15002 14752 10188
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	63.81 75.50 23.14	77.00 81.16 49.09
HYDROGEN	4.81 5.63 1.67	5.47 5.77 3.01
NITROGEN	.93 1.13 .28	1.12 1.21 .60
SULFUR	7.28 2.38 22.29	8.78 2.56 47.29
OXYGEN	8.54 10.69 2.05	7.63 9.30 .01
ASH	14.63 4.67 50.57	---
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	5.63 1.19 20.23	6.79 1.28 42.92
SULFATIC	.17 .09 .21	.20 .09 .44
ORGANIC	1.49 1.11 1.85	1.79 1.19 3.93
TOTAL	7.28 2.38 22.29	8.78 2.56 47.29
----- MINERAL ANALYSIS OF ASH, % -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	24.29 24.72 23.01	2040 2030
SiO2 (SILICON OXIDE)	11.69 18.46 9.81	2070 2080
Al2O3 (ALUMINUM OXIDE)	60.05 50.04 64.34	2110 2448
Fe2O3 (IRON OXIDE)	.67 1.00 .67	---
TiO2 (TITANIUM OXIDE)	1.12 2.85 .64	---
CaO (CALCIUM OXIDE)	.23 .46 .17	---
MgO (MAGNESIUM OXIDE)	.46 .46 .41	---
Na2O (SODIUM OXIDE)	.41 .60 .41	---
K2O (POTASSIUM OXIDE)	.20 .32 .19	---
SO3 (SULFITES)	---	---
----- COAL UTILIZATION RATIOS -----		
	RAW FL 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	1.70	.13
DOLomite	.02	.05
HYDROGEN/CARBON	.85	20.31 6.48 68.45
OXYGEN/CARBON	.07	---
R250	.37	---
SILICA	.28	---
SILICA/ALUMINA	2.08	---
----- PHYSICAL PARAMETERS, INDEX -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)	5	5 1/2
HARDGROVE GRINDABILITY (HGI)	58	52

STATE: PENNSYLVANIA BED: BRUSH CREEK BED CODE: 67
COUNTY: WESTMORELAND RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 225

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.1	3.0	.58	15078	1.5
FLOAT 1.40	91.6	5.8	1.24	14589	2.4
FLOAT 1.60	96.3	6.4	1.44	14481	2.8
CUM(1-1/2" X 100M)	100.0	7.8	2.01	14212	3.6
100M X 0	1.4	13.2	2.35	13118	5.5
TOTAL(1-1/2" X 0)	100.0	7.9	2.01	14197	3.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.5	2.6	.35	15143	1.3
FLOAT 1.40	87.6	4.7	.59	14777	1.7
FLOAT 1.60	93.8	5.5	.78	14638	1.9
CUM(3/8" X 100M)	100.0	7.8	1.91	14195	3.6
100M X 0	13.7	7.7	1.75	14169	3.8
TOTAL(3/8" X 0)	100.0	7.8	1.89	14191	3.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	67.5	2.4	.26	15040	1.3
FLOAT 1.40	87.9	3.9	.36	14818	1.4
FLOAT 1.60	93.8	5.1	.57	14646	1.7
CUM(14M X 0)	100.0	8.3	2.04	14043	3.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	62.3
3/8" X 14M	27.6
14M X 100M	8.7
100M X 0	1.4

--- MOISTURE, % ---

TOTAL	1.3
AS RECEIVED	1.2

STATE: PENNSYLVANIA
COUNTY: WESTMORELAND

BED: BRUSH CREEK
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 67
SAMPLE NO. 225

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
MOISTURE	1.20	1.20	1.20	--	--	--	--	--	--	--	--	--
ASH	7.90	4.84	54.24	8.00	4.90	54.90	--	--	--	--	--	--
VOLATILE MATTER	31.01	31.63	21.54	31.39	32.01	21.80	--	--	--	--	--	--
FIXED CARBON	59.88	62.33	23.02	60.61	63.09	23.30	--	--	--	34.12	33.66	48.34
BTU/LB	13920	14501	5073	14089	14677	5134	--	--	--	65.88	66.34	51.66
										15314	15433	11384

ULTIMATE ANALYSIS, %

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
CARBON	78.21	81.76	--	79.16	82.75	--	--	--	--	86.04	87.01	--
HYDROGEN	5.07	5.27	--	5.00	5.20	--	--	--	--	5.43	5.47	--
NITROGEN	1.38	1.38	--	1.40	1.40	--	--	--	--	1.52	1.47	--
SULFUR	2.66	1.08	24.79	2.69	1.09	25.09	--	--	--	2.92	1.15	55.63
OXYGEN	4.77	5.67	--	3.75	4.66	--	--	--	--	4.08	4.90	--
ASH	7.90	4.84	54.24	8.00	4.90	54.90	--	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED				MOISTURE FREE				MOISTURE AND ASH FREE			
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
PYRITIC	2.03	.51	23.99	2.05	.51	24.28	--	--	--	2.23	.54	53.84
SULFATIC	.04	.03	.05	.04	.03	.05	--	--	--	.04	.03	.11
ORGANIC	.59	.54	.75	.60	.55	.76	--	--	--	.65	.57	1.69
TOTAL	2.66	1.08	24.79	2.69	1.09	25.09	--	--	--	2.92	1.15	55.63

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			
	RAW	FL 1.60	SK 1.60	RAW
OXIDES				
SiO2 (SILICON OXIDE)	37.07	47.30	20.88	RAW
Al2O3 (ALUMINUM OXIDE)	20.36	26.02	11.31	FL 1.60
Fe2O3 (IRON OXIDE)	34.89	16.01	63.77	SK 1.60
TiO2 (TITANIUM OXIDE)	1.33	1.67	.33	2070
CaO (CALCIUM OXIDE)	1.65	2.52	.50	2120
MgO (MAGNESIUM OXIDE)	.73	.93	.30	2310
Na2O (SODIUM OXIDE)	.46	--	--	2490
K2O (POTASSIUM OXIDE)	1.90	2.46	.84	RAW
SO3 (SULFITES)	.89	2.13	1.36	FL 1.60

COAL UTILIZATION RATIOS

	AS RECEIVED		
	RAW	FL 1.60	
BASE/ACID	.67	--	RAW
DOLOMITE	.06	--	FL 1.60
HYDROGEN/CARBON	.76	--	SK 1.60
OXYGEN/CARBON	.04	.04	2070
R250	.61	.80	2120
SILICA	.50	.71	2310
SILICA/ALUMINA	1.82	1.82	2490

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		
	RAW	FL 1.60	
FREE SWELLING	9	9	RAW
HARDGROVE GRINDABILITY (HGI)	84	80	FL 1.60

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		
	RAW	FL 1.60	
INITIAL DEFORMATION (ID)	2070	2250	RAW
SOFTENING TEMPERATURE (ST)	2120	2300	FL 1.60
FLUID TEMPERATURE (FT)	2310	2490	SK 1.60

MISCELLANEOUS DATA, %

	AS RECEIVED		
	RAW	FL 1.60	
CL (CHLORINE) (ANALYZED)	.23	--	RAW
NA (SODIUM) (CALCULATED)	.03	--	FL 1.60
MINERAL MATTER (PARR)	10.12	5.86	SK 1.60

STATE: PENNSYLVANIA
 COUNTY: CENTRE
 BED: CLARION
 RANK: MED VOLATILE BITUMINOUS
 BED CODE: 87
 SAMPLE NO. 226

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"					
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)					
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
			TOTAL		
FLOAT 1.30	52.2	2.2	.07	15197	1.1
FLOAT 1.40	75.8	4.6	.15	14770	1.2
FLOAT 1.60	93.4	7.9	.25	14183	1.3
CUM(1-1/2" X 100M)	100.0	11.0	.60	13631	1.8
100M X 0	2.2	13.5	2.05	13187	4.2
TOTAL(1-1/2" X 0)	100.0	11.1	.63	13622	1.9

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.8	2.1	.07	15215	1.3
FLOAT 1.40	76.2	4.3	.12	14823	1.3
FLOAT 1.60	92.0	7.5	.18	14254	1.4
CUM(3/8" X 100M)	100.0	11.2	.56	13596	1.9
100M X 0	4.0	15.2	2.46	12884	4.7
TOTAL(3/8" X 0)	100.0	11.4	.64	13567	2.0

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.3	1.7	.05	15286	1.0
FLOAT 1.40	74.0	3.7	.07	14930	1.1
FLOAT 1.60	91.0	7.1	.16	14325	1.1
CUM(14M X 0)	100.0	11.7	.70	13507	2.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %		MOISTURE, %	
SAMPLE CRUSHED TO PASS 1-1/2"			
1-1/2" X 3/8"	31.1	TOTAL	3.0
3/8" X 14M	45.3	AS RECEIVED	.6
14M X 100M	20.4		
100M X 0	2.2		

STATE: PENNSYLVANIA
COUNTY: CENTRE

BED: CLARION
RANK: MED VOLATILE BITUMINOUS

BED CODE: 87
SAMPLE NO. 226

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.60	.90	.90	--	--	--	--	--	--
ASH	11.33	7.04	55.89	11.40	7.10	56.40	--	--	--
VOLATILE MATTER	21.91	22.46	15.16	22.04	22.66	15.30	24.88	24.39	35.09
FIXED CARBON	66.16	69.61	28.05	66.56	70.24	28.30	75.12	75.61	64.91
BTU/LB	13528	14151	5500	13610	14280	5550	15361	15371	12729

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.34	.77	6.64	1.35	.78	6.70	1.52	.84	15.36
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	11.33	7.04	55.89	11.40	7.10	56.40	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.67	.14	6.10	.67	.14	6.16	.76	.16	14.13
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.67	.62	.52	.67	.63	.53	.76	.67	1.21
TOTAL	1.34	.77	6.64	1.35	.78	6.70	1.52	.84	15.36

MINERAL ANALYSIS OF ASH, %

	RAW		FL 1.60		SK 1.60	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	RAW		FL 1.60	
	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	--	--	--	--
OXYGEN/CARBON	--	--	--	--
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW		FL 1.60	
	RAW	FL 1.60	RAW	FL 1.60
INITIAL DEFORMATION (ID)	2710	2910+	2710	2910+
SOFTENING TEMPERATURE (ST)	2760	2910+	2760	2910+
FLUID TEMPERATURE (FT)	2810	2910+	2810	2910+

MISCELLANEOUS DATA, %

	RAW		FL 1.60	
	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--
MINERAL MATTER (PARR)	13.05	8.10	13.05	8.10

PHYSICAL PARAMETERS, INDEX

	RAW		FL 1.60	
	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	8	9	8	9
HARDGROVE GRINDABILITY (HGI)	98	99	98	99

STATE: PENNSYLVANIA
COUNTY: CLARION
BED: CLARION
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 87
SAMPLE NO. 227

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	WEIGHT	BTU	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
					PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	65.2	75.0	4.5	.18	TOTAL	14594	1.2
FLOAT 1.40	76.9	87.4	5.5	.34		14416	1.6
FLOAT 1.60	86.3	95.7	7.4	.49		14077	1.8
FLOAT 1.90	89.9	98.0	8.8	.60		13828	2.1
CUM(1-1/2" X 100M)	100.0	100.0	15.2	1.57		12688	4.0
100M X 0	.2	.2	26.3	2.67		10711	6.5
TOTAL(1-1/2" X 0)	100.0	100.0	15.2	1.57		12684	4.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	WEIGHT	BTU	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
					PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	64.6	75.1	3.4	.12	TOTAL	14789	1.2
FLOAT 1.40	76.8	87.9	4.7	.28		14558	1.4
FLOAT 1.60	85.4	95.6	6.5	.37		14237	1.6
FLOAT 1.90	89.9	98.0	8.8	.60		13828	2.1
CUM(3/8" X 100M)	100.0	100.0	15.0	1.48		12724	3.7
100M X 0	.1	.1	22.7	3.80		11352	8.1
TOTAL(3/8" X 0)	100.0	100.0	15.0	1.48		12722	3.7

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	WEIGHT	BTU	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
					PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	64.0	74.7	3.4	.12	TOTAL	14789	1.2
FLOAT 1.40	77.6	88.6	5.2	.24		14469	1.4
FLOAT 1.60	85.4	95.4	7.0	.32		14148	1.5
FLOAT 1.90	89.9	98.0	8.8	.60		13828	2.1
CUM(14M X 0)	100.0	100.0	15.3	1.41		12670	3.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	.2

--- MOISTURE, % ---

TOTAL	2.5
AS RECEIVED	1.4

STATE: PENNSYLVANIA
COUNTY: CLARION

BED: CLARION
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 87
SAMPLE NO. 227

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.40	--	--	--	--	--
ASH	14.99	--	--	15.20	--	--
VOLATILE MATTER	33.52	--	--	34.00	--	--
FIXED CARBON	50.09	--	--	50.80	--	--
BTU/LB	12529	--	--	12707	--	14985

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.15	--	--	2.18	--	2.57
OXYGEN	--	--	--	--	--	--
ASH	14.99	--	--	15.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.54	--	--	1.56	--	1.84
SULFATIC	.07	--	--	.07	--	.08
ORGANIC	.54	--	--	.55	--	.65
TOTAL	2.15	--	--	2.18	--	2.57

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	SK 1.60
OXIDES	--	--	--	--
SiO ₂ (SILICON OXIDE)	--	--	--	--
Al ₂ O ₃ (ALUMINUM OXIDE)	--	--	--	--
Fe ₂ O ₃ (IRON OXIDE)	--	--	--	--
TiO ₂ (TITANIUM OXIDE)	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--
Na ₂ O (SODIUM OXIDE)	--	--	--	--
K ₂ O (POTASSIUM OXIDE)	--	--	--	--
SO ₃ (SULFITES)	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	--	--	--	--
OXYGEN/CARBON	--	--	--	--
R ₂ SO	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--
MINERAL MATTER (PARR)	--	--	17.62	--
FREE SWELLING (FSI)	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
INITIAL DEFORMATION (ID)	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--
MINERAL MATTER (PARR)	--	--	17.62	--

STATE: PENNSYLVANIA BED: CLARION BED CODE: 87
COUNTY: CLARION RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 228

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	45.3	3.8	.60	14718	2.8
FLOAT 1.40	80.2	6.3	1.37	14273	4.1
FLOAT 1.60	94.0	8.5	1.80	13881	4.8
CUM(1-1/2" X 100M)	100.0	10.5	2.71	13525	6.3
100M X 0	.9	13.4	4.35	13009	8.8
TOTAL(1-1/2" X 0)	100.0	10.5	2.72	13520	6.3

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	47.7	3.8	.51	14718	2.8
FLOAT 1.40	79.0	6.3	1.20	14273	4.0
FLOAT 1.60	92.9	8.5	1.67	13881	4.7
CUM(3/8" X 100M)	100.0	11.0	2.76	13436	6.4
100M X 0	2.2	12.1	4.40	13240	8.6
TOTAL(3/8" X 0)	100.0	11.0	2.80	13432	6.5

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	53.6	3.0	.38	14861	2.5
FLOAT 1.40	78.5	5.1	.80	14487	3.4
FLOAT 1.60	92.4	6.7	1.14	14202	4.0
CUM(14M X 0)	100.0	10.3	2.64	13561	6.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

MOISTURE, %

TOTAL
AS RECEIVED
3.4
1.0

BED CODE:	87
SAMPLE NO.	228

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	SK 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	1.00	1.20	--	--	--	--
ASH	10.20	6.88	10.30	51.91	--	--
VOLATILE MATTER	39.30	40.21	39.70	40.70	44.26	43.75
FIXED CARBON	49.50	51.70	50.00	52.33	55.74	56.25
BTU/LB	13405	13896	13540	14065	15095	15119

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.13	2.69	4.18	2.72	4.65	2.92
OXYGEN	10.20	6.88	10.30	6.97	--	--
ASH						

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			- MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.61	1.13	20.63	2.64	1.14	20.88	2.94	1.23	43.41
SULFATIC	.00	.00	.01	.01	.00	.01	.01	.00	.02
ORGANIC	1.51	1.56	1.26	1.53	1.58	1.27	1.71	1.70	2.64
TOTAL	4.13	2.69	21.89	4.18	2.72	22.16	4.65	2.92	46.07

MINERAL ANALYSIS OF ASH, %

OXIDES	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
SiO2 (SILICON OXIDE)	--	--	--	1970	2180	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	2020	2240	--
Fe2O3 (IRON OXIDE)	--	--	--	2110	2530	--
TiO2 (TITANIUM OXIDE)	--	--	--	----- MISCELLANEOUS DATA, % -----		
CaO (CALCIUM OXIDE)	--	--	--			
MgO (MAGNESIUM OXIDE)	--	--	--			
Na2O (SODIUM OXIDE)	--	--	--			
K2O (POTASSIUM OXIDE)	--	--	--			
SO3 (SULFITES)	--	--	--	RAW	FL 1.60	SK 1.60
				CL (CHLORINE) (ANALYZED)		

COAL UTILIZATION RATIOS

	PHYSICAL PARAMETERS, INDEX					
BASE/ACID				RAW	FL 1.60	SK 1.60
DOLomite	--					
HYDROGEN/CARBON	--					
OXYGEN/CARBON	--			(FSI)	8	8
R250	--			HARDGROVE GRINDABILITY (HGI)	--	--
SILICA	--					
SILICA/ALUMINA	--					

STATE: PENNSYLVANIA
COUNTY: CLARION
BED: CLARION
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 87
SAMPLE NO. 229

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.0	3.1	.98	14648	3.3
FLOAT 1.40	62.7	5.3	1.87	14255	4.6
FLOAT 1.60	79.6	8.1	3.09	13756	6.5
CUM(1-1/2" X 100M)	100.0	15.1	6.81	12508	12.9
100M X 0	.9	20.1	6.70	11617	14.3
TOTAL(1-1/2" X 0)	100.0	15.1	6.81	12500	12.9

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.6	2.4	.61	14772	2.7
FLOAT 1.40	65.1	4.3	1.26	14434	3.6
FLOAT 1.60	79.0	6.7	2.26	14006	5.1
CUM(3/8" X 100M)	100.0	14.9	6.80	12544	12.8
100M X 0	4.2	20.2	7.97	11599	16.6
TOTAL(3/8" X 0)	100.0	15.1	6.85	12504	12.9

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.3	1.9	.33	14861	2.2
FLOAT 1.40	63.7	3.5	.90	14576	3.0
FLOAT 1.60	78.5	6.2	1.90	14095	4.5
CUM(14M X 0)	100.0	15.2	7.01	12490	13.1

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	78.8
3/8" X 14M	16.9
14M X 100M	3.4
100M X 0	.9

----- MOISTURE, % -----

TOTAL AS RECEIVED	4.1 1.7
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STATE: PENNSYLVANIA
COUNTY: CLARION

BED: CLARION
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 87
SAMPLE NO. 229

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.70	1.60	--	--	--	--
ASH	14.25	6.10 47.72	14.50	6.20 48.50	--	--
VOLATILE MATTER	38.64	42.00 25.39	39.31	42.69 25.80	45.98	45.51
FIXED CARBON	45.40	50.29 25.29	46.19	51.11 25.70	54.02	54.49
BTU/LB	12187	14041 6491	12398	14269 6596	14501	15212
						12808

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	7.67	3.13 26.12	7.80	3.18 26.54	9.12	3.39
OXYGEN	--	--	--	--	--	--
ASH	14.25	6.10 47.72	14.50	6.20 48.50	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	6.25	1.76 25.26	6.36	1.79 25.67	7.44	1.91
SULFATIC	.12	.06 .18	.12	.06 .18	.14	.06
ORGANIC	1.30	1.31 .68	1.32	1.33 .69	1.54	1.42
TOTAL	7.67	3.13 26.12	7.80	3.18 26.54	9.12	3.39

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2070	2050
SOFTENING TEMPERATURE (ST)	2120	2100
FLUID TEMPERATURE (FT)	2170	2150

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	19.95	8.45

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	7	1/2
HARDGROVE GRINDABILITY (HGI)	48	48

STATE: PENNSYLVANIA
COUNTY: CLARION

BED: CLARION
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 87
SAMPLE NO. 230

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	47.0	4.7	1.25	14558	3.8
FLOAT 1.40	68.4	6.3	1.72	14273	5.0
FLOAT 1.60	77.2	7.6	2.28	14042	6.1
FLOAT 1.90	81.2	8.7	2.73	13846	7.0
CUM(1-1/2" X 100M)	100.0	17.8	7.00	12225	15.4
100M X 0	.1	33.5	6.02	9429	19.1
TOTAL(1-1/2" X 0)	100.0	17.8	7.00	12222	15.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	49.3	4.4	.95	14611	3.4
FLOAT 1.40	70.3	6.0	1.41	14326	4.5
FLOAT 1.60	77.8	7.1	1.88	14131	5.4
FLOAT 1.90	81.2	8.7	2.73	13846	7.0
CUM(3/8" X 100M)	100.0	17.6	6.71	12261	15.1
100M X 0	.6	24.8	7.55	10978	19.1
TOTAL(3/8" X 0)	100.0	17.6	6.72	12253	15.1

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	45.9	3.6	.56	14754	2.8
FLOAT 1.40	67.1	5.2	.99	14469	3.9
FLOAT 1.60	75.7	6.4	1.48	14255	4.9
FLOAT 1.90	81.2	8.7	2.73	13846	7.0
CUM(14M X 0)	100.0	18.1	6.92	12172	15.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	.1

--- MOISTURE, % ---

TOTAL	1.2
AS RECEIVED	.7

STATE: PENNSYLVANIA
COUNTY: CLARION

BED: CLARION
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 87
SAMPLE NO. 230

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.70	--	--	--	--	--
ASH	17.25	--	--	17.38	--	--
VOLATILE MATTER	37.79	--	--	38.06	--	--
FIXED CARBON	44.25	--	--	44.56	46.06	--
					53.94	--
BTU/LB	13222	--	--	13315	16116	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	8.61	--	--	8.67	--	--
OXYGEN	--	--	--	--	10.50	--
ASH	17.25	--	--	17.38	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	7.17	--	--	7.22	--	--
SULFATIC	.18	--	--	.18	--	--
ORGANIC	1.26	--	--	1.27	--	--
TOTAL	8.61	--	--	8.67	1.54	--
					10.50	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW
OXIDES	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--
SO3 (SULFITES)	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	23.54	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLomite	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

STATE: PENNSYLVANIA
COUNTY: VENANGO
BED: CLARION
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 87
SAMPLE NO. 231

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.8	3.1	.07	14275	2.6
FLOAT 1.40	71.1	5.0	.12	13961	2.7
FLOAT 1.60	82.4	7.5	.13	13547	2.7
CUM(1-1/2" X 100M)	100.0	17.0	.42	11974	3.3
100M X 0	1.2	39.5	.63	8250	6.1
TOTAL(1-1/2" X 0)	100.0	17.3	.42	11930	3.3

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.1	2.6	.08	14358	2.6
FLOAT 1.40	70.8	4.2	.08	14093	2.6
FLOAT 1.60	80.7	6.3	.09	13746	2.6
CUM(3/8" X 100M)	100.0	16.9	.33	11991	3.2
100M X 0	4.4	34.2	.52	9128	5.1
TOTAL(3/8" X 0)	100.0	17.7	.34	11865	3.3

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.5	1.8	.07	14490	2.6
FLOAT 1.40	65.9	3.6	.09	14192	2.6
FLOAT 1.60	82.0	6.6	.14	13696	2.7
CUM(14M X 0)	100.0	16.0	.32	12140	3.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	58.5
3/8" X 14M	30.9
14M X 100M	9.4
100M X 0	1.2
TOTAL AS RECEIVED	4.2
	2.5

STATE: PENNSYLVANIA BED: CLARION BED CODE: 87
COUNTY: VENANGO RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 231

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.50	1.70	1.70	--	--	--	--	--	--
ASH	16.22	6.75	57.90	16.64	6.86	58.90	--	--	--
VOLATILE MATTER	36.18	40.03	20.74	37.11	40.73	21.10	44.52	43.73	51.34
FIXED CARBON	45.10	51.52	19.66	46.25	52.41	20.00	55.48	56.27	48.66
BTU/LB	11781	13381	4944	12083	13612	5030	14495	14615	12238

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	65.82	74.15	28.26	67.51	75.43	28.75	80.99	80.99	69.95
HYDROGEN	4.96	5.45	2.55	4.80	5.35	2.40	5.75	5.75	5.84
NITROGEN	.84	.92	.49	.86	.93	.50	1.03	1.00	1.22
SULFUR	1.80	2.00	2.05	1.84	2.04	2.09	2.21	2.18	5.08
OXYGEN	10.36	10.74	8.75	8.35	9.39	7.36	10.02	10.08	17.91
ASH	16.22	6.75	57.90	16.64	6.86	58.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.38	.15	1.12	.39	.15	1.14	.47	.17	2.77
SULFATIC	.07	.06	.09	.08	.06	.09	.09	.06	.22
ORGANIC	1.35	1.79	.84	1.38	1.82	.86	1.66	1.96	2.09
TOTAL	1.80	2.00	2.05	1.84	2.04	2.09	2.21	2.18	5.08

MINERAL ANALYSIS OF ASH, % FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

OXIDES	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	RAW	FL 1.60	SK 1.60
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	2570	2550	2640
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	2620	2600	2730
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	2740	2650	2910+
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	MISCELLANEOUS DATA, %		
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	CL (CHLORINE) (ANALYZED)	RAW	FL 1.60
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	NA (SODIUM) (CALCULATED)	.00	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	MINERAL MATTER (PARR)	18.99	8.54
SO3 (SULFITES)	--	--	--	--	--	--	PHYSICAL PARAMETERS, INDEX		

COAL UTILIZATION RATIOS

	RAW		FL 1.60	
	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	.85	.85	RAW	FL 1.60
OXYGEN/CARBON	.09	.09	4	5
R250	--	--	57	--
SILICA	--	--	HARDGROVE GRINDABILITY (HGI)	
SILICA/ALUMINA	--	--	(FSI)	

STATE: PENNSYLVANIA
COUNTY: SOMERSET
BED: LOWER BAKERSTOWN
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 63
SAMPLE NO. 232

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.1	34.7	3.5	.69	15110	2.0
FLOAT 1.40	91.7	93.4	5.7	1.18	14682	2.7
FLOAT 1.60	98.2	99.0	6.5	1.28	14543	2.9
CUM(1-1/2" X 100M)	100.0	100.0	7.2	1.43	14421	3.1
100M X 0	2.8	2.7	11.1	1.79	13737	3.6
TOTAL(1-1/2" X 0)	100.0	100.0	7.3	1.44	14402	3.1

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.9	37.8	3.0	.63	15200	1.9
FLOAT 1.40	89.8	92.0	5.3	.95	14774	2.3
FLOAT 1.60	97.2	98.4	6.3	1.09	14601	2.5
CUM(3/8" X 100M)	100.0	100.0	7.2	1.38	14425	3.0
100M X 0	9.2	9.0	9.1	1.85	14095	3.9
TOTAL(3/8" X 0)	100.0	100.0	7.4	1.42	14394	3.0

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.1	46.6	2.8	.57	15260	1.8
FLOAT 1.40	84.6	87.6	4.4	.71	14949	2.0
FLOAT 1.60	96.4	98.2	5.7	.86	14698	2.2
CUM(14M X 0)	100.0	100.0	7.2	1.35	14429	2.9

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	57.1	TOTAL AS RECEIVED 5.0 .4
3/8" X 14M	28.1	
14M X 100M	12.0	
100M X 0	2.8	

----- MOISTURE, % -----

STATE: PENNSYLVANIA

COUNTY: SOMERSET

BED: LOWER BAKERSTOWN

RANK: LOW VOLATILE BITUMINOUS

BED CODE: 63

SAMPLE NO. 232

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW

FL 1.60

SK 1.60

MOISTURE

7.07

.90

.80

ASH

20.42

5.87

47.42

VOLATILE MATTER

72.11

20.43

16.47

FIXED CARBON

14387

72.80

35.32

BTU/LB

14531

7113

14445

MOISTURE FREE

RAW

FL 1.60

SK 1.60

MOISTURE

22.07

5.93

47.80

ASH

77.93

20.61

16.60

FIXED CARBON

15549

73.46

35.60

BTU/LB

15586

7170

14663

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

MOISTURE

21.91

5.93

47.80

ASH

78.09

20.61

16.60

FIXED CARBON

15549

73.46

35.60

BTU/LB

15586

7170

14663

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

CARBON

81.59

82.48

34.91

HYDROGEN

4.50

4.59

2.21

NITROGEN

1.58

1.60

.58

SULFUR

2.06

1.64

14.17

OXYGEN

3.21

3.82

2.86

ASH

7.07

5.87

47.42

MOISTURE FREE

RAW

FL 1.60

SK 1.60

CARBON

81.92

83.23

35.20

HYDROGEN

4.47

4.53

2.14

NITROGEN

1.59

1.61

.58

SULFUR

2.07

1.65

14.28

OXYGEN

2.86

3.05

2.86

ASH

7.10

5.93

47.80

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

CARBON

88.18

88.47

67.42

HYDROGEN

4.81

4.82

4.10

NITROGEN

1.71

1.72

1.12

SULFUR

2.22

1.75

27.36

OXYGEN

3.08

3.24

3.24

ASH

3.08

3.24

3.24

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

PYRITIC

1.29

.83

13.96

SULFATIC

.01

.01

.02

ORGANIC

.75

.79

.19

TOTAL

2.06

1.64

14.17

MOISTURE FREE

RAW

FL 1.60

SK 1.60

PYRITIC

1.30

.84

14.07

SULFATIC

.02

.01

.02

ORGANIC

.75

.80

.19

TOTAL

2.07

1.65

14.28

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

PYRITIC

1.40

.89

26.95

SULFATIC

.02

.01

.04

ORGANIC

.81

.85

.37

TOTAL

2.22

1.75

27.36

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

OXIDES

--

--

--

SiO2

--

--

--

AL2O3

--

--

--

Fe2O3

--

--

--

TiO2

--

--

--

CaO

--

--

--

MgO

--

--

--

Na2O

--

--

--

K2O

--

--

--

SO3

--

--

--

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

OXIDES

--

--

--

SiO2

--

--

--

AL2O3

--

--

--

Fe2O3

--

--

--

TiO2

--

--

--

CaO

--

--

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MgO

--

--

--

Na2O

--

--

--

K2O

--

--

--

SO3

--

--

--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

INITIAL DEFORMATION (ID)

2080

2260

2360

SOFTENING TEMPERATURE (ST)

2130

2360

2460

FLUID TEMPERATURE (FT)

2430

2460

2460

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)

.06

--

--

NA (SODIUM) (CALCULATED)

--

--

--

MINERAL MATTER (PARR)

8.80

7.31

59.48

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)

9

8 1/2

--

HARDGROVE GRINDABILITY (HGI)

110

--

--

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: LOWER BAKERSTOWN
RANK: MED VOLATILE BITUMINOUS

BED CODE: 63
SAMPLE NO. 233

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	66.8	72.9	3.8	.71	15043	2.1
FLOAT 1.40	85.3	92.1	4.7	1.10	14876	2.6
FLOAT 1.60	91.1	97.3	5.6	1.39	14708	3.0
CUM(1-1/2" X 100M)	100.0	100.0	10.6	2.60	13778	4.9
100M X 0	2.1	2.0	12.8	5.07	13368	8.7
TOTAL(1-1/2" X 0)	100.0	100.0	10.6	2.65	13769	4.9

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	70.9	78.4	3.3	.42	15136	1.7
FLOAT 1.40	85.0	93.0	4.2	.65	14969	2.0
FLOAT 1.60	89.2	96.7	4.9	.84	14839	2.3
CUM(3/8" X 100M)	100.0	100.0	11.1	2.43	13685	4.7
100M X 0	8.7	8.9	9.1	3.51	14057	6.0
TOTAL(3/8" X 0)	100.0	100.0	10.9	2.52	13717	4.8

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	61.7	68.5	2.7	.27	15248	1.5
FLOAT 1.40	84.2	92.3	3.7	.44	15062	1.8
FLOAT 1.60	89.1	96.9	4.3	.55	14950	1.9
CUM(14M X 0)	100.0	100.0	10.8	2.62	13740	5.0

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	30.0
3/8" X 14M	49.6
14M X 100M	18.3
100M X 0	2.1

----- MOISTURE, % -----
TOTAL
AS RECEIVED
5.0
2.8

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: LOWER BAKERSTOWN
RANK: MED VOLATILE BITUMINOUS

BED CODE: 63
SAMPLE NO. 233

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.80	.80	.80	--	--	--
ASH	10.98	4.36	62.79	11.30	4.40	63.30
VOLATILE MATTER	20.88	21.96	16.07	21.48	22.14	16.20
FIXED CARBON	65.34	72.87	20.34	67.22	73.46	20.50
BTU/LB	13256	14820	3938	13638	14940	3970
					15375	15628
						10817

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	75.86	84.99	17.27	78.05	85.67	17.41
HYDROGEN	4.86	5.13	1.48	4.68	5.08	1.40
NITROGEN	1.46	1.63	.35	1.51	1.65	.35
SULFUR	3.20	1.43	17.90	3.29	1.44	18.04
OXYGEN	3.63	2.46	--	1.17	1.76	--
ASH	10.98	4.36	62.79	11.30	4.40	63.30

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.65	.51	17.45	2.73	.51	17.59
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.53	.91	.44	.55	.92	.44
TOTAL	3.20	1.43	17.90	3.29	1.44	18.04

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES (SILICON OXIDE)	--	--	--
SiO2 (ALUMINUM OXIDE)	--	--	--
Al2O3 (IRON OXIDE)	--	--	--
Fe2O3 (TITANIUM OXIDE)	--	--	--
TiO2 (CALCIUM OXIDE)	--	--	--
CaO (MAGNESIUM OXIDE)	--	--	--
MgO (SODIUM OXIDE)	--	--	--
Na2O (POTASSIUM OXIDE)	--	--	--
K2O (SULFITES)	--	--	--
SO3	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.72	.71
OXYGEN/CARBON	.01	.02
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2090	2250	1980
SOFTENING TEMPERATURE (ST)	2180	2300	2030
FLUID TEMPERATURE (FT)	2450	2470	2080
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.10	--	--
MINERAL MATTER (PARR)	14.01	5.54	78.01

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	0
HARDGROVE GRINDABILITY (HGI)	114	--	--

STATE: PENNSYLVANIA
COUNTY: WESTMORELAND
BED: LOWER BAKERTOWN
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 63
SAMPLE NO. 234

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.6	2.8	.23	15100	1.3
FLOAT 1.40	85.7	5.1	.42	14693	1.7
FLOAT 1.60	90.4	5.8	.50	14576	1.8
CUM(1-1/2" X 100M)	100.0	10.9	1.16	13665	2.8
100M X 0	1.6	11.2	.95	13548	5.2
TOTAL(1-1/2" X 0)	100.0	10.9	1.16	13663	2.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.8	2.7	.17	15080	1.1
FLOAT 1.40	83.2	4.5	.25	14791	1.3
FLOAT 1.60	88.1	5.3	.30	14645	1.3
CUM(3/8" X 100M)	100.0	11.5	1.25	13529	2.8
100M X 0	12.6	7.9	.82	14156	2.9
TOTAL(3/8" X 0)	100.0	11.0	1.20	13608	2.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.2	2.3	.10	15147	1.1
FLOAT 1.40	83.1	3.8	.15	14885	1.2
FLOAT 1.60	89.2	4.9	.19	14691	1.3
CUM(14M X 0)	100.0	11.0	1.10	13568	2.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	64.5
3/8" X 14M	26.9
14M X 100M	7.0
100M X 0	1.6

MOISTURE, %

TOTAL	3.2
AS RECEIVED	1.3

STATE: PENNSYLVANIA BED: LOWER BAKERSTOWN BED CODE: 63
COUNTY: WESTMORELAND RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 234

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.30	1.10	--	--	--	--
ASH	11.15	5.04	11.30	5.10	--	--
VOLATILE MATTER	31.31	33.32	31.73	33.69	35.77	35.50
FIXED CARBON	56.23	60.54	56.97	61.21	64.23	64.50
BTU/LB	13347	14500	13523	14661	15245	15448

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	76.30	81.42	77.31	82.33	87.15	86.75
HYDROGEN	4.94	5.30	4.86	5.23	5.48	5.51
NITROGEN	1.29	1.40	1.31	1.42	1.47	1.49
SULFUR	1.67	.97	1.69	.98	1.91	1.03
OXYGEN	4.64	5.87	3.53	4.95	3.98	5.21
ASH	11.15	5.04	11.30	5.10	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.02	.21	1.04	.21	1.17	.22
SULFATIC	.06	.04	.06	.01	.07	.04
ORGANIC	.59	.72	.60	.73	.67	.77
TOTAL	1.67	.97	1.69	.98	1.91	1.03

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES						
SiO ₂ (SILICON OXIDE)	50.29	52.84				
Al ₂ O ₃ (ALUMINUM OXIDE)	26.40	31.30				
Fe ₂ O ₃ (IRON OXIDE)	16.87	7.72				
TiO ₂ (TITANIUM OXIDE)	1.33	1.67				
CaO (CALCIUM OXIDE)	.70	1.43				
MgO (MAGNESIUM OXIDE)	.80	.73				
Na ₂ O (SODIUM OXIDE)	.40	.20				
K ₂ O (POTASSIUM OXIDE)	2.34	2.39				
SO ₃ (SULFITES)	.67	1.28				

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.27	.15
DOLOMITE	.07	.17
HYDROGEN/CARBON	.75	.76
OXYGEN/CARBON	.04	.05
R ₂ SO	.81	.90
SILICA	.73	.84
SILICA/ALUMINA	1.90	1.69

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)						
SOFTENING TEMPERATURE (ST)						
FLUID TEMPERATURE (FT)						
MISCELLANEOUS DATA, %						
CL (CHLORINE) (ANALYZED)						
NA (SODIUM) (CALCULATED)						
MINERAL MATTER (PARR)						
PHYSICAL PARAMETERS, INDEX						
FREE SWELLING (FSI)						
HARDGROVE GRINDABILITY (HGI)						

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 235

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.8	5.2	.60	14632	1.4
FLOAT 1.40	75.1	7.0	.80	14305	1.7
FLOAT 1.60	81.7	8.4	1.03	14050	2.0
FLOAT 1.90	85.6	9.9	1.16	13778	2.3
CUM(1-1/2" X 100M)	100.0	20.6	1.24	11832	2.7
100M X 0	.9	20.8	1.30	11793	2.8
TOTAL(1-1/2" X 0)	100.0	20.6	1.24	11831	2.7

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.3	4.8	.27	14705	.9
FLOAT 1.40	76.4	6.2	.37	14450	1.0
FLOAT 1.60	81.8	7.4	.51	14232	1.2
FLOAT 1.90	85.6	9.9	1.16	13778	2.3
CUM(3/8" X 100M)	100.0	19.1	1.40	12104	2.8
100M X 0	2.0	19.2	1.39	12095	2.8
TOTAL(3/8" X 0)	100.0	19.1	1.40	12104	2.8

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.4	5.5	.15	14578	.8
FLOAT 1.40	72.7	7.5	.23	14214	.9
FLOAT 1.60	82.9	9.4	.31	13869	1.0
FLOAT 1.90	85.6	9.9	1.16	13778	2.3
CUM(14M X 0)	100.0	19.9	1.27	11959	2.7

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.9

----- MOISTURE, % -----

TOTAL	2.0
AS RECEIVED	1.2

STATE: PENNSYLVANIA		BED: LOWER FREEPORT		BED CODE: 74	
COUNTY: ARMSTRONG		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 235	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
MOISTURE ASH VOLATILE MATTER FIXED CARBON	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	1.20	-- --	-- --	-- --	-- --
	20.45	-- --	20.70	-- --	-- --
	30.06	-- --	30.42	-- --	38.36
48.29	-- --	48.88	-- --	61.63	
BTU/LB	12100	-- --	12246	-- --	15442
----- ULTIMATE ANALYSIS, % -----					
CARBON HYDROGEN NITROGEN SULFUR OXYGEN ASH	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	-- --	-- --	-- --	-- --	-- --
	-- --	-- --	-- --	-- --	-- --
	1.76	-- --	1.78	-- --	2.24
20.45	-- --	20.70	-- --	-- --	
----- SULFUR FORMS ANALYSIS, % -----					
PYRITIC SULFATIC ORGANIC TOTAL	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	1.35	-- --	1.37	-- --	1.73
	.00	-- --	.00	-- --	.00
	.41	-- --	.41	-- --	.52
1.76	-- --	1.78	-- --	2.24	
----- MINERAL ANALYSIS OF ASH, % -----					
OXIDES SiO2 (SILICON OXIDE) AL2O3 (ALUMINUM OXIDE) Fe2O3 (IRON OXIDE) TiO2 (TITANIUM OXIDE) CaO (CALCIUM OXIDE) MgO (MAGNESIUM OXIDE) Na2O (SODIUM OXIDE) K2O (POTASSIUM OXIDE) SO3 (SULFITES)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	-- --	-- --	-- --	-- --	-- --
	-- --	-- --	-- --	-- --	-- --
	-- --	-- --	-- --	-- --	-- --
	-- --	-- --	-- --	-- --	-- --
	-- --	-- --	-- --	-- --	-- --
	-- --	-- --	-- --	-- --	-- --
	-- --	-- --	-- --	-- --	-- --
	-- --	-- --	-- --	-- --	-- --
	-- --	-- --	-- --	-- --	-- --
	-- --	-- --	-- --	-- --	-- --
	-- --	-- --	-- --	-- --	-- --
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----					
----- MISCELLANEOUS DATA, % -----					
CL (CHLORINE) (ANALYZED) NA (SODIUM) (CALCULATED) MINERAL MATTER (PARR)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	-- --	-- --	-- --	-- --	-- --
	-- --	-- --	-- --	-- --	-- --
----- PHYSICAL PARAMETERS, INDEX -----					
FREE SWELLING (FSI) HARDGROVE GRINDABILITY (HGI)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	-- --	-- --	-- --	-- --	-- --
	-- --	-- --	-- --	-- --	-- --

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 236

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	39.4	4.4	.44	14778	1.6
FLOAT 1.40	78.2	6.7	.76	14360	2.2
FLOAT 1.60	90.5	8.6	1.02	14014	2.6
FLOAT 1.90	95.8	10.4	1.18	13687	2.9
CUM(1-1/2" X 100M)	100.0	12.6	1.57	13287	3.6
100M X 0	.3	11.4	1.93	13505	4.0
TOTAL(1-1/2" X 0)	100.0	12.6	1.57	13287	3.6

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	49.3	4.1	.28	14832	1.3
FLOAT 1.40	77.9	5.8	.43	14523	1.6
FLOAT 1.60	89.3	7.6	.61	14196	1.9
FLOAT 1.90	95.8	10.4	1.18	13687	2.9
CUM(3/8" X 100M)	100.0	12.4	1.46	13323	3.4
100M X 0	.7	11.6	2.02	13468	4.2
TOTAL(3/8" X 0)	100.0	12.4	1.46	13324	3.4

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	44.0	2.8	.13	15069	1.1
FLOAT 1.40	73.3	4.9	.24	14687	1.3
FLOAT 1.60	87.6	7.1	.38	14287	1.5
FLOAT 1.90	95.8	10.4	1.18	13687	2.9
CUM(14M X 0)	100.0	12.6	1.44	13287	3.4

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.3

----- MOISTURE, % -----
TOTAL
AS RECEIVED

1.6
.9

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 236

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.90	--	--	--	--	--
ASH	12.68	--	12.80	--	--	--
VOLATILE MATTER	32.50	--	32.80	--	37.61	--
FIXED CARBON	53.91	--	54.40	--	62.39	--
BTU/LB	13340	--	13461	--	15437	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.20	--	2.22	--	2.54	--
OXYGEN	--	--	--	--	--	--
ASH	12.68	--	12.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.55	--	1.57	--	1.80	--
SULFATIC	.00	--	.00	--	.00	--
ORGANIC	.64	--	.65	--	.75	--
TOTAL	2.20	--	2.22	--	2.54	--

MINERAL ANALYSIS OF ASH, %
FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 237

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.10	1.40	1.00	--	--	--	--	--	--
ASH	11.20	7.30	50.99	11.80	7.40	51.50	--	--	--
VOLATILE MATTER	32.44	35.02	21.98	34.18	35.52	22.20	38.75	38.36	45.77
FIXED CARBON	51.26	56.28	26.04	54.02	57.08	26.30	61.25	61.64	54.23
BTU/LB	12612	13843	5465	13290	14040	5520	15068	15162	11381

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	69.98	77.39	25.95	73.74	78.49	26.22	83.61	84.76	54.06
HYDROGEN	5.11	5.19	1.88	4.79	5.11	1.79	5.43	5.52	3.68
NITROGEN	1.14	1.28	.37	1.21	1.29	.38	1.37	1.40	.77
SULFUR	3.49	1.51	19.92	3.68	1.53	20.13	4.17	1.65	41.50
OXYGEN	9.07	7.33	--	4.78	6.18	--	5.42	6.67	--
ASH	11.20	7.30	50.99	11.80	7.40	51.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.71	.80	19.06	2.86	.81	19.25	3.24	.87	39.69
SULFATIC	.04	.02	.06	.04	.02	.06	.05	.02	.12
ORGANIC	.74	.69	.81	.78	.70	.81	.88	.76	1.68
TOTAL	3.49	1.51	19.92	3.68	1.53	20.13	4.17	1.65	41.50

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLomite	--	--
HYDROGEN/CARBON	.78	.78
OXYGEN/CARBON	.05	.06
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2040	2310	2000
SOFTENING TEMPERATURE (ST)	2140	2360	2050
FLUID TEMPERATURE (FT)	2250	2460	2100

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.15	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	14.77	8.83	66.69

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	8	0
HARDGROVE GRINDABILITY (HGI)	56	--	--

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 238

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.0	3.9	1.07	14679	2.7
FLOAT 1.40	75.2	7.9	1.67	13952	3.7
FLOAT 1.60	91.5	10.0	1.97	13571	4.3
CUM(1-1/2" X 100M)	100.0	13.3	3.02	12971	6.0
100M X 0	1.1	14.2	4.15	12807	8.2
TOTAL(1-1/2" X 0)	100.0	13.3	3.03	12969	6.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.5	3.0	.42	14843	1.9
FLOAT 1.40	72.8	6.4	.94	14225	2.8
FLOAT 1.60	88.3	8.9	1.35	13770	3.4
CUM(3/8" X 100M)	100.0	13.6	2.89	12916	6.0
100M X 0	5.4	10.9	3.36	13407	6.1
TOTAL(3/8" X 0)	100.0	13.5	2.92	12943	6.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.8	2.5	.30	14934	1.6
FLOAT 1.40	73.8	6.8	.63	14152	2.2
FLOAT 1.60	87.8	8.7	.88	13807	2.5
CUM(14M X 0)	100.0	13.9	2.95	12862	5.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	72.1
3/8" X 14M	21.6
14M X 100M	5.2
100M X 0	1.1

MOISTURE, %

TOTAL	6.1
AS RECEIVED	3.6

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO.: 238

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.60	1.20	1.70	--	--	--
ASH	13.69	8.25	50.92	14.20	8.35	51.80
VOLATILE MATTER	35.35	38.42	21.92	36.67	38.89	22.30
FIXED CARBON	47.36	52.13	25.46	49.13	52.76	25.90
BTU/LB	12373	13680	5869	12835	13846	5970

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	68.91	76.05	28.17	71.48	76.98	28.66
HYDROGEN	5.14	5.40	2.21	4.92	5.33	2.05
NITROGEN	1.29	1.45	.46	1.34	1.47	.47
SULFUR	3.79	1.76	16.73	3.93	1.78	17.02
OXYGEN	7.18	7.09	--	4.13	6.09	--
ASH	13.69	8.25	50.92	14.20	8.35	51.80

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.00	.78	16.38	3.11	.79	16.66
SULFATIC	.00	.00	.00	.00	.00	.00
ORGANIC	.79	.98	.36	.82	.99	.36
TOTAL	3.79	1.76	16.73	3.93	1.78	17.02

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO ₂ (SILICON OXIDE)	--	--	--	--	--	--
Al ₂ O ₃ (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe ₂ O ₃ (IRON OXIDE)	--	--	--	--	--	--
TiO ₂ (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na ₂ O (SODIUM OXIDE)	--	--	--	--	--	--
K ₂ O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO ₃ (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.83	.83	.83	.15	.15	.15
OXYGEN/CARBON	.04	.06	.06	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2090	2190	2190	2090	2190	2190
SOFTENING TEMPERATURE (ST)	2140	--	--	2140	--	--
FLUID TEMPERATURE (FT)	2190	--	--	2190	--	--
MISCELLANEOUS DATA, %	--	--	--	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	17.50	10.00	65.31	17.50	10.00	65.31
FREE SWELLING (FSI)	7 1/2	8	--	7 1/2	8	--
HARDGROVE GRINDABILITY (HGI)	56	--	--	56	--	--

STATE: PENNSYLVANIA		BED: LOWER FREEPORT		BED CODE: 74	
COUNTY: BUTLER		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 239	
CUMULATIVE WASHABILITY DATA (DRY BASIS)					
----- SAMPLE CRUSHED TO PASS 1-1/2" -----					
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)					
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	5.3	3.1	.18	15014	1.2
FLOAT 1.40	73.5	8.9	.90	13959	2.5
FLOAT 1.60	94.5	11.8	1.03	13432	2.8
FLOAT 1.90	97.6	12.7	1.12	13268	3.0
CUM(1-1/2" X 100M)	100.0	13.9	1.33	13050	3.5
100M X 0	.2	12.5	3.20	13305	6.7
TOTAL(1-1/2" X 0)	100.0	13.9	1.33	13051	3.5
----- SAMPLE CRUSHED TO PASS 3/8" -----					
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)					
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	21.6	2.8	.11	15069	1.1
FLOAT 1.40	70.2	7.2	.40	14269	1.6
FLOAT 1.60	91.9	10.5	.66	13650	2.1
FLOAT 1.90	97.6	12.7	1.12	13268	3.0
CUM(3/8" X 100M)	100.0	13.5	1.24	13105	3.3
100M X 0	.9	13.2	3.06	13177	6.4
TOTAL(3/8" X 0)	100.0	13.6	1.26	13105	3.3
----- SAMPLE CRUSHED TO PASS 14M -----					
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)					
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.0	2.6	.09	15105	1.0
FLOAT 1.40	66.2	5.8	.19	14523	1.2
FLOAT 1.60	88.1	9.0	.35	13941	1.5
FLOAT 1.90	97.6	12.7	1.12	13268	3.0
CUM(14M X 0)	100.0	13.6	1.47	13105	3.6
RAW COAL SIZE AND MOISTURE ANALYSES					
----- SIZE DISTRIBUTION, % -----					
SAMPLE CRUSHED TO PASS 1-1/2"					
1-1/2" X 3/8"	--	MOISTURE, %			
3/8" X 14M	--	TOTAL			
14M X 100M	--	AS RECEIVED			
100M X 0	.2	TOTAL			
		AS RECEIVED			
		3.5			
		2.2			

STATE: PENNSYLVANIA

COUNTY: BUTLER

BED: LOWER FREEPORT

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74

SAMPLE NO. 239

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

MOISTURE FREE

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

MOISTURE

2.20

--

--

--

--

--

ASH

13.69

--

--

14.00

--

--

VOLATILE MATTER

32.27

--

--

33.00

--

38.37

FIXED CARBON

51.83

--

--

53.00

--

61.63

BTU/LB

12716

--

--

13002

--

15119

ULTIMATE ANALYSIS, %

AS RECEIVED

MOISTURE FREE

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

CARBON

--

--

--

--

--

--

HYDROGEN

--

--

--

--

--

--

NITROGEN

--

--

--

--

--

--

SULFUR

2.03

--

2.07

--

--

2.41

OXYGEN

--

--

--

--

--

--

ASH

13.69

--

14.00

--

--

--

SULFUR FORMS ANALYSIS, %

AS RECEIVED

MOISTURE FREE

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

PYRITIC

1.39

--

--

1.42

--

1.65

SULFATIC

.09

--

--

.09

--

.10

ORGANIC

.55

--

--

.56

--

.65

TOTAL

2.03

--

2.07

--

--

2.41

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

MOISTURE FREE

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

OXIDES

--

--

--

--

--

--

SiO2 (SILICON OXIDE)

--

--

--

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--

--

Al2O3 (ALUMINUM OXIDE)

--

--

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Fe2O3 (IRON OXIDE)

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TiO2 (TITANIUM OXIDE)

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CaO (CALCIUM OXIDE)

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MgO (MAGNESIUM OXIDE)

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Na2O (SODIUM OXIDE)

--

--

--

--

--

--

K2O (POTASSIUM OXIDE)

--

--

--

--

--

--

SO3 (SULFITES)

--

--

--

--

--

--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

INITIAL DEFORMATION (ID)

SOFTENING TEMPERATURE (ST)

FLUID TEMPERATURE (FT)

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

--

--

--

--

--

--

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

--

--

--

--

--

16.26

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

--

--

--

--

--

--

COAL UTILIZATION RATIOS

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

RAW

FL 1.60

RAW

FL 1.60

RAW

FL 1.60

RAW

FL 1.60

--

--

--

--

--

--

STATE: PENNSYLVANIA
COUNTY: BUTLER
BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 74
SAMPLE NO. 240

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.9	3.5	.44	14524	1.7
FLOAT 1.40	68.1	5.7	1.00	14132	2.5
FLOAT 1.60	84.8	8.8	1.56	13580	3.5
CUM(1-1/2" X 100M)	100.0	16.2	3.01	12262	6.1
100M X 0	.8	17.7	5.92	11995	11.7
TOTAL(1-1/2" X 0)	100.0	16.2	3.03	12260	6.2

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.4	2.8	.16	14648	1.3
FLOAT 1.40	69.0	5.0	.60	14256	1.8
FLOAT 1.60	82.9	7.7	1.05	13776	2.6
CUM(3/8" X 100M)	100.0	16.4	2.75	12226	5.7
100M X 0	3.5	15.3	4.98	12422	9.1
TOTAL(3/8" X 0)	100.0	16.4	2.83	12233	5.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.2	2.7	.16	14666	1.3
FLOAT 1.40	66.2	4.8	.34	14292	1.6
FLOAT 1.60	84.6	7.8	.81	13758	2.2
CUM(14M X 0)	100.0	15.7	2.91	12351	5.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	79.0
3/8" X 14M	17.9
14M X 100M	2.3
100M X 0	.8

MOISTURE, %

TOTAL	5.2
AS RECEIVED	3.9

STATE: PENNSYLVANIA
COUNTY: BUTLER

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 240

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.90	1.60	1.80	--	--	--	--	--	--
ASH	15.69	7.48	57.64	16.33	7.60	58.70	--	--	--
VOLATILE MATTER	34.04	37.53	20.62	35.42	38.14	21.00	42.33	41.27	50.85
FIXED CARBON	46.37	53.39	19.93	48.25	54.26	20.30	57.67	58.72	49.15
BTU/LB	11777	13560	4606	12255	13780	4690	14646	14913	11356

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	65.23	75.38	24.01	67.88	76.61	24.45	81.13	82.91	59.19
HYDROGEN	4.91	5.32	1.93	4.66	5.23	1.76	5.57	5.66	4.26
NITROGEN	1.24	1.46	.38	1.29	1.48	.39	1.55	1.60	.95
SULFUR	3.69	1.47	14.44	3.83	1.49	14.70	4.58	1.61	35.60
OXYGEN	9.23	8.89	--	6.00	7.59	--	7.17	8.22	--
ASH	15.69	7.48	57.64	16.33	7.60	58.70	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.95	.72	13.87	3.07	.73	14.13	3.67	.79	34.20
SULFATIC	.01	.01	.02	.02	.01	.02	.02	.01	.05
ORGANIC	.72	.74	.55	.75	.75	.56	.90	.81	1.35
TOTAL	3.69	1.47	14.44	3.83	1.49	14.70	4.58	1.61	35.60

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2140	2470	2020
SOFTENING TEMPERATURE (ST)	2200	2520	2090
FLUID TEMPERATURE (FT)	2260	2580	2210

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.11	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	19.74	9.03	71.48

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6	7	5
HARDGROVE GRINDABILITY (HGI)	51	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.82	.82
OXYGEN/CARBON	.07	.07
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

STATE: PENNSYLVANIA
 COUNTY: CAMBRIA
 BED: LOWER FREEPORT
 RANK: MED VOLATILE BITUMINOUS
 BED CODE: 74
 SAMPLE NO. 241

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.8	3.1	38.5	.32	14988	1.2
FLOAT 1.40	81.9	5.9	87.6	.79	14493	2.0
FLOAT 1.60	91.5	7.6	95.8	1.02	14192	2.3
CUM(1-1/2" X 100M)	100.0	11.2	100.0	1.91	1555	3.8
100M X 0	2.3	11.9	2.3	2.35	13432	4.6
TOTAL(1-1/2" X 0)	100.0	11.2	100.0	1.92	13552	3.8

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.6	3.2	57.1	.16	14970	1.0
FLOAT 1.40	82.6	5.3	89.2	.35	14599	1.2
FLOAT 1.60	89.9	6.7	95.4	.48	14351	1.4
CUM(3/8" X 100M)	100.0	11.4	100.0	1.81	13520	3.6
100M X 0	7.0	9.2	7.2	2.53	13909	4.0
TOTAL(3/8" X 0)	100.0	11.2	100.0	1.86	13547	3.6

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.6	2.7	57.2	.21	15058	1.0
FLOAT 1.40	81.7	4.7	88.5	.30	14705	1.3
FLOAT 1.60	90.4	6.3	96.1	.49	14422	1.5
CUM(14M X 0)	100.0	11.1	100.0	1.98	13573	3.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	44.8
3/8" X 14M	39.0
14M X 100M	13.9
100M X 0	2.3
TOTAL AS RECEIVED	2.8

STATE: PENNSYLVANIA		BED: LOWER FREEPORT		BED CODE: 74		
COUNTY: CAMBRIA		RANK: MED VOLATILE BITUMINOUS		SAMPLE NO. 241		
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M						
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----						
MOISTURE ASH VOLATILE MATTER FIXED CARBON BTU/LB	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60		
	.80	1.10 1.30	--	--		
	11.21	5.98 53.35	11.30	6.05 54.05		
	22.20	23.40 11.20	22.37	23.66 11.35		
		65.79 69.51 34.15	66.33 70.29 34.60	25.23 25.19 74.81 75.30		
		13501 14244 5893	13610 14402 5970	15344 15329 12992		
----- ULTIMATE ANALYSIS, % -----						
CARBON HYDROGEN NITROGEN SULFUR OXYGEN ASH	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60		
	--	-- --	--	--		
	--	-- --	--	--		
	2.57	.95 16.68	--	16.90		
		11.21 5.98 53.35	11.30 6.05 54.05	2.92 1.02 36.78		
----- SULFUR FORMS ANALYSIS, % -----						
PYRITIC SULFATIC ORGANIC TOTAL	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60		
	2.01	.44 15.80	2.03	16.01		
	.03	.03 .03	.03	.03		
	.53	.49 .85	.53	.86		
		2.57 .95 16.68	2.59 .96 16.90	2.92 1.02 36.78		
----- MINERAL ANALYSIS OF ASH, % -----						
OXIDES SiO2 (SILICON OXIDE) AL2O3 (ALUMINUM OXIDE) FE2O3 (IRON OXIDE) TiO2 (TITANIUM OXIDE) CaO (CALCIUM OXIDE) MgO (MAGNESIUM OXIDE) Na2O (SODIUM OXIDE) K2O (POTASSIUM OXIDE) SO3 (SULFITES)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60		
	--	-- --	--	--		
	--	-- --	--	--		
	--	-- --	--	--		
		2.01 .44 15.80	2.03 16.01	2.29 .47 34.84		
		.03 .03 .03	.03 .03	.03 .03		
		.53 .49 .85	.53 .86	.60 .52 1.88		
		2.57 .95 16.68	2.59 .96 16.90	2.92 1.02 36.78		
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----						
INITIAL DEFORMATION (ID) SOFTENING TEMPERATURE (ST) FLUID TEMPERATURE (FT)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60		
	--	-- --	--	--		
	--	-- --	--	--		
	--	-- --	--	--		
		2.01 .44 15.80	2.03 16.01	2.29 .47 34.84		
		.03 .03 .03	.03 .03	.03 .03		
		.53 .49 .85	.53 .86	.60 .52 1.88		
		2.57 .95 16.68	2.59 .96 16.90	2.92 1.02 36.78		
----- MISCELLANEOUS DATA, % -----						
CL (CHLORINE) (ANALYZED) NA (SODIUM) (CALCULATED) MINERAL MATTER (PARR)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60		
	--	-- --	--	--		
	--	-- --	--	--		
	--	-- --	--	--		
		2.01 .44 15.80	2.03 16.01	2.29 .47 34.84		
		.03 .03 .03	.03 .03	.03 .03		
		.53 .49 .85	.53 .86	.60 .52 1.88		
		2.57 .95 16.68	2.59 .96 16.90	2.92 1.02 36.78		
----- COAL UTILIZATION RATIOS -----						
BASE/ACID DOLOMITE HYDROGEN/CARBON OXYGEN/CARBON R250 SILICA SILICA/ALUMINA	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60		
	--	-- --	--	--		
	--	-- --	--	--		
	--	-- --	--	--		
		2.01 .44 15.80	2.03 16.01	2.29 .47 34.84		
		.03 .03 .03	.03 .03	.03 .03		
		.53 .49 .85	.53 .86	.60 .52 1.88		
		2.57 .95 16.68	2.59 .96 16.90	2.92 1.02 36.78		
----- PHYSICAL PARAMETERS, INDEX -----						
FREE SWELLING (FSI) HARDGROVE GRINDABILITY (HGI)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60		
	--	-- --	--	--		
	--	-- --	--	--		
	--	-- --	--	--		
		2.01 .44 15.80	2.03 16.01	2.29 .47 34.84		
		.03 .03 .03	.03 .03	.03 .03		
		.53 .49 .85	.53 .86	.60 .52 1.88		
		2.57 .95 16.68	2.59 .96 16.90	2.92 1.02 36.78		

STATE: PENNSYLVANIA
COUNTY: CAMBRIA

BED: LOWER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 74
SAMPLE NO. 242

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.9	3.2	.18	15043	1.2
FLOAT 1.40	78.5	5.3	.51	14672	1.6
FLOAT 1.60	88.0	6.8	.80	14408	2.0
CUM(1-1/2" X 100M)	100.0	11.6	2.14	13562	4.2
100M X 0	1.5	8.8	1.07	14055	3.0
TOTAL(1-1/2" X 0)	100.0	11.6	2.12	13569	4.2

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.5	3.0	.13	15078	1.1
FLOAT 1.40	80.9	4.8	.28	14761	1.2
FLOAT 1.60	86.5	5.7	.35	14602	1.3
CUM(3/8" X 100M)	100.0	12.0	2.11	13491	4.2
100M X 0	9.7	7.3	1.10	14320	2.8
TOTAL(3/8" X 0)	100.0	11.5	2.01	13571	4.0

SAMPLE CRUSHED TO PASS 14#
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.3	2.1	.08	15237	1.0
FLOAT 1.40	80.3	4.3	.18	14849	1.1
FLOAT 1.60	88.5	5.5	.28	14637	1.3
CUM(14M X 0)	100.0	11.4	2.14	13597	4.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	41.5
3/8" X 14M	43.5
14M X 100M	13.5
100M X 0	1.5

MOISTURE, %

TOTAL AS RECEIVED

2.9
1.0

STATE: PENNSYLVANIA		BED: LOWER FREEPORT		BED CODE: 74		
COUNTY: CAMBRIA		RANK: MED VOLATILE BITUMINOUS		SAMPLE NO. 242		
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M						
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----						
MOISTURE ASH VOLATILE MATTER FIXED CARBON BTU/LB	RAW	AS RECEIVED	RAW	MOISTURE FREE	MOISTURE AND ASH FREE	
	FL 1.60	SK 1.60	FL 1.60	SK 1.60	FL 1.60 SK 1.60	
	1.00	.90	--	--	--	
	11.19	5.25 53.93	11.30	5.30 54.53	--	
	22.59	24.66 7.58	22.82	24.88 7.67	25.73 26.27 16.86	
65.22	69.19 37.38	65.88	69.82 37.80	74.27 73.73 83.14		
13504	14518 5923	13640	14650 5989	15378 15470 13172		
----- ULTIMATE ANALYSIS, % -----						
CARBON HYDROGEN NITROGEN SULFUR OXYGEN ASH	RAW	AS RECEIVED	RAW	MOISTURE FREE	MOISTURE AND ASH FREE	
	FL 1.60	SK 1.60	FL 1.60	SK 1.60	FL 1.60 SK 1.60	
	--	--	--	--	--	
	--	--	--	--	--	
	2.87	.84 17.71	2.90	.85 17.91	3.27 .89 39.38	
11.19	5.25 53.93	11.30	5.30 54.53	--		
----- SULFUR FORMS ANALYSIS, % -----						
PYRITIC SULFATIC ORGANIC TOTAL	RAW	AS RECEIVED	RAW	MOISTURE FREE	MOISTURE AND ASH FREE	
	FL 1.60	SK 1.60	FL 1.60	SK 1.60	FL 1.60 SK 1.60	
	2.23	.25 16.27	2.25	.25 16.45	2.54 .27 36.19	
	.04	.03 .05	.04	.03 .05	.05 .03 .11	
	.60	.56 1.39	.61	.56 1.40	.69 .60 3.08	
2.87	.84 17.71	2.90	.85 17.91	3.27 .89 39.38		
----- MINERAL ANALYSIS OF ASH, % -----						
(IN OXIDIZING ATMOSPHERE)						
OXIDES (SILICON OXIDE) AL2O3 (ALUMINUM OXIDE) FE2O3 (IRON OXIDE) TiO2 (TITANIUM OXIDE) CaO (CALCIUM OXIDE) MgO (MAGNESIUM OXIDE) Na2O (SODIUM OXIDE) K2O (POTASSIUM OXIDE) SO3 (SULFITES)	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60	
	--	--	--	2280	2910+ 2060	
	--	--	--	2330	2910+ 2110	
	--	--	--	2430	2910+ 2160	
	--	--	--	----- MISCELLANEOUS DATA, % -----		
	--	--	--	CL (CHLORINE) (ANALYZED)	RAW FL 1.60 SK 1.60	
	--	--	--	NA (SODIUM) (CALCULATED)	--	
	--	--	--	MINERAL MATTER (PARR)	13.80 6.07 68.74	
	----- PHYSICAL PARAMETERS, INDEX -----					
	BASE/ACID DOLOMITE HYDROGEN/CARBON OXYGEN/CARBON R250 SILICA SILICA/ALUMINA	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
		--	--	--	9	9 1
		--	--	--	HARDGROVE GRINDABILITY (HGI)	--

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: LOWER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 74
SAMPLE NO. 243

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	64.4	3.8	.18	15007	.9
FLOAT 1.40	89.3	5.1	.33	14763	1.1
FLOAT 1.60	96.6	6.2	.43	14556	1.3
CUM(1-1/2" X 100M)	100.0	7.6	.99	14294	2.1
100M X 0	1.8	15.4	2.49	12830	5.1
TOTAL(1-1/2" X 0)	100.0	7.7	1.02	14267	2.1

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	62.8	2.8	.05	15194	.7
FLOAT 1.40	83.5	4.0	.07	14969	.8
FLOAT 1.60	94.1	5.3	.13	14725	.8
CUM(3/8" X 100M)	100.0	7.6	1.10	14294	2.2
100M X 0	10.0	6.2	.88	14556	2.0
TOTAL(3/8" X 0)	100.0	7.5	1.08	14320	2.2

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	64.6	2.5	.05	15251	.7
FLOAT 1.40	85.2	3.7	.07	15026	.7
FLOAT 1.60	95.1	4.8	.10	14819	.8
CUM(14M X 0)	100.0	7.0	1.05	14406	2.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	50.8
3/8" X 14M	37.3
14M X 100M	10.1
100M X 0	1.8

TOTAL AS RECEIVED 2.8

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD
BED: LOWER FREEPORT
RANK: MED VOLATILE BITUMINOUS
BED CODE: 74
SAMPLE NO. 243

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	.80	.70	--	--	--	--
ASH	7.24	4.95	7.30	4.99	47.40	--
VOLATILE MATTER	24.94	25.28	25.14	25.49	19.10	26.82
FIXED CARBON	67.02	68.97	67.56	69.52	33.50	72.88
BTU/LB	14305	14599	6772	14717	6820	15556

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.55	.52	1.56	.52	20.17	1.68
OXYGEN	--	--	--	--	--	--
ASH	7.24	4.95	7.30	4.99	47.40	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	1.09	.10	1.10	.10	1.19	.11
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.45	.41	.45	.41	.49	.43
TOTAL	1.55	.52	1.56	.52	1.68	.55

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2500	2910+	2030
SOFTENING TEMPERATURE (ST)	2550	2910+	2080
FLUID TEMPERATURE (FT)	2600	2910+	2130
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	8.74	5.66	62.29

COAL UTILIZATION RATIOS

	RAW	FL 1.60
--	-----	---------

BASE/ACID
DOLOMITE
HYDROGEN/CARBON
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	1
HARDGROVE GRINDABILITY (HGI)	93	94	--

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD
BED: LOWER FREEPORT
RANK: MED VOLATILE BITUMINOUS
BED CODE: 74
SAMPLE NO. 244

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" ----- (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU			
FLOAT 1.30	64.3	4.4	.39	1.03	14778	1.4			
FLOAT 1.40	82.0	5.4	.62	1.32	14596	1.8			
FLOAT 1.60	90.1	6.6	.82	1.55	14378	2.2			
FLOAT 1.90	93.5	7.1	.94	1.70	14287	2.4			
CUM(1-1/2" X 100M)	100.0	11.2	1.60	2.48	13541	3.7			
100M X 0	.3	11.1	2.91	4.26	13559	6.3			
TOTAL(1-1/2" X 0)	100.0	11.2	1.60	2.49	13541	3.7			

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU			
FLOAT 1.30	62.2	3.3	.19	.85	14978	1.1			
FLOAT 1.40	81.3	4.7	.33	1.01	14723	1.4			
FLOAT 1.60	87.7	5.6	.48	1.19	14560	1.6			
FLOAT 1.90	93.5	7.1	.94	1.70	14287	2.4			
CUM(3/8" X 100M)	100.0	11.6	1.65	2.57	13468	3.8			
100M X 0	1.0	11.4	2.90	4.05	13505	6.0			
TOTAL(3/8" X 0)	100.0	11.6	1.66	2.58	13469	3.8			

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU			
FLOAT 1.30	49.9	3.2	.14	.78	1.96	1.0			
FLOAT 1.40	80.4	4.7	.28	.93	14723	1.3			
FLOAT 1.60	89.1	5.9	.44	1.10	14505	1.5			
FLOAT 1.90	93.5	7.1	.94	1.73	14287	2.4			
CUM(14M X 0)	100.0	11.2	1.70	2.63	13541	3.9			

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----		----- MOISTURE, % -----	
SAMPLE CRUSHED TO PASS 1-1/2"			
1-1/2" X 3/8"	--		
3/8" X 14M	--		
14M X 100M	--		
100M X 0	.3		
		TOTAL	.8
		AS RECEIVED	.4

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: LOWER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 74
SAMPLE NO. 244

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.40	--	--	--	--	--
ASH	10.71	--	10.75	--	--	--
VOLATILE MATTER	25.10	--	25.20	--	28.24	--
FIXED CARBON	63.79	--	64.05	--	71.77	--
BTU/LB	13821	--	13876	--	15548	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.40	--	2.41	--	2.70	--
OXYGEN	--	--	--	--	--	--
ASH	10.71	--	10.75	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.73	--	1.74	--	1.95	--
SULFATIC	.11	--	.11	--	.12	--
ORGANIC	.56	--	.56	--	.63	--
TOTAL	2.40	--	2.41	--	2.70	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	12.94	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: PENNSYLVANIA		BED: LOWER FREEPORT		BED CODE: 74	
COUNTY: CLEARFIELD		RANK: MED VOLATILE BITUMINOUS		SAMPLE NO. 245	
CUMULATIVE WASHABILITY DATA (DRY BASIS)					
----- SAMPLE CRUSHED TO PASS 1-1/2" -----					
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	51.7	3.0	.47	15091	1.7
FLOAT 1.40	83.2	4.8	1.02	14765	2.5
FLOAT 1.60	88.6	5.5	1.24	14639	2.8
CUM(1-1/2" X 100M)	100.0	11.9	2.34	13480	4.6
100M X 0	1.5	11.2	3.66	13607	7.0
TOTAL(1-1/2" X 0)	100.0	11.9	2.36	13482	4.6
----- SAMPLE CRUSHED TO PASS 3/8" -----					
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	55.5	3.0	.42	15091	1.7
FLOAT 1.40	82.0	4.5	.81	14820	2.2
FLOAT 1.60	87.5	5.3	1.03	14675	2.5
CUM(3/8" X 100M)	100.0	12.5	2.32	13372	4.5
100M X 0	2.9	11.8	3.75	13498	6.8
TOTAL(3/8" X 0)	100.0	12.5	2.36	13375	4.6
----- SAMPLE CRUSHED TO PASS 14M -----					
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	53.8	2.4	.24	15200	1.7
FLOAT 1.40	79.8	3.9	.47	14928	1.9
FLOAT 1.60	86.0	4.8	.74	14765	2.3
CUM(14M X 0)	100.0	12.6	2.36	13354	4.8
RAW COAL SIZE AND MOISTURE ANALYSES					
----- SIZE DISTRIBUTION, % -----					
SAMPLE CRUSHED TO PASS 1-1/2"					
1-1/2" X 3/8"	38.7	----- MOISTURE, % -----			
3/8" X 14M	43.6	TOTAL			
14M X 100M	16.2	AS RECEIVED			
100M X 0	1.5	2.8			
		.8			

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD
BED: LOWER FREEPORT
RANK: MED VOLATILE BITUMINOUS
BED CODE: 74
SAMPLE NO. 245

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.80	.90	1.00	--	--	--	--	--	--
ASH	12.00	4.76	60.09	12.10	4.80	60.70	--	--	--
VOLATILE MATTER	24.37	25.73	14.95	24.57	25.96	15.10	27.95	27.27	38.42
FIXED CARBON	62.83	68.61	23.96	63.33	69.23	24.20	72.05	72.72	61.58
BTU/LB	13400	14578	4594	13508	14710	4640	15367	15452	11807

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.08	1.49	12.41	3.10	1.50	12.54	3.53	1.58	31.90
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	12.00	4.76	60.09	12.10	4.80	60.70	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.36	.66	12.19	2.38	.67	12.31	2.71	.70	31.33
SULFATIC	.62	.01	.03	.02	.01	.03	.02	.01	.08
ORGANIC	.69	.82	.19	.70	.82	.20	.80	.86	.50
TOTAL	3.08	1.49	12.41	3.10	1.50	12.54	3.53	1.58	31.90

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PARR)	14.77	5.98	72.45	14.77	5.98	72.45	--	--	--

STATE: PENNSYLVANIA
COUNTY: INDIANA
BED: LOWER FREEPORT
RANK: MED VOLATILE BITUMINOUS
BED CODE: 74
SAMPLE NO. 246

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.7	3.1	.10	14953	.9
FLOAT 1.40	78.9	6.0	.29	14423	1.2
FLOAT 1.60	86.2	7.3	.34	14185	1.2
CUM(1-1/2" X 100M)	100.0	15.9	.58	12612	1.7
100M X 0	2.1	13.1	.94	13124	2.4
TOTAL(1-1/2" X 0)	100.0	15.8	.59	12622	1.7

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.9	2.9	.10	14990	.7
FLOAT 1.40	77.1	5.4	.17	14532	.9
FLOAT 1.60	84.2	6.7	.23	14294	1.0
CUM(3/8" X 100M)	100.0	16.5	.65	12502	1.7
100M X 0	6.8	11.0	.74	13508	1.9
TOTAL(3/8" X 0)	100.0	16.1	.66	12570	1.7

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.0	2.6	.14	15044	.8
FLOAT 1.40	74.0	5.4	.14	14532	.9
FLOAT 1.60	85.9	6.9	.14	14258	1.0
CUM(14M X 0)	100.0	15.8	.62	12630	1.8

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	52.9
3/8" X 14M	34.4
14M X 100M	10.6
100M X 0	2.1

----- MOISTURE, %
TOTAL AS RECEIVED
2.9
1.0

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: LOWER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 74
SAMPLE NO. 246

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	1.00	1.20	--	--	--	--
ASH	15.44	6.72	15.60	6.80	--	--
VOLATILE MATTER	23.76	26.68	24.00	27.00	28.43	28.97
FIXED CARBON	59.80	65.40	60.40	66.20	71.57	71.03
BTU/LB	12582	14069	12709	14240	15059	15279

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.06	.62	1.07	.63	1.27	.68
OXYGEN	--	--	--	--	--	--
ASH	15.44	6.72	15.60	6.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	.55	.12	.56	.13	.66	.14
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.50	.49	.50	.49	.59	.53
TOTAL	1.06	.62	1.07	.63	1.27	.68

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2800	2910+	2580
SOFTENING TEMPERATURE (ST)	2850	2910+	2630
FLUID TEMPERATURE (FT)	2910+	2910+	2690

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	17.44	7.69	74.58

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8 1/2	9	1
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: PENNSYLVANIA
 COUNTY: INDIANA
 BED: LOWER FREEPORT
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 74
 SAMPLE NO. 247

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.4	3.5	.60	15045	1.4
FLOAT 1.40	61.0	5.7	.87	14651	1.8
FLOAT 1.60	82.8	9.3	1.43	14006	2.6
CUM(1-1/2" X 100M)	100.0	16.4	2.55	12733	4.6
100M X 0	1.7	13.1	3.02	13325	5.3
TOTAL(1-1/2" X 0)	100.0	16.3	2.56	12743	4.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.3	2.9	.40	15152	1.3
FLOAT 1.40	67.8	5.2	.57	14740	1.6
FLOAT 1.60	78.9	7.3	.74	14364	1.8
CUM(3/8" X 100M)	100.0	16.0	2.34	12805	4.4
100M X 0	7.4	9.7	2.31	13934	4.1
TOTAL(3/8" X 0)	100.0	15.5	2.34	12888	4.4

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.7	2.6	.22	15206	1.2
FLOAT 1.40	69.8	4.6	.31	14848	1.3
FLOAT 1.60	80.1	6.6	.41	14489	1.4
CUM(14M X 0)	100.0	16.0	2.33	12805	4.4

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	52.8
3/8" X 14M	34.9
14M X 100M	10.6
100M X 0	1.7

--- MOISTURE, % ---

TOTAL	2.9
AS RECEIVED	1.8

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 247

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.80	.80	--	--	--	--
ASH	16.34	6.81	16.64	6.86	33.72	32.81
VOLATILE MATTER	27.61	30.31	28.11	30.55	66.28	67.19
FIXED CARBON	54.25	62.08	55.25	62.58	15292	15457
BTU/LB	12518	14281	12747	14396	5840	12920

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	71.13	81.85	72.43	82.51	86.89	88.59
HYDROGEN	4.63	5.14	4.51	5.09	5.42	5.46
NITROGEN	1.31	1.51	1.34	1.52	1.60	1.63
SULFUR	2.52	.95	2.57	.96	3.98	1.03
OXYGEN	4.07	3.74	2.51	3.05	3.01	3.28
ASH	16.34	6.81	16.64	6.86	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.13	.41	2.17	.41	2.60	.44
SULFATIC	.00	.00	.00	.00	.00	.00
ORGANIC	.39	.55	.40	.55	.48	.59
TOTAL	2.52	.95	2.57	.96	3.08	1.03

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.75	.74
OXYGEN/CARBON	.04	.03
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2250	2910+	2090
SOFTENING TEMPERATURE (ST)	2300	2910+	2140
FLUID TEMPERATURE (FT)	2440	2910+	2190

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.17	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (FARR)	18.78	7.94	61.61

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7	8 1/2	1
HARDGROVE GRINDABILITY (HGI)	77	--	--

STATE: PENNSYLVANIA
COUNTY: INDIANA
BED: LOWER FREEPORT
RANK: MED VOLATILE BITUMINOUS
BED CODE: 74
SAMPLE NO. 248

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.0	3.8	.33	14887	1.5
FLOAT 1.40	65.8	5.8	.58	14523	1.8
FLOAT 1.60	79.0	8.6	.70	14014	2.0
FLOAT 1.90	85.0	10.7	.87	13632	2.3
CUM(1-1/2" X 100M)	100.0	20.5	1.55	11850	3.7
100M X 0	.5	16.9	1.84	12505	4.0
TOTAL(1-1/2" X 0)	100.0	20.5	1.55	11853	3.7

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.8	3.5	.14	14941	1.1
FLOAT 1.40	65.9	4.9	.25	14687	1.3
FLOAT 1.60	76.8	7.2	.30	14269	1.4
FLOAT 1.90	85.0	10.7	.87	13632	2.3
CUM(3/8" X 100M)	100.0	21.2	1.75	11723	4.0
100M X 0	1.2	14.6	1.27	12923	3.7
TOTAL(3/8" X 0)	100.0	21.1	1.74	11737	4.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	36.0	2.9	.10	15051	1.0
FLOAT 1.40	63.6	4.8	.20	14705	1.1
FLOAT 1.60	77.6	7.4	.27	14232	1.3
FLOAT 1.90	85.0	10.7	.87	13632	2.3
CUM(14M X 0)	100.0	20.2	1.74	11904	3.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---	TOTAL	.6
3/8" X 14M	---	AS RECEIVED	.4
14M X 100M	---		
100M X 0	.5		

MOISTURE, %

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: LOWER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 74
SAMPLE NO. 248

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE			
ASH	.40		
VOLATILE MATTER	19.31	19.39	
FIXED CARBON	24.35	24.45	30.33
	55.93	56.16	69.67
BTU/LB	12317	12367	15342

ULTIMATE ANALYSIS, %

	AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON			
HYDROGEN			
NITROGEN			
SULFUR	2.15	2.16	2.68
OXYGEN			
ASH	19.31	19.39	

SULFUR FORMS ANALYSIS, %

	AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	1.76	1.77	2.20
SULFATIC	.03	.03	.04
ORGANIC	.36	.36	.45
TOTAL	2.15	2.16	2.68

MINERAL ANALYSIS OF ASH, %

	RAW FL 1.60 SK 1.60
OXIDES	
SiO2 (SILICON OXIDE)	
Al2O3 (ALUMINUM OXIDE)	
Fe2O3 (IRON OXIDE)	
TiO2 (TITANIUM OXIDE)	
CaO (CALCIUM OXIDE)	
MgO (MAGNESIUM OXIDE)	
Na2O (SODIUM OXIDE)	
K2O (POTASSIUM OXIDE)	
SO3 (SULFITES)	

COAL UTILIZATION RATIOS

	RAW FL 1.60
BASE/ACID	
DOLOMITE	
HYDROGEN/CARBON	
OXYGEN/CARBON	
R250	
SILICA	
SILICA/ALUMINA	

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	
SOFTENING TEMPERATURE (ST)	
FLUID TEMPERATURE (FT)	

MISCELLANEOUS DATA, %

	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	
NA (SODIUM) (CALCULATED)	
MINERAL MATTER (FARR)	22.13

PHYSICAL PARAMETERS, INDEX

	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)	
HARDGROVE GRINDABILITY (HGI)	

STATE: PENNSYLVANIA
COUNTY: JEFFERSON

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 249

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.1	50.6	5.4	.37	14350	1.8
FLOAT 1.40	81.4	86.0	7.2	.91	14101	2.5
FLOAT 1.60	92.6	95.8	8.9	1.10	13812	2.9
CUM(1-1/2" X 100M)	100.0	100.0	11.5	1.83	13344	4.0
100M X 0	1.0	.9	15.1	2.75	12211	8.1
TOTAL(1-1/2" X 0)	100.0	100.0	11.5	1.84	13333	4.1

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.3	54.4	4.1	.23	14780	1.2
FLOAT 1.40	79.4	85.7	6.0	.30	14465	1.4
FLOAT 1.60	89.5	94.7	7.5	.49	14183	1.7
CUM(3/8" X 100M)	100.0	100.0	11.7	1.82	13406	4.0
100M X 0	5.4	5.2	12.4	2.45	12879	6.7
TOTAL(3/8" X 0)	100.0	100.0	11.7	1.85	13378	4.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.1	52.9	4.1	.16	14790	1.1
FLOAT 1.40	67.1	75.2	6.1	.20	14439	1.2
FLOAT 1.60	87.2	94.2	7.9	.37	13914	1.5
CUM(14M X 0)	100.0	100.0	11.9	1.87	12884	4.1

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	78.1
3/8" X 14M	16.0
14M X 100M	4.9
100M X 0	1.0

TOTAL AS RECEIVED	3.4 1.4
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STATE: PENNSYLVANIA
COUNTY: JEFFERSON

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 249

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.40	1.40	--	--	--	--
ASH	12.13	7.48 40.15	12.30	7.58 40.72	--	--
VOLATILE MATTER	33.91	34.45 31.63	34.39	32.94 32.08	39.22	37.81 54.12
FIXED CARBON	52.56	56.67 26.82	53.31	57.47 27.20	60.78	62.19 45.88
BTU/LB	13037	13766 5639	13222	13962 5719	15076	15108 9647

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	72.34	79.49 28.10	73.36	80.62 28.50	83.65	87.24 48.07
HYDROGEN	4.89	5.36 1.93	4.80	5.28 1.80	5.48	5.71 3.04
NITROGEN	1.25	1.40 .39	1.27	1.42 .40	1.45	1.54 .67
SULFUR	2.59	.94 13.32	2.62	.95 13.51	2.99	1.03 22.78
OXYGEN	6.81	5.32 16.11	5.64	4.14 15.08	6.43	4.48 25.43
ASH	12.13	7.48 40.15	12.30	7.58 40.72	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.92	.33 11.92	1.95	.33 12.09	2.22	.36 20.39
SULFATIC	.03	.01 .06	.04	.01 .06	.04	.01 .10
ORGANIC	.63	.60 1.34	.64	.61 1.36	.73	.66 2.29
TOTAL	2.59	.94 13.32	2.62	.95 13.51	2.99	1.03 22.78

MINERAL ANALYSIS OF ASH, %

OXIDES	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
SiO2 (SILICON OXIDE)	--	--	--	--	RAW	FL 1.60 SK 1.60
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	2080	2780
Fe2O3 (IRON OXIDE)	--	--	--	--	2180	2910+
TiO2 (TITANIUM OXIDE)	--	--	--	--	2370	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	RAW	FL 1.60 SK 1.60
K2O (POTASSIUM OXIDE)	--	--	--	--	.14	--
SO3 (SULFITES)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.14	--
MINERAL MATTER (PARR)	14.73	8.70 51.40

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)	RAW	FL 1.60 SK 1.60
HARDGROVE GRINDABILITY (HGI)	7 1/2 9 51	55

COAL UTILIZATION RATIOS

BASE/ACID	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.79	--	--	--	--	--
OXYGEN/CARBON	.06	.04	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: JEFFERSON

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 250

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.4	4.1	.58	14650	2.0
FLOAT 1.40	85.7	5.6	1.12	14389	2.7
FLOAT 1.60	93.9	6.7	1.43	14195	3.1
CUM(1-1/2" X 100M)	100.0	9.2	1.95	13764	3.9
100M X 0	1.6	12.3	3.10	13120	6.2
TOTAL(1-1/2" X 0)	100.0	9.2	1.97	13754	3.9

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.1	3.2	.39	14760	1.6
FLOAT 1.40	85.2	4.6	.63	14525	2.0
FLOAT 1.60	92.0	5.5	.85	14367	2.4
CUM(3/8" X 100M)	100.0	9.0	2.08	13736	4.2
100M X 0	6.8	10.4	2.75	13476	6.0
TOTAL(3/8" X 0)	100.0	9.1	2.13	13718	4.3

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.2	2.4	.21	14960	1.6
FLOAT 1.40	83.5	3.9	.36	14692	1.8
FLOAT 1.60	90.5	4.7	.60	14549	2.1
CUM(14M X 0)	100.0	9.1	2.23	13737	4.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	70.8
3/8" X 14M	22.0
14M X 100M	5.6
100M X 0	1.6

MOISTURE, %

TOTAL AS RECEIVED

3.6	3.6
1.5	1.5

STATE: PENNSYLVANIA
COUNTY: JEFFERSON

BED: LOWER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 74
SAMPLE NO. 250

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.50	1.50	1.50	--	--	--	--	--	--
ASH	8.60	4.81	48.24	8.74	4.89	48.98	--	--	--
VOLATILE MATTER	34.46	35.92	19.23	34.99	36.46	19.52	38.34	38.34	38.27
FIXED CARBON	55.43	57.77	31.03	56.27	58.65	31.50	61.66	61.66	61.73
BTU/LB	13585	14302	6156	13792	14520	6250	15112	15267	12249

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	76.22	79.25	30.85	77.38	80.46	31.32	84.79	84.59	61.38
HYDROGEN	5.10	5.37	2.11	5.01	5.29	1.97	5.49	5.56	3.86
NITROGEN	1.29	1.37	.46	1.31	1.39	.47	1.43	1.46	.92
SULFUR	2.63	1.34	17.01	2.67	1.36	17.27	2.93	1.43	33.84
OXYGEN	6.16	7.85	1.33	4.90	6.62	.00	5.37	6.96	.00
ASH	8.60	4.81	48.24	8.74	4.89	48.98	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.00	.53	16.41	2.03	.54	16.66	2.22	.57	32.65
SULFATIC	.16	.02	.06	.16	.02	.06	.18	.02	.12
ORGANIC	.47	.79	.54	.48	.80	.55	.53	.84	1.07
TOTAL	2.63	1.34	17.01	2.67	1.36	17.27	2.93	1.43	33.84

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
	RAW	FL 1.60		RAW	FL 1.60
OXIDES	--	--	SK 1.60	--	--
SiO2 (SILICON OXIDE)	--	--	--	INITIAL DEFORMATION (ID)	2150
Al2O3 (ALUMINUM OXIDE)	--	--	--	SOFTENING TEMPERATURE (ST)	2190
Fe2O3 (IRON OXIDE)	--	--	--	FLUID TEMPERATURE (FT)	2350
TiO2 (TITANIUM OXIDE)	--	--	--	MISCELLANEOUS DATA, %	
CaO (CALCIUM OXIDE)	--	--	--	CL (CHLORINE) (ANALYZED)	RAW FL 1.60 SK 1.60
MgO (MAGNESIUM OXIDE)	--	--	--	NA (SODIUM) (CALCULATED)	RAW FL 1.60 SK 1.60
Na2O (SODIUM OXIDE)	--	--	--	MINERAL MATTER (PARR)	10.90 6.02 62.39
K2O (POTASSIUM OXIDE)	--	--	--	PHYSICAL PARAMETERS, INDEX	
SO3 (SULFITES)	--	--	--	FREE SWELLING (FSI)	RAW FL 1.60 SK 1.60

COAL UTILIZATION RATIOS

	AS RECEIVED			
	RAW	FL 1.60		
BASE/ACID	--	--	SK 1.60	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	.78	.79	7 1/2	7 1/2
OXYGEN/CARBON	.05	.06	66	60
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

STATE: PENNSYLVANIA
 COUNTY: SOMERSET
 BED: LOWER FREEPORT
 RANK: MED VOLATILE BITUMINOUS
 BED CODE: 74
 SAMPLE NO. 251

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.3	2.7	.03	14534	.7
FLOAT 1.40	70.1	3.8	.04	14339	.7
FLOAT 1.60	94.1	5.7	.04	14003	.7
CUM(1-1/2" X 100M)	100.0	7.8	.04	13631	.7
100M X 0	3.1	18.8	.51	11682	1.9
TOTAL(1-1/2" X 0)	100.0	8.1	.05	13570	.8

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.8	3.2	.04	14445	.7
FLOAT 1.40	65.4	3.7	.09	14357	1.0
FLOAT 1.60	93.8	5.5	.09	14038	.9
CUM(3/8" X 100M)	100.0	7.9	.09	13613	.9
100M X 0	5.1	12.6	.18	12780	.9
TOTAL(3/8" X 0)	100.0	8.1	.09	13570	.9

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	1.1	1.7	.07	14711	.7
FLOAT 1.40	67.5	3.2	.09	14445	.8
FLOAT 1.60	94.5	5.1	.09	14109	.8
CUM(14M X 0)	100.0	7.5	.09	13684	.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	26.7
3/8" X 14M	56.9
14M X 100M	13.3
100M X	3.1

MOISTURE, %

TOTAL	7.1
AS RECEIVED	6.8

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: LOWER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 74
SAMPLE NO. 251

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	6.80	3.10	3.10	--	--	--	--	--	--
ASH	7.27	4.94	49.11	7.80	5.10	50.69	--	--	--
VOLATILE MATTER	19.88	20.90	17.65	21.33	21.57	18.21	23.13	22.73	36.93
FIXED CARBON	56.05	71.06	30.14	70.87	73.33	31.10	76.87	77.27	63.07
BTU/LB	12772	13605	5843	13704	14040	6030	14863	14795	12227

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	74.93	79.86	37.71	80.39	82.42	38.92	87.19	86.85	78.92
HYDROGEN	4.49	4.35	2.28	4.01	4.13	2.00	4.35	4.35	4.06
NITROGEN	1.29	1.39	.58	1.38	1.43	.60	1.50	1.51	1.22
SULFUR	.55	.56	.35	.59	.58	.36	.64	.61	.74
OXYGEN	11.48	8.90	9.96	5.83	6.34	7.43	6.32	6.68	15.07
ASH	7.27	4.94	49.11	7.80	5.10	50.69	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.08	.08	.09	.08	.08	.09	.09	.09	.18
SULFATIC	.01	.01	.02	.02	.01	.02	.02	.01	.04
ORGANIC	.46	.47	.25	.49	.25	.53	.53	.52	.51
TOTAL	.55	.56	.35	.59	.58	.36	.64	.61	.74

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2630	2780	--
SOFTENING TEMPERATURE (ST)	2730	2830	--
FLUID TEMPERATURE (FT)	2830	2890	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.04	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	8.75	5.83	54.94

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	1 1/2	0 1/2	0
HARDGROVE GRINDABILITY (HGI)	99	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.60	.60
OXYGEN/CARBON	.05	.06
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: LOWER FREEPORT
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 74
SAMPLE NO. 252

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.7	28.4	1.9	.02	.71	15430	.9
FLOAT 1.40	89.8	92.9	4.1	.02	.71	15008	.9
FLOAT 1.60	95.4	97.8	5.0	.02	.71	14866	1.0
CUM(1-1/2" X 100M)	100.0	100.0	7.1	.03	.70	14508	1.0
100M X 0	5.5	5.4	7.5	.21	.84	14219	1.2
TOTAL(1-1/2" X 0)	100.0	100.0	7.1	.04	.71	14492	1.0

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.0	37.3	2.0	.02	.70	15430	.9
FLOAT 1.40	88.9	92.5	3.9	.01	.68	15072	.9
FLOAT 1.60	94.7	97.6	4.7	.01	.67	14928	.9
CUM(3/8" X 100M)	100.0	100.0	7.2	.03	.67	14488	.9
100M X 0	10.1	10.2	6.0	.06	.62	14574	.9
TOTAL(3/8" X 0)	100.0	100.0	7.1	.03	.66	14497	.9

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.5	36.2	1.9	.01	.68	15410	.9
FLOAT 1.40	86.4	91.2	3.6	.01	.67	15055	.9
FLOAT 1.60	93.8	97.5	5.0	.02	.66	14814	.9
CUM(14M X 0)	100.0	100.0	7.3	.05	.66	14259	.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	11.4
3/8" X 14M	51.1
14M X 100M	32.0
100M X 0	5.5

MOISTURE, %

TOTAL	4.6
AS RECEIVED	1.2

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: LOWER FREEPORT
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 74
SAMPLE NO. 252

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	1.20	1.00	--	--	--	--
ASH	7.51	4.75	7.60	43.00	--	--
VOLATILE MATTER	18.61	19.10	18.84	19.30	20.39	24.56
FIXED CARBON	72.68	75.14	73.56	75.90	79.61	75.44
BTU/LB	14042	14697	14213	14845	15382	15594

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	82.58	85.40	83.58	86.27	90.46	86.32
HYDROGEN	4.47	4.57	4.39	4.50	4.75	5.09
NITROGEN	1.45	1.51	1.47	1.52	1.59	1.40
SULFUR	.66	.70	.67	.71	.72	.75
OXYGEN	3.33	3.06	2.29	2.20	2.48	2.31
ASH	7.51	4.75	7.60	4.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	.04	.02	.05	.02	.05	.02
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.60	.68	.61	.68	.66	.72
TOTAL	.66	.70	.67	.71	.72	.75

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO ₂ (SILICON OXIDE)	--	--	SK 1.60
Al ₂ O ₃ (ALUMINUM OXIDE)	--	--	--
Fe ₂ O ₃ (IRON OXIDE)	--	--	--
TiO ₂ (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na ₂ O (SODIUM OXIDE)	--	--	--
K ₂ O (POTASSIUM OXIDE)	--	--	--
SO ₃ (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.63	--
OXYGEN/CARBON	.02	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	2 1/2
HARDGROVE GRINDABILITY (HGI)	106	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	--
SOFTENING TEMPERATURE (ST)	2910+	2910+	--
FLUID TEMPERATURE (FT)	2910+	2910+	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.09	--	--
MINERAL MATTER (PARR)	8.57	5.57	46.80

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: LOWER FREEPORT
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 74
SAMPLE NO. 253

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.0	2.1	.09	15370	.7
FLOAT 1.40	84.8	4.3	.12	14988	.7
FLOAT 1.60	93.3	5.6	.17	14742	.8
CUM(1-1/2" X 100M)	100.0	9.1	.44	14121	1.2
100M X 0	4.8	9.4	.25	14086	2.1
TOTAL(1-1/2" X 0)	100.0	9.1	.43	14119	1.2

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.2	2.2	.09	15400	.7
FLOAT 1.40	83.6	4.2	.11	15034	.7
FLOAT 1.60	92.7	5.5	.13	14793	.8
CUM(3/8" X 100M)	100.0	9.5	.40	14094	1.1
100M X 0	5.9	9.6	.30	14050	1.9
TOTAL(3/8" X 0)	100.0	9.5	.39	14091	1.2

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.2	1.9	.12	15460	.6
FLOAT 1.40	78.6	3.9	.13	15082	.7
FLOAT 1.60	92.4	5.6	.20	14749	.8
CUM(14M X 0)	100.0	9.6	.48	14035	1.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	26.8
3/8" X 14M	45.4
14M X 100M	23.0
100M X 0	4.8

TOTAL
AS RECEIVED
4.3
.8

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: LOWER FREEPORT
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 74
SAMPLE NO. 253

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE		.80	.90						
ASH	9.82	5.33	57.68	9.90	5.38	58.20			
VOLATILE MATTER	18.70	19.19	13.18	18.85	19.36	13.30	20.92	20.46	31.82
FIXED CARBON	70.68	74.59	28.24	71.25	75.26	28.50	79.08	79.54	68.18
BTU/LB	13877	14651	5316	13989	14784	5364	15526	15624	12833

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	79.63	84.04	31.78	80.27	84.80	32.07	89.09	89.62	76.72
HYDROGEN	4.37	4.58	2.08	4.31	4.53	2.00	4.79	4.78	4.78
NITROGEN	1.27	1.35	.50	1.28	1.36	.50	1.42	1.44	1.20
SULFUR	.93	.60	4.48	.94	.61	4.52	1.04	.64	10.82
OXYGEN	3.99	4.10	3.48	3.30	3.33	2.71	3.66	3.52	6.48
ASH	9.82	5.33	57.68	9.90	5.38	58.20			

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.40	.18	3.85	.40	.18	3.88	.44	.19	9.29
SULFATIC	.04	.04	.05	.05	.04	.05	.05	.04	.12
ORGANIC	.49	.39	.58	.49	.39	.59	.54	.41	1.41
TOTAL	.93	.60	4.48	.94	.61	4.52	1.04	.64	10.82

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)			
Al2O3 (ALUMINUM OXIDE)			
Fe2O3 (IRON OXIDE)			
TiO2 (TITANIUM OXIDE)			
CaO (CALCIUM OXIDE)			
MgO (MAGNESIUM OXIDE)			
Na2O (SODIUM OXIDE)			
K2O (POTASSIUM OXIDE)			
SO3 (SULFITES)			

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID		
DOLOMITE		
HYDROGEN/CARBON	.64	.64
OXYGEN/CARBON	.03	.03
R250		
SILICA		
SILICA/ALUMINA		

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2680	2910+	
SOFTENING TEMPERATURE (ST)	2730	2910+	
FLUID TEMPERATURE (FT)	2840	2910+	
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)			
NA (SODIUM) (CALCULATED)	.08		
MINERAL MATTER (PARR)	11.21	6.14	65.34

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	5
HARDGROVE GRINDABILITY (HGI)	90		

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: LOWER FREEPORT
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 74
SAMPLE NO. 254

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	RECOVERY, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	25.8	2.1	26.8	.05	.61	15273	.8
FLOAT 1.40	94.1	4.5	95.2	.08	.60	14858	.8
FLOAT 1.60	98.5	5.1	99.0	.08	.60	14754	.8
CUM(1-1/2" X 100M)	100.0	5.5	100.0	.09	.61	14685	.8
100M X 0	2.1	8.0	2.0	.12	.67	14252	.9
TOTAL(1-1/2" X 0)	100.0	5.6	100.0	.09	.61	14676	.8

--- SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	RECOVERY, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	27.2	1.8	28.5	.04	.65	15325	.8
FLOAT 1.40	91.8	4.3	93.5	.08	.64	14892	.9
FLOAT 1.60	97.7	5.2	98.5	.08	.64	14737	.9
CUM(3/8" X 100M)	100.0	5.9	100.0	.10	.65	14616	.9
100M X 0	10.7	5.0	10.8	.12	.70	14771	.9
TOTAL(3/8" X 0)	100.0	5.8	100.0	.10	.66	14632	.9

--- SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	RECOVERY, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	31.2	1.6	32.7	.04	.66	15359	.9
FLOAT 1.40	87.4	3.5	89.7	.04	.60	15031	.8
FLOAT 1.60	97.2	4.7	98.3	.05	.60	14823	.8
CUM(14M X 0)	100.0	5.7	100.0	.07	.61	14650	.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	39.7
3/8" X 14M	46.4
14M X 100M	11.8
100M X 0	2.1

--- MOISTURE, % ---

TOTAL	2.6
AS RECEIVED	.5

STATE: PENNSYLVANIA
COUNTY: SOMERSET
BED: LOWER FREEPORT
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 74
SAMPLE NO. 254

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	5.50	.70	5.70	4.90	20.93	20.88
ASH	19.64	41.31	19.74	19.86	79.06	79.12
VOLATILE MATTER	74.18	43.59	74.56	75.24	79.06	79.12
FIXED CARBON	14626	8381	14700	14740	15589	15499
BTU/LB						

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	84.27	84.87	84.69	85.47	89.81	89.88
HYDROGEN	4.51	4.57	4.48	4.52	4.75	4.75
NITROGEN	1.48	1.50	1.49	1.51	1.58	1.59
SULFUR	.68	.58	.69	.58	.73	.61
OXYGEN	3.37	3.62	2.94	3.01	3.12	3.17
ASH	5.67	41.31	5.70	4.90		

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	.10	.05	.10	.06	.10	.06
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.58	.51	.58	.52	.62	.54
TOTAL	.68	.58	.69	.58	.73	.61

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
--	-----	---------

BASE/ACID
DOLOMITE
HYDROGEN/CARBON
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2910+
SOFTENING TEMPERATURE (ST)	2910+	2910+	2910+
FLUID TEMPERATURE (FT)	2910+	2910+	2910+
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.09	--	--
MINERAL MATTER (PARR)	6.78	5.61	55.56

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	0
HARDGROVE GRINDABILITY (HGI)	104	--	--

STATE: PENNSYLVANIA
COUNTY: SOMERSET
BED: LOWER FREEPORT
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 74
SAMPLE NO. 255

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	7.0	3.6	.27	15050	1.1
FLOAT 1.40	62.2	6.9	.47	14426	1.5
FLOAT 1.60	82.5	10.1	.71	13822	1.9
CUM(1-1/2" X 100M)	100.0	16.4	1.81	12632	3.8
100M X 0	2.1	14.0	1.73	13085	4.2
TOTAL(1-1/2" X 0)	100.0	16.3	1.81	12642	3.8

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	9.6	3.7	.34	15031	1.3
FLOAT 1.40	61.7	6.8	.44	14445	1.4
FLOAT 1.60	80.8	9.6	.58	13916	1.6
CUM(3/8" X 100M)	100.0	16.8	1.79	12557	3.8
100M X 0	6.6	14.2	1.63	13048	4.3
TOTAL(3/8" X 0)	100.0	16.6	1.78	12589	3.8

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	6.6	2.1	.18	15333	1.1
FLOAT 1.40	55.3	5.4	.29	14710	1.2
FLOAT 1.60	80.1	8.4	.42	14143	1.4
CUM(14M X 0)	100.0	16.9	1.84	12538	3.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	36.5
3/8" X 14M	44.2
14M X 100M	17.2
100M X 0	2.1
TOTAL AS RECEIVED	5.2
	4.4

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: LOWER FREEPORT
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 74
SAMPLE NO. 255

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.40	1.30 1.10	--	--	--	--
ASH	16.25	8.69 51.03	17.00	8.80 51.60	--	--
VOLATILE MATTER	16.69	17.41 16.62	17.46	17.64 16.80	21.03	19.34 34.71
FIXED CARBON	62.66	72.60 31.25	65.54	73.56 31.60	78.97	80.66 65.29
BTU/LB	12036	13828 5904	12590	14010 5970	15169	15362 12335

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	69.68	79.82 34.02	72.88	80.87 34.40	87.81	88.67 71.07
HYDROGEN	4.18	4.33 2.40	3.86	4.25 2.30	4.65	4.66 4.75
NITROGEN	1.17	1.36 .59	1.22	1.38 .60	1.48	1.51 1.24
SULFUR	2.17	1.02 7.78	2.27	1.03 7.87	2.74	1.13 16.26
OXYGEN	6.54	4.78 4.17	2.75	3.68 3.23	3.32	4.03 6.68
ASH	16.25	8.69 51.03	17.00	8.80 51.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.82	.40 7.47	1.90	.41 7.56	2.29	.45 15.61
SULFATIC	.09	.07 .12	.10	.07 .12	.11	.08 .25
ORGANIC	.27	.54 .19	.28	.55 .19	.34	.60 .40
TOTAL	2.17	1.02 7.78	2.27	1.03 7.87	2.74	1.13 16.26

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLomite	--	--
HYDROGEN/CARBON	.64	.63
OXYGEN/CARBON	.03	.03
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2680	2910+
SOFTENING TEMPERATURE (ST)	2880	2910+
FLUID TEMPERATURE (FT)	2910+	2910+
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.07	--
MINERAL MATTER (FARR)	--	--
	19.61	10.07 60.06

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	6	7 1/2 0
HARDGROVE GRINDABILITY (HGI)	93	--

STATE: PENNSYLVANIA
COUNTY: WESTMORELAND

BED: LOWER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 74
SAMPLE NO. 256

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.4	53.2	4.1	.54	1.34	14864	1.8
FLOAT 1.40	70.0	80.0	6.1	.79	1.54	14795	2.1
FLOAT 1.60	82.4	91.0	8.7	1.02	1.86	14016	2.7
CUM(1-1/2" X 100M)	100.0	100.0	15.9	3.10	3.79	12687	6.0
100M X 0	1.8	1.8	16.3	2.90	3.69	12613	5.9
TOTAL(1-1/2" X 0)	100.0	100.0	15.9	3.10	3.79	12685	6.0

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.4	59.0	3.4	.44	1.11	14994	1.6
FLOAT 1.40	67.1	78.6	4.9	.53	1.29	14717	1.8
FLOAT 1.60	79.9	90.6	7.5	.68	1.40	14237	2.0
CUM(3/8" X 100M)	100.0	100.0	16.6	3.19	3.76	12558	6.0
100M X 0	7.9	8.3	13.1	2.35	2.95	13204	4.5
TOTAL(3/8" X 0)	100.0	100.0	16.3	3.12	3.70	12609	5.9

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.0	51.5	3.1	.30	1.14	15049	1.5
FLOAT 1.40	68.8	80.3	5.2	.46	1.22	14661	1.7
FLOAT 1.60	81.5	92.5	7.4	.58	1.30	14255	1.8
CUM(14M X 0)	100.0	100.0	16.6	3.09	3.88	12558	6.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	43.9
3/8" X 14M	40.8
14M X 100M	13.5
100M X 0	1.8

MOISTURE, %

TOTAL	6.1
AS RECEIVED	3.4

STATE: PENNSYLVANIA
COUNTY: WESTMORELAND

BED: LOWER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 74
SAMPLE NO. 256

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.40	7.70	2.40	--	--	--	--	--	--
ASH	16.52	7.15	56.02	17.10	7.20	57.40	--	--	--
VOLATILE MATTER	24.94	27.30	18.15	25.82	27.49	18.60	31.14	29.62	43.66
FIXED CARBON	55.14	64.85	23.42	57.08	65.31	24.00	68.86	70.38	56.34
BTU/LB	12032	14200	4909	12456	14300	5030	15025	15409	11808

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	69.32	80.51	24.94	71.76	81.08	25.55	86.56	87.37	59.98
HYDROGEN	4.58	5.01	2.10	4.35	4.96	1.87	5.25	5.35	4.40
NITROGEN	1.15	1.39	.39	1.19	1.40	.39	1.43	1.51	.93
SULFUR	3.88	1.20	14.42	4.01	1.21	14.78	4.84	1.30	34.69
OXYGEN	4.55	4.74	--	1.59	4.15	--	1.91	4.47	--
ASH	16.52	7.15	56.02	17.10	7.20	57.40	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.15	.63	12.43	3.26	.64	12.73	3.93	.69	29.89
SULFATIC	.01	.01	.03	.02	.01	.04	.02	.01	.08
ORGANIC	.71	.56	1.96	.74	.56	2.01	.89	.61	4.72
TOTAL	3.88	1.20	14.42	4.01	1.21	14.78	4.84	1.30	34.69

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLomite	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	.73	.73	--	--	--	--	--	--	--
OXYGEN/CARBON	.02	.04	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING	8	1/2	9	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	90	90	--	--	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 257

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.2	4.1	.23	14705	1.2
FLOAT 1.40	74.4	5.7	.64	14423	1.7
FLOAT 1.60	83.0	7.3	.86	14141	2.0
CUM(1-1/2" X 100M)	100.0	14.6	1.97	12855	3.9
100M X 0	.8	18.9	3.74	12097	6.9
TOTAL(1-1/2" X 0)	100.0	14.6	1.98	12849	3.9

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.4	3.6	.11	14793	1.1
FLOAT 1.40	75.3	4.9	.29	14564	1.3
FLOAT 1.60	82.5	6.5	.48	14282	1.6
CUM(3/8" X 100M)	100.0	14.4	1.86	12890	3.9
100M X 0	2.7	16.8	3.56	12467	6.6
TOTAL(3/8" X 0)	100.0	14.5	1.91	12879	3.9

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.7	2.5	.11	14987	1.0
FLOAT 1.40	73.7	4.3	.12	14670	1.1
FLOAT 1.60	83.3	7.0	.41	14194	1.5
CUM(14M X 0)	100.0	14.4	2.01	12890	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	68.1
3/8" X 14M	24.3
14M X 100M	6.8
100M X 0	.8

----- MOISTURE, % -----

TOTAL	2.6
AS RECEIVED	1.0

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 257

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.00	1.00	1.00	--	--	--	--	--	--
ASH	14.36	6.65	50.19	14.50	6.72	50.70	--	--	--
VOLATILE MATTER	33.98	36.40	22.57	34.33	36.77	22.80	40.15	39.42	46.25
FIXED CARBON	50.66	55.95	26.24	51.17	56.51	26.50	59.85	60.58	53.75
BTU/LB	12771	14079	6425	12900	14221	6490	15088	15245	13164

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	--	--	--	--	--	--	--	--	--
OXYGEN	2.74	1.18	9.90	2.77	1.19	10.00	3.24	1.27	20.29
ASH	14.36	6.65	50.19	--	--	50.70	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.85	.37	9.89	1.87	.37	9.99	2.19	.40	20.27
SULFATIC	.00	.00	.00	.00	.00	.00	.00	.00	.00
ORGANIC	.89	.81	.01	.90	.82	.01	1.05	.88	.02
TOTAL	2.74	1.18	9.90	2.77	1.19	10.00	3.24	1.27	20.29

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2000	2880	2020
SOFTENING TEMPERATURE (ST)	2050	2910+	2070
FLUID TEMPERATURE (FT)	2100	--	2120

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (FARR)	17.18	7.91	60.26

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7 1/2	9	1
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 258

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL) -----

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	41.5	54.3	4.3	.58	14764	2.0
FLOAT 1.40	60.6	77.6	6.1	.85	14435	2.5
FLOAT 1.60	68.6	85.6	8.1	.99	14970	2.7
FLOAT 1.90	83.8	95.7	14.6	1.21	12884	3.3
CUM(1-1/2" X 100M)	100.0	100.0	23.4	2.82	11277	6.9
100M X 0	.2	.2	28.0	3.88	10438	9.1
TOTAL(1-1/2" X 0)	100.0	100.0	23.4	2.82	11276	6.9

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL) -----

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	46.3	60.9	3.8	.33	14855	1.6
FLOAT 1.40	60.3	78.0	5.1	.52	14618	1.9
FLOAT 1.60	68.5	86.3	7.2	.68	14235	2.1
FLOAT 1.90	83.8	95.7	14.6	1.21	12884	3.3
CUM(3/8" X 100M)	100.0	100.0	23.3	2.79	11296	6.9
100M X 0	.6	.6	26.7	4.36	10675	10.5
TOTAL(3/8" X 0)	100.0	100.0	23.3	2.80	11292	6.9

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL) -----

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	47.9	63.5	3.4	.31	14928	1.4
FLOAT 1.40	59.1	77.3	4.5	.43	14728	1.6
FLOAT 1.60	70.3	88.7	7.4	.65	14198	1.9
FLOAT 1.90	83.8	95.7	14.6	1.21	12884	3.3
CUM(14M X 0)	100.0	100.0	23.5	2.92	11259	7.2

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	.2

----- MOISTURE, % -----

TOTAL AS RECEIVED	1.7
	.9

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 258

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.90	--	--	--	--	--
ASH	22.36	--	--	22.56	--	--
VOLATILE MATTER	32.67	--	--	32.96	--	--
FIXED CARBON	44.08	--	--	44.48	--	--
BTU/LB	11590	--	--	11696	--	15103

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.67	--	--	3.70	--	4.78
OXYGEN	--	--	--	--	--	--
ASH	22.36	--	--	22.56	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.07	--	--	3.10	--	--
SULFATIC	.08	--	--	.08	--	--
ORGANIC	.52	--	--	.52	--	--
TOTAL	3.67	--	--	3.70	--	4.78

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: PENNSYLVANIA
 COUNTY: ARMSTRONG
 BED: LOWER KITTANNING
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 84
 SAMPLE NO. 259

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	60.5	4.0	65.4	.64	14735	2.7
FLOAT 1.40	86.0	5.8	90.9	1.07	14403	3.3
FLOAT 1.60	91.2	6.5	95.5	1.37	14274	3.8
CUM(1-1/2" X 100M)	100.0	10.0	100.0	3.14	13628	6.5
100M X 0	.9	14.1	.9	3.12	12871	6.6
TOTAL(1-1/2" X 0)	100.0	10.0	100.0	3.14	13621	6.5

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	65.3	3.2	71.7	.38	14883	2.4
FLOAT 1.40	85.0	4.9	91.4	.74	14569	2.8
FLOAT 1.60	90.0	5.7	95.8	1.01	14421	3.2
CUM(3/8" X 100M)	100.0	10.4	100.0	3.39	13554	6.8
100M X 0	3.7	12.3	3.6	3.12	13203	6.7
TOTAL(3/8" X 0)	100.0	10.5	100.0	3.38	13541	6.8

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	59.5	2.7	65.8	.29	14975	2.3
FLOAT 1.40	83.8	4.2	91.0	.53	14698	2.5
FLOAT 1.60	89.3	5.6	95.3	.86	14440	3.0
CUM(14M X 0)	100.0	10.5	100.0	3.34	13535	6.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	72.1
3/8" X 14M	21.0
14M X 100M	6.0
100M X 0	.9

--- MOISTURE, % ---

TOTAL AS RECEIVED	2.4
	.8

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 259

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	.80	.90	--	--	--	--
ASH	10.00	5.35	10.08	5.40	--	--
VOLATILE MATTER	37.28	38.89	37.58	39.24	41.79	47.64
FIXED CARBON	51.92	54.86	52.34	55.36	58.21	52.36
BTU/LB	13534	14320	13643	14450	15172	12320

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.50	2.11	4.54	2.13	5.05	2.25
OXYGEN	--	--	--	--	--	--
ASH	10.00	5.35	10.08	5.40	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	3.20	.77	3.23	.77	3.59	.82
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	1.29	1.33	1.30	1.35	1.45	1.42
TOTAL	4.50	2.11	4.54	2.13	5.05	2.25

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2030	2140	2060
SOFTENING TEMPERATURE (ST)	2080	2190	2110
FLUID TEMPERATURE (FT)	2140	2250	2160

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	13.38	7.00	68.69

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	8 1/2	1
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 260

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	SULFUR, %	HEATING VALUE	SO ₂ EMISSION
	WEIGHT			PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	35.8	42.1	4.4	.85	14746	2.5
FLOAT 1.40	73.3	83.3	7.1	1.64	14253	4.1
FLOAT 1.60	84.1	94.0	8.4	2.07	14016	4.9
FLOAT 1.90	88.3	97.2	9.6	2.38	13797	5.5
CUM(1-1/2" X 100M)	100.0	100.0	16.5	3.50	12537	8.1
100M X 0	.2	.2	15.2	3.60	12774	8.5
TOTAL(1-1/2" X 0)	100.0	100.0	16.5	3.50	12537	8.1

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	SULFUR, %	HEATING VALUE	SO ₂ EMISSION
	WEIGHT			PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	44.5	52.7	3.7	.73	14874	2.4
FLOAT 1.40	71.7	83.0	5.6	1.33	14527	3.4
FLOAT 1.60	82.0	93.1	7.1	1.69	14253	4.1
FLOAT 1.90	88.3	97.2	9.6	2.38	13797	5.5
CUM(3/8" X 100M)	100.0	100.0	16.4	3.55	12555	8.1
100M X 0	.1	.1	17.1	4.35	12427	9.9
TOTAL(3/8" X 0)	100.0	100.0	16.4	3.55	12555	8.1

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	SULFUR, %	HEATING VALUE	SO ₂ EMISSION
	WEIGHT			PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	48.6	57.6	3.6	.55	14892	2.1
FLOAT 1.40	71.8	83.5	5.2	.96	14600	2.8
FLOAT 1.60	80.9	92.3	6.7	1.29	14326	3.4
FLOAT 1.90	88.3	97.2	9.6	2.38	13797	5.5
CUM(14M X 0)	100.0	100.0	16.4	3.60	12555	8.4

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.2

----- MOISTURE, % -----

TOTAL	.9
AS RECEIVED	.5

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG
BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 84
SAMPLE NO. 260

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.50	--	--	--	--	--
ASH	15.67	--	--	15.74	--	--
VOLATILE MATTER	33.46	--	--	33.62	--	--
FIXED CARBON	50.38	--	--	50.64	--	--
BTU/LB	12433	--	--	12495	--	--
					14830	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.87	--	--	4.90	--	--
OXYGEN	--	--	--	--	5.81	--
ASH	15.67	--	--	15.74	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.89	--	--	3.91	--	--
SULFATIC	.08	--	--	.08	--	--
ORGANIC	.91	--	--	.91	--	--
TOTAL	4.87	--	--	4.90	--	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	19.70	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: BEDFORD

BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 261

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.6	1.6	.04	15441	1.0
FLOAT 1.40	71.4	3.8	.10	15064	1.1
FLOAT 1.60	84.9	6.6	.32	14585	1.4
CUM(1-1/2" X 100M)	100.0	13.5	1.39	13403	3.1
100M X 0	2.3	8.9	.54	14191	1.8
TOTAL(1-1/2" X 0)	100.0	13.4	1.37	13421	3.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.6	1.7	.06	15424	1.0
FLOAT 1.40	74.7	3.7	.10	15081	1.0
FLOAT 1.60	84.9	6.1	.26	14670	1.2
CUM(3/8" X 100M)	100.0	13.4	1.45	13420	3.1
100M X 0	3.2	10.1	.67	13985	1.9
TOTAL(3/8" X 0)	100.0	13.3	1.43	13438	3.1

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.5	1.3	.04	15492	1.0
FLOAT 1.40	76.9	3.4	.09	15133	1.1
FLOAT 1.60	85.4	4.9	.21	14876	1.2
CUM(14M X 0)	100.0	13.2	1.45	13454	3.1

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	---

--- MOISTURE, % ---

TOTAL AS RECEIVED	2.0
	.4

STATE: PENNSYLVANIA
COUNTY: BEDFORD
BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 84
SAMPLE NO. 261

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	40	40	70	--	--	--
ASH	12.65	4.68	61.17	12.70	4.70	61.60
VOLATILE MATTER	13.80	14.37	--	13.86	14.43	--
FIXED CARBON	73.15	80.55	--	73.44	80.87	--
BTU/LB	13486	14850	--	13540	14910	--
					15510	15645

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.10	.80	9.11	2.11	.80	9.18
OXYGEN	--	--	--	--	--	--
ASH	12.65	4.68	61.17	12.70	4.70	61.60

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.43	.19	8.64	1.44	.19	8.70
SULFATIC	.00	.00	.00	.00	.00	.00
ORGANIC	.67	.61	.47	.67	.61	.47
TOTAL	2.10	.80	9.11	2.11	.80	9.18

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW
OXIDES	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	RAW
Al2O3 (ALUMINA OXIDE)	--	--	--	FL 1.60
Fe2O3 (IRON OXIDE)	--	--	--	SK 1.60
TiO2 (TITANIUM OXIDE)	--	--	--	2410
CaO (CALCIUM OXIDE)	--	--	--	2520
MgO (MAGNESIUM OXIDE)	--	--	--	2620
Na2O (SODIUM OXIDE)	--	--	--	2910+
K2O (POTASSIUM OXIDE)	--	--	--	2910+
SO3 (SULFITES)	--	--	--	2910+

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW
BASE/ACID	--	--	--	FL 1.60
DOLOMITE	--	--	--	SK 1.60
HYDROGEN/CARBON	--	--	--	2410
OXYGEN/CARBON	--	--	--	2520
R250	--	--	--	2620
SILICA	--	--	--	2910+
SILICA/ALUMINA	--	--	--	2910+

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW
FREE SWELLING (FSI)	--	--	--	FL 1.60
HARDGROVE GRINDABILITY (HGI)	--	--	--	SK 1.60

STATE: PENNSYLVANIA
 COUNTY: BUTLER
 BED: LOWER KITTANNING
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 84
 SAMPLE NO. 262

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL)
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.4	69.7	3.9	.75	14725	2.7
FLOAT 1.40	88.7	92.9	5.2	1.30	14472	3.5
FLOAT 1.60	93.5	97.1	5.9	1.58	14336	3.9
CUM(1-1/2" X 100M)	100.0	100.0	8.6	2.82	13811	5.9
100M X 0	.8	.7	15.4	3.21	12488	7.0
TOTAL(1-1/2" X 0)	100.0	100.0	8.7	2.82	13800	5.9

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL)
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.1	73.5	3.4	.62	14822	2.6
FLOAT 1.40	86.7	92.1	4.6	.99	14589	3.1
FLOAT 1.60	92.2	96.9	5.4	1.31	14433	3.5
CUM(3/8" X 100M)	100.0	100.0	9.0	2.94	13733	6.3
100M X 0	4.3	4.2	9.9	3.48	13558	6.6
TOTAL(3/8" X 0)	100.0	100.0	9.0	2.96	13725	6.3

SAMPLE CRUSHED TO PASS 14M X 0 MATERIAL)
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.9	62.0	2.6	.49	14978	2.4
FLOAT 1.40	83.1	88.9	4.0	.63	14705	2.7
FLOAT 1.60	91.5	96.4	5.1	.98	14491	3.2
CUM(14M X 0)	100.0	100.0	8.9	2.65	13752	6.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	77.9
3/8" X 14M	16.7
14M X 100M	4.6
100M X 0	.8

TOTAL
AS RECEIVED

6.2
4.4

STATE: PENNSYLVANIA
COUNTY: BUTLER

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 262

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.40	1.50 1.50	--	--	--	--
ASH	8.17	4.83 48.86	8.54	4.90 49.60	--	--
VOLATILE MATTER	41.76	44.49 26.50	43.68	45.16 26.90	47.76	47.49 53.37
FIXED CARBON	45.67	49.19 23.15	47.78	49.94 23.50	52.24	52.51 46.63
BTU/LB	13276	14253 5743	13887	14470 5830	15184	15216 11567

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	72.29	78.35 25.48	75.61	79.54 25.87	82.68	83.64 51.33
HYDROGEN	5.53	5.65 1.83	5.27	5.57 1.69	5.76	5.86 3.36
NITROGEN	1.34	1.46 .46	1.40	1.48 .47	1.53	1.56 .93
SULFUR	3.78	2.23 22.03	3.96	2.26 22.37	4.33	2.38 44.38
OXYGEN	8.90	7.49 --	5.21	6.25 --	5.70	6.57 --
ASH	8.17	4.83 48.86	8.54	4.90 49.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.60	1.03 19.11	2.72	1.05 19.41	2.97	1.10 38.50
SULFATIC	.04	.02 .06	.04	.02 .06	.04	.02 .12
ORGANIC	1.15	1.17 2.86	1.20	1.19 2.90	1.31	1.25 5.76
TOTAL	3.78	2.23 22.03	3.96	2.26 22.37	4.33	2.38 44.38

MINERAL ANALYSIS OF ASH, %

OXIDES	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.84	.84
OXYGEN/CARBON	.05	.06
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	11.40	6.54	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	6	1/2 7	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	51	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: CAMBRIA

BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 263

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.4	3.1	.06	15051	.9
FLOAT 1.40	72.7	5.6	.09	14590	.9
FLOAT 1.60	87.3	9.0	.10	13964	1.0
CUM(1-1/2" X 100M)	100.0	13.6	.15	13116	1.0
100M X 0	1.8	9.8	.65	13816	1.8
TOTAL(1-1/2" X 0)	100.0	13.5	.16	13129	1.1

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.5	2.4	.03	15180	.9
FLOAT 1.40	71.7	4.6	.04	14775	.9
FLOAT 1.60	85.1	7.8	.05	14185	.9
CUM(3/8" X 100M)	100.0	13.8	.14	13079	1.1
100M X 0	7.1	8.1	.20	14130	1.1
TOTAL(3/8" X 0)	100.0	13.4	.14	13154	1.1

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.0	2.0	.03	15254	.8
FLOAT 1.40	74.1	4.1	.04	14867	.8
FLOAT 1.60	87.5	7.0	.04	14332	.9
CUM(14M X 0)	100.0	13.0	.15	13227	1.1

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	52.2
3/8" X 14M	33.5
14M X 100M	12.5
100M X 0	1.8

--- MOISTURE, % ---
TOTAL
AS RECEIVED

2.6
1.0

STATE: PENNSYLVANIA
COUNTY: CAMBRIA

BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 263

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	1.00	1.10	--	--	--	--
ASH	12.77	6.73	12.90	52.80	--	--
VOLATILE MATTER	19.24	21.13	19.44	6.20	22.32	22.92
FIXED CARBON	66.98	71.05	67.66	41.00	77.68	77.08
BTU/LB	13155	14175	13288	5887	15256	15378

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.64	.60	.64	1.20	.74	.65
OXYGEN	--	--	--	--	--	--
ASH	12.77	6.73	12.90	52.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	.16	.04	.16	.92	.18	.05
SULFATIC	.03	.03	.04	.04	.04	.03
ORGANIC	.45	.53	.45	.53	.52	.50
TOTAL	.64	.60	.64	1.20	.74	.65

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLomite	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2910+
SETTLING TEMPERATURE (ST)	2910+	2910+	2910+
FLUID TEMPERATURE (FT)	2910+	2910+	2910+
MISCELLANEOUS DATA, %	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (FARR)	14.29	7.68	57.68

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	1
HARDGROVE GRINDABILITY (HGI)	90	93	--

STATE: PENNSYLVANIA
COUNTY: CAMBRIA

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 264

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.5	3.9	.11	14835	.9
FLOAT 1.40	56.1	6.1	.20	14433	1.0
FLOAT 1.60	73.4	10.9	.29	13557	1.1
FLOAT 1.90	85.5	15.6	.36	12699	1.3
CUM(1-1/2" X 100M)	100.0	24.9	.80	11002	2.3
100M X 0	.5	12.7	.95	13229	2.2
TOTAL(1-1/2" X 0)	100.0	24.8	.80	11013	2.3

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.5	3.3	.08	14945	.8
FLOAT 1.40	58.0	5.1	.13	14616	.9
FLOAT 1.60	71.2	8.9	.18	13922	.9
FLOAT 1.90	85.5	15.6	.36	12699	1.3
CUM(3/8" X 100M)	100.0	25.2	.77	10947	2.3
100M X 0	1.4	18.0	1.08	12261	2.6
TOTAL(3/8" X 0)	100.0	25.1	.77	10965	2.3

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.8	2.9	.06	15018	.8
FLOAT 1.40	57.2	4.8	.10	14671	.9
FLOAT 1.60	70.3	7.9	.14	14105	.9
FLOAT 1.90	85.5	15.6	.36	12699	1.3
CUM(14M X 0)	100.0	24.7	.71	11038	2.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.5

MOISTURE, %

TOTAL AS RECEIVED	1.1
	.6

STATE: PENNSYLVANIA
COUNTY: CAMBRIA

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 264

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.60	--	--	--	--	--
ASH	24.65	--	24.80	--	--	--
VOLATILE MATTER	19.58	--	19.70	--	26.20	--
FIXED CARBON	55.17	--	55.50	--	73.80	--
BTU/LB	11593	--	11663	--	15509	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.17	--	1.18	--	1.57	--
OXYGEN	--	--	--	--	--	--
ASH	24.65	--	24.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.83	--	.84	--	1.11	--
SULFATIC	.01	--	.01	--	.01	--
ORGANIC	.33	--	.33	--	.44	--
TOTAL	1.17	--	1.18	--	1.57	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDE ³	--	--	--	--	--	--
SiO ₂ (SILICON OXIDE)	--	--	--	--	--	--
Al ₂ O ₃ (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe ₂ O ₃ (IRON OXIDE)	--	--	--	--	--	--
TiO ₂ (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na ₂ O (SODIUM OXIDE)	--	--	--	--	--	--
K ₂ O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO ₃ (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	27.43	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

STATE: PENNSYLVANIA
COUNTY: CAMBRIA

BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 265

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	56.3	3.0	.10	.76	14999	1.0
FLOAT 1.40	77.4	4.5	.15	.80	14726	1.1
FLOAT 1.60	86.1	6.5	.21	.85	14360	1.2
FLOAT 1.90	94.4	9.9	.27	.91	13740	1.3
CUM(1-1/2" X 100M)	100.0	13.0	.89	1.60	13174	2.4
100M X 0	.5	8.8	1.02	1.70	13941	2.4
TOTAL(1-1/2" X 0)	100.0	13.0	.89	1.60	13178	2.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	58.7	2.5	.06	.71	15091	.9
FLOAT 1.40	77.8	3.9	.10	.73	14835	1.0
FLOAT 1.60	85.1	5.6	.14	.75	14525	1.0
FLOAT 1.90	94.4	9.9	.27	.91	13740	1.3
CUM(3/8" X 100M)	100.0	13.0	.85	1.53	13174	2.3
100M X 0	1.1	9.5	1.24	1.98	13813	2.9
TOTAL(3/8" X 0)	100.0	13.0	.85	1.53	13181	2.3

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	43.5	2.1	.06	.67	15164	.9
FLOAT 1.40	74.2	3.6	.09	.70	14890	.9
FLOAT 1.60	86.0	5.8	.15	.72	14488	1.0
FLOAT 1.90	94.4	9.9	.27	.91	13740	1.3
CUM(14M X 0)	100.0	12.8	.85	1.50	13210	2.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.5

MOISTURE, %

TOTAL AS RECEIVED 1.3 .7

STATE: PENNSYLVANIA
COUNTY: CAMBRIA

BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 265

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.70	--	--	--	--	--
ASH	12.51	--	--	12.60	--	--
VOLATILE MATTER	20.16	--	--	20.30	--	--
FIXED CARBON	66.63	--	--	67.10	--	23.23
						76.77
BTU/LB	13605	--	--	13701	--	15676

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.49	--	--	1.50	--	1.72
OXYGEN	--	--	--	--	--	--
ASH	12.51	--	--	12.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.93	--	--	.94	--	1.08
SULFATIC	.02	--	--	.02	--	--
ORGANIC	.54	--	--	.54	--	.62
TOTAL	1.49	--	--	1.50	--	1.72

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--
MISCELLANEOUS DATA, %	--	--	--	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	14.43	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: CAMBRIA

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 266

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.0	3.3	.15	15196	1.2
FLOAT 1.40	85.6	4.7	.32	14935	1.4
FLOAT 1.60	94.1	6.3	1.18	14638	1.6
CUM(1-1/2" X 100M)	100.0	8.4	1.31	14247	2.8
100M X 0	2.2	10.0	2.54	13949	4.8
TOTAL(1-1/2" X 0)	100.0	8.4	1.34	14240	2.9

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.3	2.3	.20	15382	1.1
FLOAT 1.40	87.1	3.8	.29	15103	1.2
FLOAT 1.60	93.3	5.0	.39	14879	1.3
CUM(3/8" X 100M)	100.0	7.7	1.19	14377	2.5
100M X 0	7.1	7.1	1.78	14489	3.5
TOTAL(3/8" X 0)	100.0	7.7	1.23	14385	2.6

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.2	2.0	.09	15437	1.1
FLOAT 1.40	85.3	3.7	.24	15121	1.1
FLOAT 1.60	92.6	5.0	.35	14879	1.3
CUM(14M X 0)	100.0	8.5	1.29	14228	2.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	48.6
3/8" X 14M	37.1
14M X 100M	12.1
100M X 0	2.2

TOTAL
AS RECEIVED
2.4
.8

STATE: PENNSYLVANIA

COUNTY: CAMBRIA

BED: LOWER KITTANNING

RANK: MED VOLATILE BITUMINOUS

BED CODE: 84

SAMPLE NO. 266

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	.80	.80	--	--	--
ASH	8.43	5.06 49.80	8.50	5.10 50.21	--
VOLATILE MATTER	22.84	23.39 16.16	23.02	23.58 16.29	25.16 32.72
FIXED CARBON	67.93	70.75 33.23	68.48	71.32 33.50	74.84 67.28
BTU/LB	14126	14731 6419	14240	14850 6470	15563 12994

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	--	--	--	--	--
HYDROGEN	--	--	--	--	--
NITROGEN	--	--	--	--	--
SULFUR	2.00	.89 13.80	2.02	.90 13.91	--
OXYGEN	--	--	--	--	--
ASH	8.43	5.06 49.80	8.50	5.10 50.21	27.94

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	1.32	.31 12.95	1.33	.32 13.05	1.45 26.21
SULFATIC	.02	.02 .02	.02	.02 .02	.02 .04
ORGANIC	.66	.56 .83	.67	.57 .84	.73 .60
TOTAL	2.00	.89 13.80	2.02	.90 13.91	2.21 .95 27.94

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--
DOLOMITE	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--
R250	--	--	--	--	--
SILICA	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: CAMBRIA

BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 267

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.6	3.3	.16	15138	.7
FLOAT 1.40	75.2	5.6	.49	14652	1.1
FLOAT 1.60	84.4	7.4	.81	14319	1.6
CUM(1-1/2" X 100M)	100.0	14.1	1.70	13136	3.1
100M X 0	2.5	12.2	1.44	13500	2.7
TOTAL(1-1/2" X 0)	100.0	14.1	1.69	13145	3.1

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.8	3.1	.06	15170	.6
FLOAT 1.40	75.6	4.9	.13	14853	.7
FLOAT 1.60	84.3	7.0	.26	14459	.9
CUM(3/8" X 100M)	100.0	14.7	1.75	13067	3.2
100M X 0	10.5	9.0	1.32	14091	2.5
TOTAL(3/8" X 0)	100.0	14.1	1.70	13175	3.1

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.2	2.9	.05	15266	.6
FLOAT 1.40	74.6	4.3	.07	14972	.6
FLOAT 1.60	83.8	6.1	.09	14636	.7
CUM(14M X 0)	100.0	14.3	1.79	13134	3.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %

SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	40.0
3/8" X 14M	40.4
14M X 100M	17.1
100M X 0	2.5

TOTAL
AS RECEIVED
1.8
.3

STATE: PENNSYLVANIA
COUNTY: CAMBRIA

BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 267

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.27	.50	.50	--	--	--	--	--	--
ASH	14.83	6.17	54.92	14.87	6.20	55.20	--	--	--
VOLATILE MATTER	18.59	19.27	15.62	18.64	19.37	15.70	21.90	20.65	35.04
FIXED CARBON	66.31	74.06	28.95	66.49	74.43	29.10	78.10	79.35	64.96
BTU/LB	13011	14548	5523	13046	14621	5551	15326	15587	12391

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	75.14	83.59	29.60	75.35	84.01	29.75	88.51	89.56	66.41
HYDROGEN	4.16	4.63	2.05	4.14	4.60	2.00	4.86	4.91	4.46
NITROGEN	1.31	1.49	.50	1.31	1.50	.50	1.54	1.60	1.12
SULFUR	2.31	.45	11.18	2.32	.45	11.24	2.72	.48	25.09
OXYGEN	2.25	3.67	1.75	2.01	3.24	1.31	2.36	3.45	2.92
ASH	14.83	6.17	54.92	14.87	6.20	55.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.81	.08	10.53	1.82	.08	10.58	2.13	.09	23.62
SULFATIC	.02	.00	.02	.02	.00	.02	.02	.00	.04
ORGANIC	.48	.37	.63	.48	.37	.64	.56	.39	1.42
TOTAL	2.31	.45	11.18	2.32	.45	11.24	2.72	.48	25.09

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	46.45	50.71	44.32
Al2O3 (ALUMINUM OXIDE)	28.28	38.84	23.76
Fe2O3 (IRON OXIDE)	20.02	2.86	26.59
TiO2 (TITANIUM OXIDE)	1.67	3.00	1.33
CaO (CALCIUM OXIDE)	.48	1.43	.06
MgO (MAGNESIUM OXIDE)	.63	.63	.60
Na2O (SODIUM OXIDE)	.11	.13	.08
K2O (POTASSIUM OXIDE)	1.81	1.61	1.95
SO3 (SULFITES)	.14	.33	.10

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.30	.07
DOLOMITE	.05	.31
HYDROGEN/CARBON	.66	.66
OXYGEN/CARBON	.02	.03
R250	.78	.95
SILICA	.69	.91
SILICA/ALUMINA	1.64	1.31

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2480	2910+	--
SOFTENING TEMPERATURE (ST)	2530	2910+	--
FLOID TEMPERATURE (FT)	2810	2910+	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	.05	--	--
NA (SODIUM) (CALCULATED)	.01	.01	.03
MINERAL MATTER (PARR)	17.34	6.94	65.80

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	--
HARDGROVE GRINDABILITY (HGI)	104	--	--

STATE: PENNSYLVANIA
COUNTY: CENTRE

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BE) CODE: 84
SAMPLE NO. 268

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.7	3.6	21.1	.13	15038	1.1
FLOAT 1.40	47.5	8.2	56.8	.21	14234	1.2
FLOAT 1.60	80.5	15.1	88.1	.33	13028	1.5
CUM(1-1/2" X 100M)	100.0	21.5	100.0	.61	11910	2.0
100M X 0	1.4	17.0	1.5	2.71	12696	6.1
TOTAL(1-1/2" X 0)	100.0	21.4	100.0	.64	11921	2.0

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	21.2	3.1	27.7	.05	15125	1.1
FLOAT 1.40	48.1	7.3	59.7	.17	14391	1.2
FLOAT 1.60	74.1	13.6	84.9	.26	13290	1.4
CUM(3/8" X 100M)	100.0	23.3	100.0	.55	11595	1.9
100M X 0	8.6	15.6	9.6	1.56	12941	2.5
TOTAL(3/8" X 0)	100.0	22.6	100.0	.64	11711	2.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.1	2.5	26.0	.13	15230	1.1
FLOAT 1.40	50.4	6.6	62.1	.15	14513	1.2
FLOAT 1.60	74.4	11.7	86.0	.22	13622	1.3
CUM(14M X 0)	100.0	22.2	100.0	.59	11787	1.9

RAW COAL SIZE AND MOISTURE ANALYSES

SAMPLE CRUSHED TO PASS 1-1/2"

SIZE DISTRIBUTION, %	MOISTURE, %
1-1/2" X 3/8"	2.7
3/8" X 14M	1.1
14M X 100M	
100M X 0	

TOTAL
AS RECEIVED

STATE: PENNSYLVANIA
COUNTY: CENTRE

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 268

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.10	1.40	1.40	--	--	--
ASH	21.96	11.63	53.15	22.20	11.80	53.90
VOLATILE MATTER	21.52	23.11	16.07	21.76	23.44	16.30
FIXED CARBON	55.42	63.85	29.38	56.04	64.76	29.80
BTU/LB	11730	13360	6143	11860	13550	6230

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.20	.87	1.89	1.21	.88	1.92
OXYGEN	--	--	--	--	--	--
ASH	21.96	11.63	53.15	22.20	11.80	53.90

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.58	.20	1.64	.59	.20	1.67
SULFATIC	.03	.01	.05	.03	.01	.05
ORGANIC	.58	.66	.20	.59	.67	.20
TOTAL	1.20	.87	1.89	1.21	.88	1.92

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLomite	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2910+
SOFTENING TEMPERATURE (ST)	2910+	2910+	2910+
FLUID TEMPERATURE (FT)	2910+	2910+	2910+
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	24.64	13.23	59.27

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8 1/2	9	1
HARDGROVE GRINDABILITY (HGI)	78	83	--

STATE: PENNSYLVANIA
COUNTY: CLARION

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 269

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	77.8	3.3	80.9	.41	14570	2.2
FLOAT 1.40	92.5	4.1	95.2	.54	14417	2.4
FLOAT 1.60	97.2	5.1	98.9	.58	14258	2.5
CUM(1-1/2" X 100M)	100.0	6.5	100.0	.79	14012	2.8
100M X 0	1.9	15.0	1.7	2.63	12509	7.4
TOTAL(1-1/2" X 0)	100.0	6.7	100.0	.82	13984	2.9

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	72.1	2.2	76.2	.25	14700	2.1
FLOAT 1.40	89.7	3.4	93.5	.40	14502	2.3
FLOAT 1.60	95.6	4.5	98.4	.49	14322	2.5
CUM(3/8" X 100M)	100.0	6.7	100.0	.85	13917	3.1
100M X 0	4.6	10.7	4.4	1.88	13261	5.8
TOTAL(3/8" X 0)	100.0	6.9	100.0	.90	13886	3.2

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	76.9	2.2	81.0	.16	14780	1.8
FLOAT 1.40	90.7	3.2	94.3	.26	14597	1.9
FLOAT 1.60	95.5	4.0	98.3	.35	14448	2.1
CUM(14M X 0)	100.0	6.3	100.0	.74	14040	2.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	75.5
3/8" X 14M	16.6
14M X 100M	6.0
100M X 0	1.9

--- MOISTURE, % ---

TOTAL	3.5
AS RECEIVED	2.4

STATE: PENNSYLVANIA
COUNTY: CLARION

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 269

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.40	2.20	--	--	--	--
ASH	6.34	3.81	6.50	3.90	44.38	44.13
VOLATILE MATTER	40.50	41.47	41.49	23.48	55.62	55.87
FIXED CARBON	50.76	52.51	52.01	53.69	44.38	44.98
BTU/LB	13674	14145	14010	14463	14984	15050

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	75.73	78.07	77.59	79.83	82.98	83.07
HYDROGEN	5.55	5.71	5.41	5.59	5.79	5.81
NITROGEN	1.34	1.40	1.37	1.43	1.47	1.48
SULFUR	1.95	1.48	2.00	1.51	2.14	1.57
OXYGEN	9.09	9.53	7.12	7.75	7.62	8.06
ASH	6.34	3.81	6.50	3.90	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.74	.35	.76	.36	.81	.38
SULFATIC	.20	.12	.21	.15	.22	.12
ORGANIC	1.01	1.01	1.03	1.03	1.10	1.07
TOTAL	1.95	1.48	2.00	1.51	2.14	1.57

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	2160	2360
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	2270	2410
Fe2O3 (IRON OXIDE)	--	--	--	--	2470	2610
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.84	.84	--	--	7 1/2	8
OXYGEN/CARBON	.07	.07	--	--	61	53
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: CLARION
BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 84
SAMPLE NO.: 270

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.5	65.2	5.1	.91	1.78	14616	2.4
FLOAT 1.40	86.8	92.9	7.0	1.63	2.42	14269	3.4
FLOAT 1.60	92.7	97.4	8.4	1.77	2.55	14014	3.6
FLOAT 1.90	94.4	98.4	9.0	1.87	2.63	13904	3.8
CUM(1-1/2" X 100M)	100.0	100.0	12.1	2.72	3.46	13338	5.2
100M X 0	.6	.6	12.4	2.85	3.41	13283	5.1
TOTAL(1-1/2" X 0)	100.0	100.0	12.1	2.72	3.46	13338	5.2

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.4	63.6	4.6	.89	1.46	14707	2.0
FLOAT 1.40	85.0	89.8	8.4	1.55	2.14	14014	3.1
FLOAT 1.60	91.9	95.8	9.4	1.69	2.27	13831	3.3
FLOAT 1.90	94.4	98.4	9.0	1.87	2.63	13904	3.8
CUM(3/8" X 100M)	100.0	100.0	12.5	2.71	3.27	13265	4.9
100M X 0	2.3	2.3	12.3	2.82	3.36	13298	5.1
TOTAL(3/8" X 0)	100.0	100.0	12.5	2.71	3.27	13266	4.9

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.3	47.4	3.6	.50	1.26	14890	1.7
FLOAT 1.40	77.2	84.4	5.5	.92	1.66	14543	2.3
FLOAT 1.60	89.5	95.5	7.4	1.21	1.90	14196	2.7
FLOAT 1.90	94.4	98.4	9.0	1.87	2.63	13904	3.8
CUM(14M X 0)	100.0	100.0	12.3	2.62	3.28	13302	4.9

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---	---	---
3/8" X 14M	---	---	---
14M X 100M	---	---	---
100M X 0	.6	---	---

----- MOISTURE, % -----

TOTAL	3.1
AS RECEIVED	1.8

STATE: PENNSYLVANIA
COUNTY: CLARION

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 270

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.80	--	--	--	--	--
ASH	12.56	--	12.79	--	--	--
VOLATILE MATTER	37.92	--	38.61	--	44.28	--
FIXED CARBON	47.72	--	48.60	--	55.72	--
BTU/LB	13078	--	13318	--	15272	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.49	--	3.56	--	4.08	--
OXYGEN	--	--	--	--	--	--
ASH	12.56	--	12.79	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.77	--	2.82	--	3.23	--
SULFATIC	.05	--	.05	--	.06	--
ORGANIC	.68	--	.69	--	.79	--
TOTAL	3.49	--	3.56	--	4.08	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--
SOFTENING TEMPERATURE (ST)	--	--
FLUID TEMPERATURE (FT)	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	15.77	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--
HARDGROVE GRINDABILITY (HGI)	--	--

STATE: PENNSYLVANIA
COUNTY: CLARION

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 271

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.7	57.1	3.6	.34	1.29	14477	1.8
FLOAT 1.40	84.2	89.2	5.3	.88	1.85	14159	2.6
FLOAT 1.60	92.0	95.9	6.5	1.22	2.24	13934	3.2
CUM(1-1/2" X 100M)	100.0	100.0	9.5	2.47	3.65	13371	5.5
100M X 0	2.0	1.0	43.8	3.13	5.45	6940	15.7
TOTAL(1-1/2" X 0)	100.0	100.0	10.2	2.48	3.69	13243	5.6

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.5	58.7	3.2	.35	1.25	14552	1.7
FLOAT 1.40	80.7	86.6	4.9	.75	1.69	14234	2.4
FLOAT 1.60	90.6	95.3	6.4	1.17	2.11	13952	3.0
CUM(3/8" X 100M)	100.0	100.0	10.1	2.66	3.75	13259	5.7
100M X 0	3.2	2.7	21.2	3.47	5.81	11178	10.4
TOTAL(3/8" X 0)	100.0	100.0	10.5	2.69	3.82	13192	5.8

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.2	63.4	2.3	.30	1.20	14721	1.6
FLOAT 1.40	80.9	87.6	4.1	.52	1.44	14384	2.0
FLOAT 1.60	90.8	96.1	5.9	.95	1.95	14046	2.8
CUM(14M X 0)	100.0	100.0	10.0	2.54	3.66	13278	5.5

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

----- MOISTURE, % -----

TOTAL	3.6
AS RECEIVED	2.0

STATE: PENNSYLVANIA
COUNTY: CLARION

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 271

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	2.00	1.40	--	--	--	--
ASH	10.00	5.58	10.20	5.66	--	--
VOLATILE MATTER	36.95	38.72	37.79	39.27	41.98	41.63
FIXED CARBON	51.06	54.29	52.10	55.06	58.02	58.37
BTU/LB	12975	13893	13240	14090	14744	14936

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.61	1.73	3.68	1.76	4.10	1.86
OXYGEN	--	--	--	--	--	--
ASH	10.00	5.58	10.20	5.66	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	2.57	.84	2.62	.86	2.92	.91
SULFATIC	.17	.07	.17	.07	.19	.07
ORGANIC	.87	.82	.89	2.13	.99	.88
TOTAL	3.61	1.73	3.68	1.76	4.10	1.86

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2080	2250	--
SOFTENING TEMPERATURE (ST)	2130	2350	--
FLUID TEMPERATURE (FT)	2280	2500	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	13.04	7.02	65.35

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7 1/2	8	--
HARDGROVE GRINDABILITY (HGI)	57	55	--

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 272

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.6	4.1	.25	1.04	14803	1.4
FLOAT 1.40	61.7	6.8	.69	1.46	14337	2.0
FLOAT 1.60	77.9	10.1	1.10	1.84	13768	2.7
CUM(1-1/2" X 100M)	100.0	21.0	1.85	2.50	11889	4.2
100M X 0	1.5	15.4	2.79	3.41	12855	5.3
TOTAL(1-1/2" X 0)	100.0	20.9	1.86	2.51	11903	4.2

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.2	3.7	.25	1.05	14872	1.4
FLOAT 1.40	63.1	6.3	.56	1.36	14424	1.9
FLOAT 1.60	77.0	9.1	.86	1.62	13941	2.3
CUM(3/8" X 100M)	100.0	20.8	1.91	2.54	11923	4.3
100M X 0	3.1	14.5	2.21	2.85	13010	4.4
TOTAL(3/8" X 0)	100.0	20.6	1.92	2.55	11957	4.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.9	3.1	.14	.92	14975	1.2
FLOAT 1.40	60.0	5.7	.38	1.15	14527	1.6
FLOAT 1.60	78.6	9.1	.67	1.42	13941	2.0
CUM(14M X 0)	100.0	20.0	1.86	2.49	12061	4.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	58.0
3/8" X 14M	30.2
14M X 100M	10.3
100M X 0	1.5
TOTAL AS RECEIVED	2.2
	.6

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 272

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	.60	.70	--	--	--	--
ASH	19.78	8.67	19.90	59.90	26.48	25.15
VOLATILE MATTER	21.09	22.79	21.21	22.95	73.52	74.85
FIXED CARBON	58.53	67.83	58.89	68.31	14975	15416
BTU/LB	11923	13971	11995	14069	5200	12968

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.53	1.37	2.55	1.38	3.18	1.51
OXYGEN	--	--	--	--	--	--
ASH	19.78	8.67	19.90	8.74	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	1.93	.68	1.94	.68	2.42	.75
SULFATIC	.01	.01	.02	.01	.02	.01
ORGANIC	.59	.69	.17	.69	.74	.76
TOTAL	2.53	1.37	2.55	1.38	3.18	1.51

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

BED CODE: 84
SAMPLE NO. 273

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.9	47.5	3.8	.36	1.42	14915	1.9
FLOAT 1.40	77.0	82.6	6.1	.91	2.04	14470	2.8
FLOAT 1.60	90.5	94.8	7.9	1.47	2.63	14122	3.7
CUM(1-1/2" X 100M)	100.0	100.0	11.2	3.15	4.30	13483	6.4
100M X 0	1.3	1.3	12.5	3.47	5.16	13232	7.8
TOTAL(1-1/2" X 0)	100.0	100.0	11.2	3.15	4.31	13480	6.4

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.8	55.8	3.3	.27	1.32	15012	1.8
FLOAT 1.40	77.5	84.4	5.4	.67	1.76	14606	2.4
FLOAT 1.60	89.1	94.9	7.1	1.11	2.19	14277	3.1
CUM(3/8" X 100M)	100.0	100.0	11.6	3.37	4.40	13406	6.6
100M X 0	5.1	5.1	11.6	3.56	4.95	13406	7.4
TOTAL(3/8" X 0)	100.0	100.0	11.6	3.38	4.43	13406	6.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.5	52.7	2.8	.26	1.12	15109	1.5
FLOAT 1.40	75.2	83.2	4.7	.49	1.44	14741	2.0
FLOAT 1.60	87.2	94.3	6.4	.86	1.79	14412	2.5
CUM(14M X 0)	100.0	100.0	12.0	3.45	4.39	13329	6.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	49.1
3/8" X 14M	35.7
14M X 100M	13.9
100M X 0	1.3

TOTAL
AS RECEIVED
2.4
.8

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 273

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	.80	1.20	--	--	--	--
ASH	11.43	6.42	11.52	6.50	48.14	--
VOLATILE MATTER	22.50	22.93	22.69	23.21	19.16	25.64
FIXED CARBON	65.27	69.45	65.79	70.29	32.70	74.36
BTU/LB	13408	14138	13516	14310	15276	15305

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.24	1.95	4.27	1.97	4.83	2.11
OXYGEN	--	--	--	--	--	--
ASH	11.43	6.42	11.52	6.50	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	3.19	.88	3.22	.89	3.64	.95
SULFATIC	.06	.03	.06	.03	.07	.03
ORGANIC	.98	1.04	.99	1.05	1.12	1.12
TOTAL	4.24	1.95	4.27	1.97	4.83	2.11

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
OXIDES	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	1990	2410
Al2O3 (ALUMINUM OXIDE)	--	--	2090	2460
Fe2O3 (IRON OXIDE)	--	--	2190	2520
TiO2 (TITANIUM OXIDE)	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--
SO3 (SULFITES)	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	--	--	--	--
OXYGEN/CARBON	--	--	--	--
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	--	--	9	9
HARDGROVE GRINDABILITY (HGI)	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD
BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS
BED CODE: 84
SAMPLE NO. 274

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	4.8	3.7	.60	15032	2.1
FLOAT 1.40	51.4	10.3	1.46	13792	3.5
FLOAT 1.60	83.0	12.9	2.29	13116	5.0
CUM(1-1/2" X 100M)	100.0	19.5	4.02	12065	8.1
100M X 0	.7	18.6	4.50	12234	9.5
TOTAL(1-1/2" X 0)	100.0	19.5	4.02	12066	8.1

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.9	4.1	.56	14957	2.5
FLOAT 1.40	57.9	9.4	1.27	13961	3.7
FLOAT 1.60	81.2	12.6	1.80	13360	4.5
CUM(3/8" X 100M)	100.0	19.8	4.07	12008	8.6
100M X 0	3.8	17.1	4.38	12515	8.5
TOTAL(3/8" X 0)	100.0	19.7	4.08	12027	8.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	14.3	3.3	.44	15107	2.0
FLOAT 1.40	55.8	7.9	.99	14243	2.6
FLOAT 1.60	78.5	11.6	1.51	13548	3.3
CUM(14M X 0)	100.0	20.5	4.09	11877	8.2

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	59.1
3/8" X 14M	30.3
14M X 100M	9.9
100M X 0	.7

--- MOISTURE, % ---

TOTAL AS RECEIVED	2.3
	.7

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD
BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS
BED CODE: 84
SAMPLE NO. 274

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	7.70	9.90	--	--	--	--
ASH	19.54	11.20	19.68	51.70	--	--
VOLATILE MATTER	22.29	23.56	22.45	17.20	27.95	26.80
FIXED CARBON	57.47	64.34	57.87	31.10	72.05	73.20
BTU/LB	12027	13418	12112	6000	15080	15265
						12422

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.91	2.28	4.94	14.41	6.15	2.59
OXYGEN	--	--	--	--	--	--
ASH	19.54	11.20	19.68	51.70	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	4.02	1.37	4.05	13.51	5.04	27.97
SULFATIC	.02	.01	.02	.03	.02	.06
ORGANIC	.86	.90	.87	.87	1.08	1.03
TOTAL	4.91	2.28	4.94	14.41	6.15	29.83

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLomite	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2200	2780	2050
SOFTENING TEMPERATURE (ST)	2270	2830	2140
FLUID TEMPERATURE (FT)	2470	2890	2190

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PAR)	23.97	13.47	63.76

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD
BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS
BED CODE: 84
SAMPLE NO. 275

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	34.3	3.6	.84	15025	2.1
FLOAT 1.40	73.5	6.2	1.90	14535	3.4
FLOAT 1.60	86.9	8.2	2.31	14159	4.1
CUM(1-1/2" X 100M)	100.0	13.2	4.67	13217	7.9
100M X 0	1.4	14.5	7.02	12972	11.8
TOTAL(1-1/2" X 0)	100.0	13.2	4.70	13214	8.0

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	42.7	3.4	.80	15063	2.1
FLOAT 1.40	75.5	5.6	1.50	14648	3.1
FLOAT 1.60	86.1	7.3	1.86	14328	3.6
CUM(3/8" X 100M)	100.0	13.0	4.44	13255	7.7
100M X 0	1.3	13.1	6.38	13236	10.3
TOTAL(3/8" X 0)	100.0	13.0	4.47	13255	7.7

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	42.1	2.9	.53	15157	1.6
FLOAT 1.40	72.4	4.5	.89	14856	2.2
FLOAT 1.60	85.1	6.4	1.29	14498	2.8
CUM(14M X 0)	100.0	12.9	4.58	13274	8.0

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----

SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	42.8
3/8" X 14M	40.8
14M X 100M	15.0
100M X 0	1.4

----- MOISTURE, % -----

TOTAL	2.2
AS RECEIVED	.6

STATE: PENNSYLVANIA BED: LOWER KITTANNING BED CODE: 84
COUNTY: CLEARFIELD RANK: MED VOLATILE BITUMINOUS SAMPLE NO. 275

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	60	70	--	--	--	--
ASH	12.33	6.45	12.40	6.50	25.43	24.62
VOLATILE MATTER	22.15	22.86	22.28	23.02	74.57	75.38
FIXED CARBON	64.93	69.99	65.32	70.48	15285	15465
BTU/LB	13310	14359	13390	14460	6656	12806

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	5.03	2.24	5.06	2.26	5.78	2.41
OXYGEN	--	--	--	--	--	--
ASH	12.33	6.45	12.40	6.50	48.02	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	4.25	1.17	4.28	1.18	4.89	1.26
SULFATIC	.01	.01	.01	.01	.01	.02
ORGANIC	.77	1.06	.77	1.07	.88	1.14
TOTAL	5.03	2.24	5.06	2.26	5.78	2.41

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
--	-----	---------

BASE/ACID
DOLOMITE
HYDROGEN/CARBON
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1990	2100	2030
SOFTENING TEMPERATURE (ST)	2040	2150	2080
FLUID TEMPERATURE (FT)	2090	2200	2130

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	16.18	8.29	64.95

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	1
HARDGROVE GRINDABILITY (HGI)	94	95	--

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 276

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.3	3.9	.50	14805	2.2
FLOAT 1.40	68.6	5.9	1.09	14442	3.1
FLOAT 1.60	84.1	8.5	1.84	13969	4.3
CUM(1-1/2" X 100M)	100.0	13.9	5.01	12986	9.5
100M X 0	2.2	12.3	3.14	13277	6.9
TOTAL(1-1/2" X 0)	100.0	13.9	4.97	12993	9.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.4	3.8	.40	14824	2.0
FLOAT 1.40	70.7	5.6	.83	14496	2.7
FLOAT 1.60	83.2	7.8	1.41	14096	3.5
CUM(3/8" X 100M)	100.0	14.4	5.27	12896	9.8
100M X 0	1.8	12.5	4.30	13241	8.3
TOTAL(3/8" X 0)	100.0	14.4	5.25	12902	9.7

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.6	3.1	.33	14951	2.0
FLOAT 1.40	65.9	4.8	.64	14642	2.3
FLOAT 1.60	81.1	7.1	1.20	14223	3.3
CUM(14M X 0)	100.0	14.2	5.20	12932	9.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	43.6
3/8" X 14M	38.3
14M X 100M	15.9
100M X 0	2.2

--- MOISTURE, % ---

TOTAL AS RECEIVED	2.1
	.5

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 276

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.50	1.00	1.00	--	--	--
ASH	13.56	6.75	44.45	13.63	6.82	44.90
VOLATILE MATTER	21.64	22.04	19.31	21.75	22.26	19.50
FIXED CARBON	64.30	70.21	35.24	64.62	70.92	35.60
BTU/LB	12814	14260	7302	12878	14404	7376
					14911	15458
						13386

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	5.92	2.10	23.07	5.95	2.12	23.30
OXYGEN	--	--	--	--	--	--
ASH	13.56	6.75	44.45	13.63	6.82	44.90

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.86	1.07	22.14	4.88	1.08	22.36
SULFATIC	.07	.03	.11	.07	.03	.11
ORGANIC	1.00	1.00	.82	1.00	1.01	.83
TOTAL	5.92	2.10	23.07	5.95	2.12	23.30

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--
MISCELLANEOUS DATA, %	--	--	--	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--
PHYSICAL PARAMETERS, INDEX	--	--	--	--	--	--
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: PENNSYLVANIA

COUNTY: CLINTON

BED: LOWER KITTANNING

RANK: MED VOLATILE BITUMINOUS

BED CODE: 84

SAMPLE NO. 277

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	64.3	2.6	.62	15174	2.3
FLOAT 1.40	82.4	3.8	1.11	14953	2.9
FLOAT 1.60	90.6	5.0	1.62	14732	3.6
CUM(1-1/2" X 100M)	100.0	8.1	2.87	14160	5.4
100M X 0	2.6	9.5	2.61	13902	5.2
TOTAL(1-1/2" X 0)	100.0	8.1	2.86	14153	5.4

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	70.0	2.3	.46	15229	2.0
FLOAT 1.40	82.5	3.2	.74	15063	2.4
FLOAT 1.60	89.1	4.2	1.10	14879	2.9
CUM(3/8" X 100M)	100.0	8.2	2.93	14142	5.5
100M X 0	4.9	8.2	3.15	14142	5.9
TOTAL(3/8" X 0)	100.0	8.2	2.94	14142	5.5

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	62.3	2.1	.33	15266	2.0
FLOAT 1.40	78.9	2.8	.54	15137	2.2
FLOAT 1.60	90.7	3.7	.83	14971	2.5
CUM(14M X 0)	100.0	7.6	2.88	14252	5.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	43.0
3/8" X 14M	36.9
14M X 100M	17.5
100M X 0	2.6

TOTAL

AS RECEIVED

2.1

.5

MOISTURE, %

2.1

.5

STATE: PENNSYLVANIA
COUNTY: CLINTON

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 277

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.50	1.00	.75	--	--	--	--	--	--
ASH	7.86	3.66	43.48	7.90	3.70	43.81	--	--	--
VOLATILE MATTER	23.10	23.86	16.27	23.22	24.10	16.39	25.21	25.03	29.17
FIXED CARBON	68.53	71.48	39.50	68.88	72.20	39.80	74.79	74.98	70.83
BTU/LB	14238	14721	7510	14309	14870	7567	15537	15441	13466

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.02	1.86	23.06	4.04	1.88	23.24	4.39	1.95	41.36
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	7.86	3.66	43.48	7.90	3.70	43.81	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.02	.83	22.70	3.04	.84	22.87	3.30	.87	40.71
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.99	1.02	.35	.99	1.03	.35	1.07	1.07	.63
TOTAL	4.02	1.86	23.06	4.04	1.88	23.24	4.39	1.95	41.36

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING	--	--	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: FAYETTE
BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS
BED CODE: 84
SAMPLE NO. 278

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.5	3.1	.14	15061	1.2
FLOAT 1.40	77.2	6.8	.30	14374	1.3
FLOAT 1.60	91.3	9.1	.40	13947	1.5
CUM(1-1/2" X 100M)	100.0	12.7	.94	13278	2.4
100M X 0	2.0	11.9	.63	13427	4.3
TOTAL(1-1/2" X 0)	100.0	12.7	.93	13281	2.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.2	3.0	.08	15080	1.1
FLOAT 1.40	72.8	6.1	.13	14504	1.1
FLOAT 1.60	89.3	8.9	.24	13984	1.3
CUM(3/8" X 100M)	100.0	13.6	.97	13111	2.5
100M X 0	4.9	10.3	.78	13724	3.5
TOTAL(3/8" X 0)	100.0	13.4	.96	13141	2.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.7	2.6	.05	15154	1.1
FLOAT 1.40	70.3	4.8	.05	14745	1.1
FLOAT 1.60	88.2	7.8	.07	14188	1.1
CUM(14M X 0)	100.0	13.1	.84	13204	2.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	51.6
3/8" X 14M	34.8
14M X 100M	11.6
100M X 0	2.0

--- MOISTURE, % ---

TOTAL	6.4
AS RECEIVED	5.7

STATE: PENNSYLVANIA
COUNTY: FAYETTE

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 278

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.70	1.00	1.00	--	--	--	--	--	--
ASH	12.92	7.82	51.38	13.70	7.90	51.90	--	--	--
VOLATILE MATTER	24.92	27.39	17.52	26.43	27.67	17.70	30.63	30.04	36.80
FIXED CARBON	56.46	63.79	30.10	59.87	64.43	30.40	69.37	69.96	63.20
BTU/LB	12400	13979	5930	13150	14120	5990	15237	15331	12453

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	70.35	79.76	33.62	74.60	80.56	33.96	86.44	87.47	70.60
NITROGEN	4.84	4.86	2.29	4.47	4.80	2.20	5.17	5.21	4.57
SULFUR	1.29	1.47	.59	1.36	1.48	.60	1.58	1.61	1.25
OXYGEN	1.43	.73	8.46	1.52	.74	8.54	1.76	.80	17.76
ASH	9.17	5.37	3.66	4.35	4.52	2.80	5.04	4.91	5.82
	12.92	7.82	51.38	13.70	7.90	51.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.77	.08	6.53	.82	.08	6.60	.95	.08	13.71
SULFATIC	.03	.01	.05	.03	.01	.05	.03	.01	.10
ORGANIC	.63	.64	1.88	.67	.65	1.90	.77	.71	3.94
TOTAL	1.43	.73	8.46	1.52	.74	8.54	1.76	.80	17.76

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.72	.71
OXYGEN/CARBON	.05	.04
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2910+
SOFTENING TEMPERATURE (ST)	2910+	2910+	2240
FLUID TEMPERATURE (FT)	2910+	2910+	2450
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.10	--	--
MINERAL MATTER (PARR)	15.55	8.94	60.75

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	9	0
HARDGROVE GRINDABILITY (HGI)	83	--	--

STATE: PENNSYLVANIA
 COUNTY: FAYETTE
 BED: LOWER KITTANNING
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 84
 SAMPLE NO. 279

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	40.9	2.8	.20	15205	1.1
FLOAT 1.40	81.8	6.1	.36	14586	1.3
FLOAT 1.60	94.3	8.1	.53	14210	1.6
CUM(1-1/2" X 100M)	100.0	10.2	1.37	13816	2.9
100M X 0	2.1	12.9	1.11	13309	3.6
TOTAL(1-1/2" X 0)	100.0	10.3	1.36	13805	2.9

----- SAMPLE CRUSHED TO PASS 3/8" -----
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	45.6	2.5	.05	15262	1.0
FLOAT 1.40	77.6	5.0	.13	14792	1.0
FLOAT 1.60	91.8	7.4	.22	14341	1.2
CUM(3/8" X 100M)	100.0	10.4	1.35	13778	2.8
100M X 0	10.3	9.1	.96	14022	2.6
TOTAL(3/8" X 0)	100.0	10.3	1.31	13803	2.8

----- SAMPLE CRUSHED TO PASS 14M -----
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	45.9	2.3	.04	15299	1.0
FLOAT 1.40	78.3	4.5	.11	14886	1.0
FLOAT 1.60	91.6	6.9	.13	14435	1.1
CUM(14M X 0)	100.0	10.8	1.32	13703	2.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	54.8
3/8" X 14M	31.2
14M X 100M	11.9
100M X 0	2.1
TOTAL AS RECEIVED	5.8
	4.1

STATE: PENNSYLVANIA
COUNTY: FAYETTE

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 279

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.10	1.40	1.40	--	--	--
ASH	10.45	6.51	52.75	10.90	6.60	53.50
VOLATILE MATTER	27.54	29.17	20.11	28.71	29.59	20.40
FIXED CARBON	57.91	62.92	25.73	60.39	63.81	26.10
BTU/LB	13167	14248	5600	13730	14450	5680

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	74.19	80.18	29.42	77.36	81.32	29.84
HYDROGEN	4.83	4.94	1.78	4.56	4.86	1.65
NITROGEN	1.35	1.48	.57	1.41	1.50	.58
SULFUR	1.94	.77	14.23	2.03	.78	14.43
OXYGEN	7.23	6.12	--	3.74	4.94	--
ASH	10.45	6.51	52.75	10.90	6.60	53.50

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.34	.14	13.66	1.40	.14	13.85
SULFATIC	.03	.01	.06	.04	.01	.06
ORGANIC	.57	.62	.52	.60	.63	.52
TOTAL	1.94	.77	14.23	2.03	.78	14.43

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.71	.72	--	--	--	--
OXYGEN/CARBON	.04	.05	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	12.89	7.56	65.72	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	8 1/2	77	--	--	--
HARDGROVE GRINDABILITY (HGI)	77	--	--	--	--	--

STATE: PENNSYLVANIA
 COUNTY: INDIANA
 BED: LOWER KITTANNING
 RANK: MED VOLATILE BITUMINOUS
 BED CODE: 84
 SAMPLE NO. 280

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	73.2	77.9	3.5	.05	14968	1.1
FLOAT 1.40	85.8	90.0	4.7	.07	14746	1.1
FLOAT 1.60	97.7	99.1	7.3	.08	14267	1.1
CUM(1-1/2" X 100M)	100.0	100.0	8.4	.13	14065	1.2
100M X 0	1.6	1.5	11.1	1.07	13567	3.3
TOTAL(1-1/2" X 0)	100.0	100.0	8.4	.15	14057	1.2

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	71.1	76.3	3.1	.04	15041	1.1
FLOAT 1.40	84.4	89.3	4.3	.05	14820	1.1
FLOAT 1.60	96.2	98.4	7.0	.06	14323	1.1
CUM(3/8" X 100M)	100.0	100.0	8.7	.13	14009	1.2
100M X 0	2.8	2.8	7.8	.33	14175	1.5
TOTAL(3/8" X 0)	100.0	100.0	8.7	.14	14014	1.2

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.7	67.9	2.5	.04	15152	1.1
FLOAT 1.40	84.6	89.9	4.0	.05	14875	1.0
FLOAT 1.60	94.6	97.6	6.4	.06	14433	1.1
CUM(14M X 0)	100.0	100.0	8.8	.15	13991	1.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	56.7
3/8" X 14M	31.1
14M X 100M	10.6
100M X 0	1.6

--- MOISTURE, % ---
 TOTAL
 AS RECEIVED
 2.3
 .7

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 280

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.70	1.10	1.10	--	--	--
ASH	8.84	6.33	48.16	8.90	6.40	48.70
VOLATILE MATTER	27.92	28.47	17.21	28.12	28.78	17.40
FIXED CARBON	62.54	64.10	33.53	62.98	64.82	33.90
BTU/LB	13914	14237	6562	14012	14396	6635
					15381	15380
						12934

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.88	.79	2.42	.89	.80	2.45
OXYGEN	--	--	--	--	--	--
ASH	8.84	6.33	48.16	8.90	6.40	48.70
					.98	4.77
					--	--
					--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.15	.05	1.71	.15	.05	1.73
SULFATIC	.00	.00	.00	.00	.00	.00
ORGANIC	.73	.74	.71	.74	.75	.72
TOTAL	.88	.79	2.42	.89	.80	2.45
					.98	4.77
					--	--
					--	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO ₂ (SILICON OXIDE)	--	--	--	--	--	--
Al ₂ O ₃ (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe ₂ O ₃ (IRON OXIDE)	--	--	--	--	--	--
TiO ₂ (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na ₂ O (SODIUM OXIDE)	--	--	--	--	--	--
K ₂ O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO ₃ (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--
MISCELLANEOUS DATA, %	--	--	--	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (FARR)	--	--	--	--	--	--
				10.10	7.35	53.94

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: PENNSYLVANIA
 COUNTY: INDIANA
 BED: LOWER KITTANNING
 RANK: MED VOLATILE BITUMINOUS
 BED CODE: 84
 SAMPLE NO. 281

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	71.0	3.4	.01	14928	1.1
FLOAT 1.40	92.6	4.7	.03	14691	1.1
FLOAT 1.60	98.7	5.7	.08	14508	1.2
CUM(1-1/2" X 100M)	100.0	6.2	.17	14417	1.3
100M X 0	.8	8.0	1.16	14089	3.3
TOTAL(1-1/2" X 0)	100.0	6.2	.18	14415	1.3

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	73.3	3.0	.02	15001	1.0
FLOAT 1.40	92.7	4.3	.03	14764	1.1
FLOAT 1.60	97.2	5.1	.06	14618	1.1
CUM(3/8" X 100M)	100.0	6.3	.20	14399	1.3
100M X 0	1.2	7.0	.90	14271	2.6
TOTAL(3/8" X 0)	100.0	6.3	.21	14397	1.3

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.6	3.0	.02	15001	1.1
FLOAT 1.40	90.6	3.8	.03	14855	1.1
FLOAT 1.60	96.5	4.8	.06	14673	1.1
CUM(14M X 0)	100.0	6.4	.19	14381	1.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	
3/8" X 14M	
14M X 100M	
100M X 0	

TOTAL AS RECEIVED 2.5 .9

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 281

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	.90	1.20	--	--	--	--
ASH	6.05	4.55	6.10	4.61	26.57	27.24
VOLATILE MATTER	24.72	25.67	24.95	25.99	73.43	72.76
FIXED CARBON	68.33	68.57	68.95	69.41	--	--
BTU/LB	14221	14403	14350	14578	15282	15282

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.97	.83	.98	4.18	1.04	.88
OXYGEN	--	--	--	--	--	--
ASH	6.05	4.55	6.10	50.59	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	.19	.05	.19	.05	.20	.06
SULFATIC	.02	.02	.03	.03	.03	.02
ORGANIC	.75	.76	.76	.43	.81	.80
TOTAL	.97	.83	.98	.48	1.04	.88

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	RAW	FL 1.60
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	2910+	2910+
Fe2O3 (IRON OXIDE)	--	--	--	--	2910+	2910+
TiO2 (TITANIUM OXIDE)	--	--	--	--	2910+	2910+
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLomite	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
FREE SWELLING	--	--	--	--	9	9
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: INDIANA
BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS
BED CODE: 84
SAMPLE NO. 282

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.4	3.8	.09	14876	1.2
FLOAT 1.40	66.2	7.4	.20	14254	1.3
FLOAT 1.60	87.5	10.9	.28	13649	1.4
CUM(1-1/2" X 100M)	100.0	15.2	.43	12906	1.6
100M X 0	3.3	8.7	1.02	14029	2.3
TOTAL(1-1/2" X 0)	100.0	15.0	.45	12943	1.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.4	3.5	.05	14928	1.1
FLOAT 1.40	67.1	6.5	.10	14409	1.2
FLOAT 1.60	84.8	9.9	.16	13822	1.2
CUM(3/8" X 100M)	100.0	15.8	.46	12892	1.7
100M X 0	5.5	11.8	.99	13493	2.4
TOTAL(3/8" X 0)	100.0	15.6	.49	12840	1.7

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.0	2.9	.07	15031	1.2
FLOAT 1.40	63.9	5.2	.05	14634	1.0
FLOAT 1.60	82.0	9.1	.09	13960	1.1
CUM(14M X 0)	100.0	16.2	.46	12733	1.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	55.3
3/8" X 14M	31.1
14M X 100M	10.3
100M X 0	3.3

--- MOISTURE, % ---
TOTAL
AS RECEIVED
2.2
.6

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 282

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.60	.70	--	--	--	--
ASH	15.46	8.67 47.86	15.55	8.74 48.20	--	--
VOLATILE MATTER	26.06	27.86 17.08	26.22	17.20	31.05	30.75 33.20
FIXED CARBON	57.88	62.76 34.36	58.23	63.20 34.60	68.95	69.25 66.80
BTU/LB	12784	13911 7150	12862	14009 7200	15230	15350 13900

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.06	.75 2.40	1.07	.76 2.42	1.27	.83 4.67
OXYGEN	--	--	--	--	--	--
ASH	15.46	8.67 47.86	15.55	8.74 48.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.45	.08 2.13	.45	.08 2.15	.53	.09 4.14
SULFATIC	.01	.01	.01	.01	.01	.01 .02
ORGANIC	.61	.66 .26	.61	.67 .26	.72	.73 .50
TOTAL	1.06	.75 2.40	1.07	.76 2.42	1.27	.83 4.67

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	2910+	2910+ 2910+
SOFTENING TEMPERATURE (ST)	--	--	--	--	2910+	2910+ 2910+
FLUID TEMPERATURE (FT)	--	--	--	--	2910+	2910+ 2910+

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	17.38	9.85	53.39	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--	--	--	6 1/2	8 --
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: INDIANA
BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 84
SAMPLE NO. 283

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.9	3.4	.52	14928	1.9
FLOAT 1.40	79.5	4.7	.68	14691	2.2
FLOAT 1.60	86.5	6.0	.86	14454	2.5
FLOAT 1.90	91.1	7.6	1.05	14162	2.9
CUM(1-1/2" X 100M)	100.0	12.6	2.23	13249	5.2
100M X 0	.4	11.2	2.80	13504	6.1
TOTAL(1-1/2" X 0)	100.0	12.6	2.23	13250	5.2

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.4	3.0	.27	15001	1.6
FLOAT 1.40	79.9	4.3	.42	14764	1.8
FLOAT 1.60	85.6	5.3	.56	14581	2.1
FLOAT 1.90	91.1	7.6	1.05	14162	2.9
CUM(3/8" X 100M)	100.0	12.8	2.15	13212	5.1
100M X 0	1.0	11.7	2.89	13413	6.3
TOTAL(3/8" X 0)	100.0	12.8	2.16	13214	5.1

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.6	2.7	.26	15056	1.5
FLOAT 1.40	75.9	3.9	.40	14837	1.7
FLOAT 1.60	85.4	5.2	.57	14600	2.0
FLOAT 1.90	91.1	7.6	1.05	14162	2.9
CUM(14M X 0)	100.0	12.8	2.36	13212	5.4

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	.4

--- MOISTURE, % ---

TOTAL	.9
AS RECEIVED	.6

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 283

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.60	--	--	--	--	--
ASH	12.52	--	12.60	--	--	--
VOLATILE MATTER	28.43	--	28.60	--	32.72	--
FIXED CARBON	58.45	--	58.80	--	67.28	--
BTU/LB	13434	--	13515	--	15463	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.25	--	3.27	--	3.74	--
OXYGEN	--	--	--	--	--	--
ASH	12.52	--	12.60	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.35	--	2.36	--	2.70	--
SULFATIC	.20	--	.20	--	.23	--
ORGANIC	.71	--	.71	--	.81	--
TOTAL	3.25	--	3.27	--	3.74	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--
SOFTENING TEMPERATURE (ST)	--	--
FLUID TEMPERATURE (FT)	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (FARR)	15.41	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--
HARDGROVE GRINDABILITY (HGI)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

STATE: PENNSYLVANIA
COUNTY: INDIANA
BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS
BED CODE: 84
SAMPLE NO. 284

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.3	3.1	.29	15120	1.6
FLOAT 1.40	86.5	4.9	.64	14769	2.1
FLOAT 1.60	93.8	6.0	.95	14554	2.6
CUM(1-1/2" X 100M)	100.0	8.2	2.33	14125	4.6
100M X 0	1.9	9.9	2.62	13793	6.3
TOTAL(1-1/2" X 0)	100.0	8.2	2.34	14119	4.7

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.2	2.9	.25	15159	1.5
FLOAT 1.40	85.1	4.6	.48	14828	1.9
FLOAT 1.60	93.0	5.9	.76	14574	2.3
CUM(3/8" X 100M)	100.0	8.7	2.45	14027	4.9
100M X 0	3.4	9.4	3.27	13891	6.6
TOTAL(3/8" X 0)	100.0	8.7	2.48	14023	5.0

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.8	2.1	.23	15316	1.4
FLOAT 1.40	84.1	3.9	.33	14964	1.6
FLOAT 1.60	94.0	5.2	.52	14710	1.9
CUM(14M X 0)	100.0	8.5	2.40	14066	4.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	2.7
3/8" X 14M	1.1
14M X 100M	
100M X 0	

TOTAL
AS RECEIVED

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 284

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.10	1.10	--	--	--	--
ASH	8.74	5.04 57.16	8.84	5.10 57.79	--	--
VOLATILE MATTER	24.52	25.01	24.79	25.29	27.20	26.65
FIXED CARBON	65.64	68.85	66.37	69.61	72.80	73.35
BTU/LB	13846	14568	14000	14730	15358	15522

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.53	1.38 34.13	3.57	1.40 34.51	3.92	1.48 81.75
OXYGEN	--	--	--	--	--	--
ASH	8.74	5.04 57.16	8.84	5.10 57.79	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.50	.46 31.50	2.52	.47 31.85	2.77	.49 75.47
SULFATIC	.11	.04 .19	.12	.04 .19	.13	.04 .45
ORGANIC	.92	.88 2.43	.93	.89 2.46	1.02	.94 5.83
TOTAL	3.53	1.38 34.13	3.57	1.40 34.51	3.92	1.48 81.75

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	2130	2590
Al2O3 (ALUMINUM OXIDE)	--	--	2190	2640
Fe2O3 (IRON OXIDE)	--	--	2400	2740
TiO2 (TITANIUM OXIDE)	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--
SO3 (SULFITES)	--	--	--	--
FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)				
INITIAL DEFORMATION (ID)				
SOFTENING TEMPERATURE (ST)				
FLUID TEMPERATURE (FT)				
MISCELLANEOUS DATA, %				
CL (CHLORINE) (ANALYZED)				
NA (SODIUM) (CALCULATED)				
MINERAL MATTER (PARR)				
PHYSICAL PARAMETERS, INDEX				
FREE SWELLING (FSI)				
HARDGROVE GRINDABILITY (HGI)				

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

STATE: PENNSYLVANIA
COUNTY: INDIANA
BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 84
SAMPLE NO. 285

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.2	3.7	.36	1.45	14874	1.9
FLOAT 1.40	70.9	5.2	.57	1.66	14600	2.3
FLOAT 1.60	78.5	6.8	.76	1.87	14308	2.6
FLOAT 1.90	85.0	9.5	.98	2.10	13815	3.0
CUM(1-1/2" X 100M)	100.0	17.7	2.85	4.31	12318	7.0
100M X 0	.4	14.4	3.07	4.49	12920	7.0
TOTAL(1-1/2" X 0)	100.0	17.7	2.85	4.31	12320	7.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.5	2.7	.21	1.22	15056	1.6
FLOAT 1.40	70.2	4.2	.37	1.38	14782	1.9
FLOAT 1.60	77.4	5.8	.52	1.53	14490	2.1
FLOAT 1.90	85.0	9.5	.98	2.10	13815	3.0
CUM(3/8" X 100M)	100.0	17.7	2.79	4.23	12318	6.9
100M X 0	1.1	14.5	2.86	4.53	12902	7.0
TOTAL(3/8" X 0)	100.0	17.7	2.79	4.23	12324	6.9

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.6	2.5	.19	1.22	15093	1.6
FLOAT 1.40	70.0	4.3	.39	1.41	14764	1.9
FLOAT 1.60	78.6	5.9	.53	1.55	14472	2.1
FLOAT 1.90	85.0	9.5	.98	2.10	13815	3.0
CUM(14M X 0)	100.0	17.3	2.88	4.31	12391	7.0

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	.4

--- MOISTURE, % ---

TOTAL	.7
AS RECEIVED	.4

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 285

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.40	--	--	--	--	--
ASH	16.43	--	--	16.50	--	--
VOLATILE MATTER	27.69	--	--	27.80	--	--
FIXED CARBON	55.48	--	--	55.70	--	--
BTU/LB	12804	--	--	12855	--	15395

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.06	--	--	4.07	--	4.88
OXYGEN	--	--	--	--	--	--
ASH	16.43	--	--	16.50	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.11	--	--	3.12	--	3.74
SULFATIC	.08	--	--	.08	--	.10
ORGANIC	.87	--	--	.87	--	1.04
TOTAL	4.06	--	--	4.07	--	4.88

MINERAL ANALYSIS OF ASH, %

(IN CALDIZING ATMOSPHERE)						
	RAW	FL 1.60	SK 1.60		RAW	FL 1.60 SK 1.60
OXIDES	--	--	--			
(SILICON OXIDE)	--	--	--	INITIAL DEFORMATION (ID)	--	--
(ALUMINUM OXIDE)	--	--	--	SOFTENING TEMPERATURE (ST)	--	--
(IRON OXIDE)	--	--	--	FLUID TEMPERATURE (FT)	--	--
(TITANIUM OXIDE)	--	--	--			
(CALCIUM OXIDE)	--	--	--	----- MISCELLANEOUS DATA, % -----		
(MAGNESIUM OXIDE)	--	--	--			
(SODIUM OXIDE)	--	--	--			
(POTASSIUM OXIDE)	--	--	--	CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
(SULFITES)	--	--	--		--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	20.06	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--
DOLomite	--	--	--
HYDROGEN/CARBON	--	--	--
OXYGEN/CARBON	--	--	--
R250	--	--	--
SILICA	--	--	--
SILICA/ALUMINA	--	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE:	84
SAMPLE NO.	286

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	42.3	3.8	.82	14855	2.3
FLOAT 1.40	76.8	5.9	1.26	14472	3.0
FLOAT 1.60	86.2	7.2	1.62	14235	3.6
FLOAT 1.90	90.1	8.4	1.90	14016	4.2
CUM(1-1/2" X 100M)	100.0	13.3	3.41	13121	7.2
100M X 0	.6	10.5	3.31	13632	6.7
TOTAL(1-1/2" X 0)	100.0	13.3	3.41	13124	7.2

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL) -----

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO ₂ EMISSION
	BTU WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
	49.0	3.0	.64	15001	2.1
FLOAT 1.30	76.8	5.0	.95	14636	2.6
FLOAT 1.40	84.4	6.1	1.20	14435	3.0
FLOAT 1.60	90.1	8.4	1.90	14016	4.2
FLOAT 1.90	100.0	13.4	3.44	13103	7.2
CUM(3/8" X 100M)					
100M X 0	1.3	11.1	3.78	13523	7.7
TOTAL(3/8" X 0)	100.0	13.4	3.44	13108	7.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC SULFUR, %	TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
WEIGHT	42.4		.72	1.49	14965	2.0
FLOAT 1.30	48.1	3.2				
FLOAT 1.40	85.3	5.0		1.82	14636	2.5
FLOAT 1.60	76.9		1.25		14335	2.9
FLOAT 1.80	85.7	6.1	1.25		14435	2.9
FLOAT 1.90	90.1	8.4	1.90		14016	4.2
CUM (1.4M X 0)	100.0	12.9	3.38	4.68	13194	7.1

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

----- MOISTURE, % -----

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0
--
--
--
--
.6

TOTAL	8
AS RECEIVED	5

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: LOWER KITTANNING
RANK: MED . . . ATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 286

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.50	--	--	--	--	--
ASH	13.35	--	13.42	--	--	--
VOLATILE MATTER	24.19	--	24.31	--	28.07	--
FIXED CARBON	61.96	--	62.27	--	71.92	--
BTU/LB	13415	--	13483	--	15572	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.32	--	4.34	--	5.01	--
OXYGEN	--	--	--	--	--	--
ASH	13.35	--	13.42	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.56	--	3.58	--	4.14	--
SULFATIC	.05	--	.05	--	.06	--
ORGANIC	.71	--	.71	--	.82	--
TOTAL	4.32	--	4.34	--	5.01	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--
SOFTENING TEMPERATURE (ST)	--	--
FLUID TEMPERATURE (FT)	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (FARR)	16.88	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--
HARDGROVE GRINDABILITY (HGI)	--	--

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 287

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.9	3.8	.53	14855	1.9
FLOAT 1.40	71.4	5.6	.79	14527	2.4
FLOAT 1.60	78.5	6.8	1.04	14308	2.8
FLOAT 1.90	81.4	7.8	1.28	14125	3.3
CUM(1-1/2" X 100M)	100.0	19.7	3.31	11953	7.8
100M X 0	.6	11.2	2.50	13504	5.7
TOTAL(1-1/2" X 0)	100.0	19.6	3.31	11962	7.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.1	3.5	.37	14910	1.7
FLOAT 1.40	70.5	4.8	.56	14673	2.0
FLOAT 1.60	77.0	6.0	.75	14454	2.3
FLOAT 1.90	81.4	7.8	1.28	14125	3.3
CUM(3/8" X 100M)	100.0	20.1	3.37	11880	7.8
100M X 0	1.5	13.7	2.80	13048	6.7
TOTAL(3/8" X 0)	100.0	20.0	3.36	11897	7.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.5	3.3	.27	14947	1.5
FLOAT 1.40	71.8	5.0	.58	14636	2.0
FLOAT 1.60	79.0	6.2	.75	14417	2.3
FLOAT 1.90	81.4	7.8	1.28	14125	3.3
CUM(14M X 0)	100.0	18.8	3.19	12117	7.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	1.0
3/8" X 14M	.6
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 287

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.60	--	--	--	--	--
ASH	19.43	--	--	19.55	--	--
VOLATILE MATTER	22.22	--	--	22.35	--	--
FIXED CARBON	57.75	--	--	58.10	--	--
BTU/LB	12357	--	--	12432	--	15453

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.35	--	--	4.38	--	5.45
OXYGEN	--	--	--	--	--	--
ASH	19.43	--	--	19.55	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.59	--	--	3.61	--	4.49
SULFATIC	.05	--	--	.05	--	.06
ORGANIC	.71	--	--	.72	--	.89
TOTAL	4.35	--	--	4.38	--	5.45

MINERAL ANALYSIS OF ASH, %
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: INDIANA
BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 84
SAMPLE NO. 288

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
100M X 0	1.2	16.4	2.42	12770	6.8
TOTAL(1-1/2" X 0)	100.0	21.6	3.87	11808	7.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
100M X 0	2.4	17.3	3.21	12604	7.6
TOTAL(3/8" X 0)	100.0	20.9	3.85	11941	7.7

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
100M X 0	2.4	17.3	3.21	12604	7.6
TOTAL(3/8" X 0)	100.0	20.9	3.85	11941	7.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

MOISTURE, %

TOTAL
AS RECEIVED
2.3
.7

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 288

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.70	.70	.70	--	--	--
ASH	21.15	6.86	59.81	21.30	6.91	60.24
VOLATILE MATTER	19.56	19.89	--	19.70	20.03	--
FIXED CARBON	58.59	72.54	--	59.00	73.06	--
BTU/LB	11787	14410	--	11870	14511	--
					15083	15589

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.49	1.29	13.23	4.53	1.30	13.32
OXYGEN	--	--	--	--	--	--
ASH	21.15	6.86	59.81	21.30	6.91	60.24

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.01	.54	12.88	4.04	.54	12.97
SULFATIC	.10	.05	.16	.11	.05	.16
ORGANIC	.38	.71	.18	.38	.71	.19
TOTAL	4.49	1.29	13.23	4.53	1.30	13.32

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2260	2770	--
SOFTENING TEMPERATURE (ST)	2360	2820	--
FLUID TEMPERATURE (FT)	2520	2910+	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	25.49	8.18	72.38

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: PENNSYLVANIA
 COUNTY: INDIANA
 BED: LOWER KITTANNING
 RANK: MED VOLATILE BITUMINOUS
 BED CODE: 84
 SAMPLE NO. 289

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.4	3.5	.47	14930	1.7
FLOAT 1.40	75.5	5.5	.90	14545	2.4
FLOAT 1.60	83.8	6.6	1.25	14344	3.1
FLOAT 1.90	86.7	7.6	1.64	14162	3.8
CUM(1-1/2" X 100M)	100.0	14.8	3.69	12847	7.8
100M X 0	.7	11.0	3.30	13541	7.1
TOTAL(1-1/2" X 0)	100.0	14.8	3.69	12852	7.8

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.6	3.5	.46	14910	1.7
FLOAT 1.40	76.9	4.9	.72	14655	2.1
FLOAT 1.60	83.1	5.8	.95	14490	2.5
FLOAT 1.90	86.7	7.6	1.64	14162	3.8
CUM(3/8" X 100M)	100.0	14.6	3.74	12884	7.8
100M X 0	1.2	12.2	4.00	13322	8.5
TOTAL(3/8" X 0)	100.0	14.6	3.74	12889	7.8

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.9	2.9	.39	15020	1.6
FLOAT 1.40	75.8	4.8	.70	14673	2.1
FLOAT 1.60	82.9	5.8	.91	14490	2.5
FLOAT 1.90	86.7	7.6	1.64	14162	3.8
CUM(14M X 0)	100.0	14.6	3.67	12884	7.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	.7

MOISTURE, %

TOTAL
 AS RECEIVED
 .7
 .5

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 289

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.50	--	--	--	--	--
ASH	14.73	--	--	14.80	--	--
VOLATILE MATTER	21.99	--	--	22.10	--	--
FIXED CARBON	62.78	--	--	63.10	--	--
					25.94	--
					74.06	--
BTU/LB	13109	--	--	13175	--	--
					15464	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.50	--	--	4.53	--	--
OXYGEN	--	--	--	--	5.31	--
ASH	14.73	--	--	14.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.87	--	--	3.89	--	--
SULFATIC	.04	--	--	.04	--	--
ORGANIC	.60	--	--	.60	--	--
TOTAL	4.50	--	--	4.53	--	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	18.47	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
--	-----	---------

BASE/ACID

DOLOMITE
HYDROGEN/CARBON
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

STATE: PENNSYLVANIA
COUNTY: INDIANA
BED: LOWER KITTANNING
RANK: MED VOLATILE BITUMINOUS
BED CODE: 84
SAMPLE NO. 290

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.6	3.7	3.7	.20	14731	1.8
FLOAT 1.40	50.1	6.0	6.0	.41	14320	2.0
FLOAT 1.60	60.9	8.5	8.5	.89	13874	2.6
CUM(1-1/2" X 100M)	100.0	31.5	31.5	4.22	9764	9.6
100M X 0	2.4	17.6	17.6	2.18	12248	4.5
TOTAL(1-1/2" X 0)	100.0	31.2	31.2	4.17	9823	9.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.4	3.4	3.4	.18	14785	1.4
FLOAT 1.40	50.5	5.4	5.4	.30	14428	1.5
FLOAT 1.60	59.5	7.9	7.9	.53	13981	1.9
CUM(3/8" X 100M)	100.0	32.4	32.4	4.26	9603	9.9
100M X 0	4.8	24.3	24.3	3.46	11050	7.0
TOTAL(3/8" X 0)	100.0	32.0	32.0	4.22	9673	9.8

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.7	2.9	2.9	.14	14874	1.3
FLOAT 1.40	51.1	5.0	5.0	.27	14499	1.5
FLOAT 1.60	61.7	7.6	7.6	.45	14034	1.8
CUM(14M X 0)	100.0	30.8	30.8	4.17	9889	9.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
--- SAMPLE CRUSHED TO PASS 1-1/2" ---	
1-1/2" X 3/8"	51.8
3/8" X 14M	31.4
14M X 100M	14.4
100M X 0	2.4
--- TOTAL AS RECEIVED ---	
	2.1
	.5

STATE: PENNSYLVANIA BED: LOWER KITANNING BED CODE: 84
COUNTY: INDIANA RANK: MED VOLATILE BITUMINOUS SAMPLE NO. 290

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	.50	.70	--	--	--	--
ASH	30.15	7.65	30.30	7.70	26.78	23.11
VOLATILE MATTER	18.58	21.18	18.67	21.33	73.22	76.89
FIXED CARBON	50.78	70.47	51.03	70.97	13659	15504
BTU/LB	9472	14210	9520	14310	2960	10034

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.73	1.24	4.76	1.25	6.82	1.35
OXYGEN	--	--	--	--	--	--
ASH	30.15	7.65	30.30	7.70	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	4.00	.41	4.02	.41	5.77	.44
SULFATIC	.01	.01	.02	.01	.02	.01
ORGANIC	.72	.82	.72	.83	1.03	.90
TOTAL	4.73	1.24	4.76	1.25	6.82	1.35

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
--	-----	---------

BASE/ACID
DOLOMITE
HYDROGEN/CARBON
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2580	2910+	2570
SOFTENING TEMPERATURE (ST)	2630	2910+	2620
FLUID TEMPERATURE (FT)	2680	2910+	2670

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	35.34	9.00	81.98

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	--
HARDGROVE GRINDABILITY (HGI)	84	106	49

STATE: PENNSYLVANIA
COUNTY: JEFFERSON
BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 84
SAMPLE NO. 291

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.8	3.8	.24	14855	1.2
FLOAT 1.40	90.6	6.0	.30	14454	1.5
FLOAT 1.60	96.9	7.1	.36	14253	1.6
CUM(1-1/2" X 100M)	100.0	8.4	.58	14016	1.9
100M X 0	.9	10.7	2.49	13596	4.7
TOTAL(1-1/2" X 0)	100.0	8.4	.60	14012	1.9

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.7	3.4	.11	14928	1.2
FLOAT 1.40	90.2	5.8	.26	14490	1.4
FLOAT 1.60	96.1	6.8	.29	14308	1.5
CUM(3/8" X 100M)	100.0	8.4	.57	14016	1.9
100M X 0	2.1	9.0	1.49	13906	3.2
TOTAL(3/8" X 0)	100.0	8.4	.59	14013	1.9

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.5	2.9	.15	15020	1.1
FLOAT 1.40	87.9	4.9	.22	14655	1.4
FLOAT 1.60	95.1	5.9	.28	14472	1.4
CUM(14M X 0)	100.0	8.2	.62	14052	1.9

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
3/8" X 14M ---
14M X 100M ---
100M X 0 ---

----- MOISTURE, % -----

TOTAL 2.8
AS RECEIVED 1.2

STATE: PENNSYLVANIA
COUNTY: JEFFERSON

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 291

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.20	1.30	1.30	--	--	--	--	--	--
ASH	8.20	6.06	52.71	8.30	6.14	53.40	--	--	--
VOLATILE MATTER	36.06	36.15	--	36.50	36.62	--	39.80	39.02	--
FIXED CARBON	54.54	56.49	--	55.20	57.24	--	60.20	60.98	--
BTU/LB	13541	13976	--	13705	14160	--	14945	15085	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.26	1.06	7.26	1.28	1.07	7.36	1.40	1.14	15.79
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	8.20	6.06	52.71	8.30	6.14	53.40	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.56	.29	7.12	.57	.29	7.22	.62	.31	15.49
SULFATIC	.00	.00	.00	.00	.00	.00	.00	.00	.00
ORGANIC	.70	.77	.14	.71	.78	.14	.77	.83	.30
TOTAL	1.26	1.06	7.26	1.28	1.07	7.36	1.40	1.14	15.79

MINERAL ANALYSIS OF ASH, %

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	RAW	FL 1.60	SK 1.60
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	2750	2890	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	2800	2910+	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	2870	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLomite	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

FREE SWELLING	RAW	FL 1.60	SK 1.60
HARDGROVE GRINDABILITY (HGI)	7 1/2	--	--

STATE: PENNSYLVANIA
COUNTY: JEFFERSON
BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 84
SAMPLE NO. 292

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	18.4	4.3	.16	14460	1.3
FLOAT 1.40	77.8	8.3	.38	13780	1.7
FLOAT 1.60	89.7	10.1	.52	13504	1.9
CUM(1-1/2" X 100M)	100.0	14.3	.87	12806	2.4
100M X 0	.6	16.7	1.81	12382	4.4
TOTAL(1-1/2" X 0)	100.0	14.3	.88	12803	2.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.3	3.1	.12	14620	1.2
FLOAT 1.40	73.8	7.2	.24	13951	1.3
FLOAT 1.60	88.5	9.5	.35	13583	1.5
CUM(3/8" X 100M)	100.0	14.8	.92	12693	2.3
100M X 0	5.2	12.1	1.28	13162	3.1
TOTAL(3/8" X 0)	100.0	14.7	.94	12717	2.4

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.9	3.3	.14	14670	1.2
FLOAT 1.40	70.5	6.8	.22	14095	1.3
FLOAT 1.60	88.6	9.6	.30	13624	1.4
CUM(14M X 0)	100.0	14.9	.87	12720	2.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
--- SAMPLE CRUSHED TO PASS 1-1/2" ---	
1-1/2" X 3/8"	77.5
3/8" X 14M	18.3
14M X 100M	3.6
100M X 0	.6
TOTAL	3.3
AS RECEIVED	1.6

STATE: PENNSYLVANIA
COUNTY: JEFFERSON

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 292

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.60	1.70 1.70	--	--	--	--
ASH	15.25	9.06 54.85	15.50	9.22 55.80	--	--
VOLATILE MATTER	31.47	33.64 17.30	31.98	34.23 17.60	37.85	37.70 39.82
FIXED CARBON	51.68	55.59 26.15	52.52	56.56 26.50	62.15	62.30 60.18
BTU/LB	1229	13449 5630	12631	13682 5728	14947	15071 12959

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	69.32	74.50 31.38	70.44	75.79 31.92	83.36	83.48 72.22
HYDROGEN	4.78	5.14 2.55	4.68	5.04 2.40	5.53	5.55 5.43
NITROGEN	1.23	1.33 .49	1.25	1.36 .50	1.48	1.49 1.13
SULFUR	1.60	1.04 6.21	1.63	1.06 6.32	1.92	1.16 14.29
OXYGEN	7.83	8.93 4.52	6.51	7.55 3.06	7.70	8.31 6.93
ASH	15.25	9.06 54.85	15.50	9.22 55.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.81	.28 5.21	.82	.28 5.30	.97	.31 11.99
SULFATIC	.02	.02 .03	.03	.02 .03	.03	.02 .07
ORGANIC	.77	.74 .97	.78	.76 .99	.92	.83 2.23
TOTAL	1.60	1.04 6.21	1.63	1.06 6.32	1.92	1.16 14.29

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	2830	2910+
SOFTENING TEMPERATURE (ST)	--	--	--	--	2885	2910+
FLUID TEMPERATURE (FT)	--	--	--	--	2910+	2910+

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	17.63	10.54 63.74

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.80	.80	--	--	--	--
OXYGEN/CARBON	.07	.07	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING	--	--	--	--	8	1/2 0
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	55	53

STATE: PENNSYLVANIA
 COUNTY: JEFFERSON
 BED: LOWER KITTANNING
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 84
 SAMPLE NO. 293

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.5	3.7	.71	14900	2.3
FLOAT 1.40	73.1	5.4	1.10	14590	2.9
FLOAT 1.60	83.1	7.3	1.53	14263	3.5
CUM(1-1/2" X 100M)	100.0	14.7	3.66	12917	7.0
100M X 0	1.2	12.8	2.70	13252	6.1
TOTAL(1-1/2" X 0)	100.0	14.7	3.65	12921	6.9

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.9	3.0	.47	15040	2.1
FLOAT 1.40	72.8	4.6	.77	14755	2.6
FLOAT 1.60	82.0	6.4	1.16	14439	3.1
CUM(3/8" X 100M)	100.0	14.9	3.66	12889	7.1
100M X 0	5.7	12.1	3.70	13377	7.1
TOTAL(3/8" X 0)	100.0	14.7	3.66	12917	7.1

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.6	1.9	.38	15180	1.8
FLOAT 1.40	72.2	3.3	.65	14922	2.2
FLOAT 1.60	81.5	4.8	1.10	14646	2.8
CUM(14M X 0)	100.0	13.9	3.70	13022	6.9

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	63.9
3/8" X 14M	27.5
14M X 100M	7.4
100M X 0	1.2

--- MOISTURE, % ---

TOTAL	2.9
AS RECEIVED	.8

STATE: PENNSYLVANIA
COUNTY: JEFFERSON
BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 84
SAMPLE NO. 293

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.80	1.10	1.10	--	--	--	--	--	--
ASH	13.79	4.94	53.60	13.90	4.99	54.20	--	--	--
VOLATILE MATTER	32.47	35.21	19.78	32.73	35.60	20.00	38.02	37.47	43.67
FIXED CARBON	52.94	58.76	25.52	53.37	59.41	25.80	61.98	62.53	56.33
BTU/LB	12918	14456	5779	13022	14617	5843	15125	15385	12758

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	72.05	80.30	28.20	72.63	81.19	28.51	84.36	85.46	62.25
HYDROGEN	4.78	5.37	2.11	4.72	5.31	2.01	5.49	5.59	4.39
NITROGEN	1.31	1.47	.57	1.32	1.49	.57	1.54	1.57	1.25
SULFUR	4.43	2.02	14.54	4.47	2.04	14.71	5.19	2.15	32.11
OXYGEN	3.64	5.90	--	2.95	4.98	--	3.43	5.24	--
ASH	13.79	4.94	53.60	13.90	4.99	54.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.54	.98	14.34	3.57	.99	14.50	4.15	1.04	31.66
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.88	1.03	.20	.89	1.04	.20	1.03	1.09	.43
TOTAL	4.43	2.02	14.54	4.47	2.04	14.71	5.19	2.15	32.11

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	.78	.78	--	--	--	--	--	--	--
OXYGEN/CARBON	.03	.05	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING	7	1/2	73	7	1/2	73	7	1/2	73
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2040	2190	1920	2040	2190	1920	2040	2190	1920
SOFTENING TEMPERATURE (ST)	2090	2290	1970	2090	2290	1970	2090	2290	1970
FLUID TEMPERATURE (FT)	2300	2480	2020	2300	2480	2020	2300	2480	2020

MISCELLANEOUS DATA, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PARR)	17.47	6.51	66.62	17.47	6.51	66.62	17.47	6.51	66.62

STATE: PENNSYLVANIA
 COUNTY: LAWRENCE
 BED: LOWER KITTANNING
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 84
 SAMPLE NO. 294

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.0	3.9	.49	14360	1.6
FLOAT 1.40	73.8	6.8	1.37	13836	2.9
FLOAT 1.60	88.5	9.0	1.97	13438	3.8
CUM(1-1/2" X 100M)	100.0	14.2	3.18	12498	6.0
100M X 0	1.1	23.3	6.05	10852	12.5
TOTAL(1-1/2" X 0)	100.0	14.3	3.21	12480	6.0

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.9	3.2	.30	14487	1.3
FLOAT 1.40	73.4	5.3	.69	14107	1.9
FLOAT 1.60	85.8	7.6	1.10	13691	2.5
CUM(3/8" X 100M)	100.0	14.6	3.09	12426	5.8
100M X 0	4.6	17.0	4.33	11992	8.2
TOTAL(3/8" X 0)	100.0	14.7	3.15	12406	5.9

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.7	2.7	.14	14577	1.2
FLOAT 1.40	71.2	4.4	.41	14270	1.6
FLOAT 1.60	84.6	6.7	.66	13854	2.0
CUM(14M X 0)	100.0	14.6	3.25	12426	6.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	77.0
3/8" X 14M	17.0
14M X 100M	4.9
100M X 0	1.1
TOTAL	3.4
AS RECEIVED	1.8

STATE: PENNSYLVANIA	BED: LOWER KITTANNING	BED CODE: 84
COUNTY: LAWRENCE	RANK: HIGH VOLATILE A BITUMINOUS	SAMPLE NO. 294
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	1.80 1.80	---
ASH	14.14 6.84	14.40 57.45
VOLATILE MATTER	36.64 39.56	37.31 40.29
FIXED CARBON	47.42 51.80	48.29 52.75
		21.41 21.80
BTU/LB	12285 13517	4399 12510
		13764 4480
		14614 14795
		10795
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	---	---
HYDROGEN	---	---
NITROGEN	---	---
SULFUR	3.62 1.41	17.37 3.69
OXYGEN	---	---
ASH	14.14 6.84	57.45 14.40
		6.97 58.50
		4.31 1.55
		42.62

----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	3.05 .71	17.16 3.11
SULFATIC	.01 .01	.73 17.48
ORGANIC	.56 .69	.01 .01
TOTAL	3.62 1.41	.70 .20
		1.44 17.69
		4.31 1.55
		42.62

----- MINERAL ANALYSIS OF ASH, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	---	---
SiO2 (SILICON OXIDE)	---	---
Al2O3 (ALUMINUM OXIDE)	---	---
Fe2O3 (IRON OXIDE)	---	---
TiO2 (TITANIUM OXIDE)	---	---
CaO (CALCIUM OXIDE)	---	---
MgO (MAGNESIUM OXIDE)	---	---
Na2O (SODIUM OXIDE)	---	---
K2O (POTASSIUM OXIDE)	---	---
SO3 (SULFITES)	---	---
----- COAL UTILIZATION RATIOS -----		
	RAW FL 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	---	---
DOLOMITE	---	---
HYDROGEN/CARBON	---	---
OXYGEN/CARBON	---	---
R250	---	---
SILICA	---	---
SILICA/ALUMINA	---	---
----- FUSIBILITY OF ASH, DEGREES F -----		
		(IN OXIDIZING ATMOSPHERE)
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2080	2440
SOFTENING TEMPERATURE (ST)	2180	2520
FLUID TEMPERATURE (FT)	2500	2620
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	---	---
NA (SODIUM) (CALCULATED)	---	---
MINERAL MATTER (PARR)	17.58	8.32
		72.91
----- PHYSICAL PARAMETERS, INDEX -----		
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)	5	6 1/2
HARDGROVE GRINDABILITY (HGI)	50	50

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 295

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	36.6	38.8	.14	15333	.9
FLOAT 1.40	88.4	91.0	.28	14903	1.1
FLOAT 1.60	96.1	97.7	.36	14708	1.2
CUM(1-1/2" X 100M)	100.0	100.0	.95	14474	2.0
100M X 0	2.0	1.9	1.28	13517	3.0
TOTAL(1-1/2" X 0)	100.0	100.0	.96	14455	2.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.4	44.0	.25	15294	1.0
FLOAT 1.40	85.5	88.9	.25	14962	1.1
FLOAT 1.60	95.0	97.2	.30	14727	1.1
CUM(3/8" X 100M)	100.0	100.0	1.03	14396	2.2
100M X 0	7.7	7.5	1.39	14044	2.8
TOTAL(3/8" X 0)	100.0	100.0	1.06	14369	2.2

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.7	37.2	.17	15372	.9
FLOAT 1.40	83.4	87.5	.19	15040	1.0
FLOAT 1.60	95.1	97.8	.21	14747	1.0
CUM(14M X 0)	100.0	100.0	1.08	14337	2.3

RAW COAL SIZE AND MOISTURE ANALYSES

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	23.4	TOTAL AS RECEIVED 6.7 6.1
3/8" X 14M	53.1	
14M X 100M	21.5	
100M X 0	2.0	

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 295

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

MOISTURE	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
ASH	6.10	1.10 1.10	--	--	--	--
VOLATILE MATTER	6.76	5.14 47.67	7.20	5.20 48.20	--	--
FIXED CARBON	18.72	19.82 17.60	19.93	20.05 17.80	21.48	21.14 34.36
	68.42	73.93 33.63	72.87	74.75 34.00	78.52	78.86 65.64
BTU/LB	13573	14568 6320	14454	14730 6390	15576	15538 12336

ULTIMATE ANALYSIS, %

CARBON	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
HYDROGEN	77.52	83.96 31.93	82.56	84.90 32.29	88.97	89.56 62.34
NITROGEN	4.75	4.53 1.89	4.34	4.46 1.79	4.68	4.70 3.45
SULFUR	1.39	1.51 .47	1.48	1.52 .47	1.59	1.61 .91
OXYGEN	1.42	.68 17.06	1.51	.68 17.25	1.63	.72 33.31
ASH	8.16	4.18 --	2.91	3.24 --	3.14	3.42 --
	6.76	5.14 47.67	7.20	5.20 48.20	--	--

SULFUR FORMS ANALYSIS, %

PYRITIC	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
SULFATIC	1.05	.19 16.73	1.12	.19 16.91	1.21	.20 32.65
ORGANIC	.06	.05 .07	.06	.07	.06	.05 .14
TOTAL	.31	.44 .27	.33	.45 .27	.36	.47 .52
	1.42	.68 17.06	1.51	.68 17.25	1.63	.72 33.31

MINERAL ANALYSIS OF ASH, %

OXIDES	AS RECEIVED		FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
SiO2 (SILICON OXIDE)	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--
SO3 (SULFITES)	--	--	--	--

COAL UTILIZATION RATIOS

BASE/ACID	AS RECEIVED		FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
	RAW	FL 1.60	RAW	FL 1.60 SK 1.60
DOLomite	--	--	--	--
HYDROGEN/CARBON	.63	.63	--	--
OXYGEN/CARBON	.03	.03	--	--
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

PHYSICAL PARAMETERS, INDEX

FREE SWELLING	AS RECEIVED		FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
HARDGROVE GRINDABILITY (HGI)	9	9	--	--
	105	105	--	--

STATE: PENNSYLVANIA
 COUNTY: SOMERSET
 BED: LOWER KITTANNING
 RANK: LOW VOLATILE BITUMINOUS
 BED CODE: 84
 SAMPLE NO. 296

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	1.7	3.0	.07	15130	1.0
FLOAT 1.40	76.1	5.1	.07	14553	1.1
FLOAT 1.60	88.0	6.5	.12	14282	1.2
CUM(1-1/2" X 100M)	100.0	12.8	.71	13156	2.1
100M X 0	3.4	16.5	1.17	12440	3.6
TOTAL(1-1/2" X 0)	100.0	12.9	.73	13132	2.2

SAMPLE CRUSHED TO PASS 3/8"
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.1	2.7	.05	15170	.9
FLOAT 1.40	74.5	4.6	.09	14626	1.1
FLOAT 1.60	86.7	5.9	.10	14393	1.1
CUM(3/8" X 100M)	100.0	13.1	.77	13105	2.2
100M X 0	9.3	16.5	1.17	12440	3.4
TOTAL(3/8" X 0)	100.0	13.4	.81	13043	2.3

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.8	3.2	.14	14900	1.2
FLOAT 1.40	65.9	4.1	.09	14632	.9
FLOAT 1.60	86.3	5.8	.12	14282	1.1
CUM(14M X 0)	100.0	13.0	.80	12979	2.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	37.9
3/8" X 14M	41.9
14M X 100M	16.8
100M X 0	3.4

MOISTURE, %
 TOTAL
 AS RECEIVED
 3.7
 2.0

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 296

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.00	1.50	1.50	--	--	--	--	--	--
ASH	13.25	5.94	57.52	13.52	6.03	58.40	--	--	--
VOLATILE MATTER	16.94	17.68	13.30	17.29	17.95	13.50	19.99	19.10	32.45
FIXED CARBON	67.81	74.88	27.68	69.19	76.02	28.10	80.01	80.90	67.55
BTU/LB	12643	14033	4693	12901	14246	4765	14918	15161	11454

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	74.62	82.03	28.86	76.15	83.28	29.30	88.05	88.63	70.43
HYDROGEN	4.07	4.39	2.04	3.93	4.29	1.90	4.54	4.56	4.57
NITROGEN	1.24	1.38	.49	1.27	1.40	.50	1.47	1.49	1.20
SULFUR	1.48	.81	5.66	1.52	.83	5.75	1.75	.88	13.82
OXYGEN	5.33	5.45	5.42	3.62	4.18	4.15	4.19	4.44	9.98
ASH	13.25	5.94	57.52	13.52	6.03	58.40	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.76	.11	5.01	.78	.11	5.08	.90	.11	12.22
SULFATIC	.10	.07	.14	.11	.07	.14	.12	.07	.34
ORGANIC	.62	.64	.52	.63	.65	.53	.73	.69	1.26
TOTAL	1.48	.81	5.66	1.52	.83	5.75	1.75	.88	13.82

MINERAL ANALYSIS OF ASH, %

	RAW		FL 1.60		SK 1.60	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	RAW		FL 1.60	
	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	.62	.62	--	--
OXYGEN/CARBON	.04	.04	0 1/2	0 1/2
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	RAW		FL 1.60	
	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING	0	1/2	0	1/2
HARDGROVE GRINDABILITY	103	103	--	--

STATE: PENNSYLVANIA
 COUNTY: SOMERSET
 BED: LOWER KITTANNING
 RANK: LOW VOLATILE BITUMINOUS
 BED CODE: 84
 SAMPLE NO.: 297

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.3	2.2	.06	15275	1.0
FLOAT 1.40	59.6	7.3	.25	14330	1.3
FLOAT 1.60	82.8	10.5	.41	13736	1.7
CUM(1-1/2" X 100M)	100.0	17.3	1.64	12475	3.9
100M X 0	2.3	13.5	1.46	13180	4.4
TOTAL(1-1/2" X 0)	100.0	17.2	1.64	12492	4.0

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.6	2.5	.07	15220	.9
FLOAT 1.40	58.6	6.9	.19	14404	1.2
FLOAT 1.60	79.6	9.9	.29	13848	1.4
CUM(3/8" X 100M)	100.0	18.6	1.77	12234	4.2
100M X 0	11.9	12.3	1.16	13403	3.3
TOTAL(3/8" X 0)	100.0	17.9	1.70	12373	4.1

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	11.5	2.0	.06	15312	1.0
FLOAT 1.40	54.2	5.6	.15	14645	1.1
FLOAT 1.60	80.2	9.1	.23	13996	1.3
CUM(14M X 0)	100.0	18.0	1.78	12346	4.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	40.5
3/8" X 14M	43.2
14M X 100M	14.0
100M X 0	2.3
TOTAL AS RECEIVED	2.2
	1.2

BED CODE: 84
SAMPLE NO. 297

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60	SK 1.60	RAW FL 1.60	SK 1.60	RAW FL 1.60	SK 1.60
MOISTURE	1.20	1.10	--	--	--	--
ASH	17.19	8.64	17.40	8.74	--	--
VOLATILE MATTER	17.01	17.59	17.21	17.78	20.84	32.53
FIXED CARBON	64.60	72.67	65.39	73.48	79.16	67.47
BTU/LB	12399	13834	12550	13988	15194	12220

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60	SK 31.27	RAW FL 1.60	SK 31.62	RAW FL 1.60	SK 31.60
CARBON	71.37	79.75	72.24	80.41	87.46	88.36
HYDROGEN	4.02	4.43	3.93	4.36	4.76	4.62
NITROGEN	1.16	1.31	1.17	1.32	1.42	1.45
SULFUR	2.51	.81	2.54	.82	3.08	.90
OXYGEN	5.05	5.05	2.71	4.12	3.28	4.52
ASH	17.19	8.64	17.40	8.74	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60	SK 1.60	RAW FL 1.60	SK 1.60	RAW FL 1.60	SK 1.60
PYRITIC	1.77	.21	1.79	.21	2.17	1.71
SULFATIC	.11	.09	.12	.09	.14	.31
ORGANIC	.63	.51	.64	.52	.77	3.13
TOTAL	2.51	.81	2.54	.82	3.08	21.15

MINERAL ANALYSIS OF ASH, %

[illegible]

COAL UTILIZATION RATIOS

	----- PHYSICAL PARAMETERS, INDEX -----			
BASE/ACID				
DOLOMITE				
HYDROGEN/CARBON	.65		RAW	FL 1.60 SK 1.60
OXYGEN/CARBON	.04		(FSI)	7 9 0
R250			HARDGROVE GRINDABILITY	96
SILICA				
SILICA				
SILICA/ALUMINA				

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 298

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	SULFUR, %	HEATING VALUE	SO ₂ EMISSION
	WEIGHT			PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	24.5	34.9	3.5	.38	14910	1.1
FLOAT 1.40	58.6	80.9	6.0	.98	14454	2.0
FLOAT 1.60	68.3	92.3	7.6	1.14	14162	2.2
FLOAT 1.90	73.7	96.7	9.9	1.35	13742	2.6
CUM(1-1/2" X 100M)	100.0	100.0	27.8	2.55	10474	5.6
100M X 0	.3	.4	16.7	1.78	12500	3.9
TOTAL(1-1/2" X 0)	100.0	100.0	27.8	2.55	10480	5.6

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	SULFUR, %	HEATING VALUE	SO ₂ EMISSION
	WEIGHT			PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	20.8	29.4	2.7	.26	15056	1.0
FLOAT 1.40	59.6	82.3	4.7	.50	14691	1.3
FLOAT 1.60	69.2	93.8	6.2	.61	14417	1.6
FLOAT 1.90	73.7	96.7	9.9	1.35	13742	2.6
CUM(3/8" X 100M)	100.0	100.0	26.9	2.46	10638	5.4
100M X 0	.4	.4	20.2	1.89	11861	4.2
TOTAL(3/8" X 0)	100.0	100.0	26.9	2.46	10643	5.4

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	SULFUR, %	HEATING VALUE	SO ₂ EMISSION
	WEIGHT			PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	24.2	34.2	3.2	.26	14965	1.4
FLOAT 1.40	59.9	82.1	5.6	.56	14527	1.7
FLOAT 1.60	68.5	92.0	7.2	.75	14235	2.0
FLOAT 1.90	73.7	96.7	9.9	1.35	13742	2.6
CUM(14M X 0)	100.0	100.0	27.1	2.41	10602	5.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

1-1/2" X 3/8" --
3/8" X 14M --
14M X 100M --
100M X 0 .3

MOISTURE, %

TOTAL 1.2
AS RECEIVED .8

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 298

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.80	--	--	--	--	--
ASH	27.96	--	--	28.18	--	--
VOLATILE MATTER	16.54	--	--	16.67	--	--
FIXED CARBON	54.71	--	--	55.15	--	--
BTU/LB	10855	--	--	10942	--	--
				15236	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.84	--	--	2.87	--	--
OXYGEN	--	--	--	--	3.99	--
ASH	27.96	--	--	28.18	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.57	--	--	2.60	--	--
SULFATIC	.05	--	--	.05	--	--
ORGANIC	.22	--	--	.22	--	--
TOTAL	2.84	--	--	2.87	--	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

RAW FL 1.60

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	32.01	--	--

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

STATE: PENNSYLVANIA
COUNTY: TIOGA
BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 84
SAMPLE NO. 299

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	9.0	16.2	3.2	.23	.90	14965	1.2
FLOAT 1.40	30.6	52.6	6.6	.75	1.54	14344	2.1
FLOAT 1.60	53.6	83.9	13.7	1.24	2.02	13048	3.1
CUM(1-1/2" X 100M)	100.0	100.0	39.5	1.57	2.07	8338	5.0
100M X 0	1.6	2.4	17.9	1.69	3.14	12281	5.1
TOTAL(1-1/2" X 0)	100.0	100.0	39.2	1.57	2.09	8401	5.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	12.1	21.4	3.0	.35	1.18	15001	1.6
FLOAT 1.40	33.6	57.4	5.9	.73	1.49	14472	2.1
FLOAT 1.60	51.9	82.2	11.7	1.13	1.88	13413	2.8
CUM(3/8" X 100M)	100.0	100.0	38.8	1.66	2.09	8466	4.9
100M X 0	3.4	4.6	21.8	1.80	2.80	11569	4.8
TOTAL(3/8" X 0)	100.0	100.0	38.2	1.66	2.11	8572	4.9

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	12.5	21.2	3.2	.31	1.26	14965	1.7
FLOAT 1.40	33.9	55.7	5.7	.62	1.42	14508	2.0
FLOAT 1.60	53.4	81.1	11.7	1.00	1.81	13413	2.7
CUM(14M X 0)	100.0	100.0	36.8	1.62	2.12	8831	4.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	67.8
3/8" X 14M	21.6
14M X 100M	9.0
100M X 0	1.6

--- MOISTURE, % ---

TOTAL AS RECEIVED	2.4
	.8

STATE: PENNSYLVANIA
COUNTY: TIOGA

BED: LOWER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 84
SAMPLE NO. 299

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	MOISTURE FREE	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE
AS RECEIVED											
MOISTURE	.80	.90	.90	--	--	--	--	--	--	--	--
ASH	38.19	11.13	65.51	38.50	11.23	66.10	--	--	--	--	--
VOLATILE MATTER	15.55	19.58	11.69	15.68	19.76	11.80	--	--	--	--	34.81
FIXED CARBON	45.45	68.38	21.90	45.82	69.01	22.10	--	--	--	--	65.19
BTU/LB	8849	13472	4291	8920	13594	4330	--	--	--	--	12773

ULTIMATE ANALYSIS, %

	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	MOISTURE FREE	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE
AS RECEIVED											
CARBON	--	--	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--	--	--
SULFUR	1.93	1.66	2.47	1.95	1.68	2.49	--	--	--	--	7.35
OXYGEN	--	--	--	--	--	--	--	--	--	--	--
ASH	38.19	11.13	65.51	38.50	11.23	66.10	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	MOISTURE FREE	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE
AS RECEIVED											
PYRITIC	1.46	.96	2.31	1.47	.97	2.33	--	--	--	--	6.87
SULFATIC	.05	.04	.07	.06	.04	.07	--	--	--	--	.21
ORGANIC	.42	.66	.09	.42	.67	.09	--	--	--	--	.26
TOTAL	1.93	1.66	2.47	1.95	1.68	2.49	--	--	--	--	7.35

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE
OXIDES											
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--	--	SK 1.60
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--	--	2780
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--	--	2890
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--	--	2910+
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--	--	2890
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--	--	2910+
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--	--	SK 1.60
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE
INITIAL DEFORMATION (ID)	--	--	--	--	--	--	2850	2780	2780	2780
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--	2910+	2830	2890	2890
FLUID TEMPERATURE (FT)	--	--	--	--	--	--	--	2890	2910+	2910+

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)	--	--	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	2850	2780	2780	2780
MINERAL MATTER (PARR)	--	--	--	--	--	--	2910+	2830	2890	2890

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)	4 1/2	9	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	42.65	13.05	72.76	72.76

STATE: PENNSYLVANIA
COUNTY: CAMBRIA

BED: LOWER KITTANNING AND UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 926
SAMPLE NO. 300

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.5	3.1	.22	14867	1.2
FLOAT 1.40	77.9	4.7	.36	14579	1.5
FLOAT 1.60	83.2	5.6	.49	14418	1.7
FLOAT 1.90	86.3	6.8	.63	14203	2.0
CUM(1-1/2" X 100M)	100.0	15.7	1.62	12605	4.0
100M X 0	.5	16.9	1.84	12390	4.0
TOTAL(1-1/2" X 0)	100.0	15.7	1.62	12604	4.0

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.6	2.8	.17	14920	1.1
FLOAT 1.40	77.6	4.1	.26	14687	1.3
FLOAT 1.60	82.3	4.9	.35	14544	1.4
FLOAT 1.90	86.3	6.8	.63	14203	2.0
CUM(3/8" X 100M)	100.0	16.0	1.70	12551	4.1
100M X 0	1.2	14.6	1.27	12803	3.7
TOTAL(3/8" X 0)	100.0	16.0	1.69	12554	4.1

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.1	2.7	.15	14938	1.1
FLOAT 1.40	76.1	4.3	.23	14651	1.2
FLOAT 1.60	83.8	5.5	.31	14436	1.4
FLOAT 1.90	86.3	6.8	.63	14203	2.0
CUM(14M X 0)	100.0	15.6	1.79	12623	4.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.5

MOISTURE, %

TOTAL	.8
AS RECEIVED	.5

STATE: PENNSYLVANIA
COUNTY: CAMBRIA

BED: LOWER KITTANNING AND UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 926
SAMPLE NO. 300

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.50	--	--	--	--	--
ASH	14.93	--	15.00	--	--	--
VOLATILE MATTER	21.75	--	21.86	--	25.72	--
FIXED CARBON	62.82	--	63.14	--	74.28	--
BTU/LB	13170	--	13236	--	15572	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.41	--	2.42	--	2.85	--
OXYGEN	--	--	--	--	--	--
ASH	14.93	--	15.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.83	--	1.84	--	2.16	--
SULFATIC	.02	--	.02	--	.02	--
ORGANIC	.56	--	.56	--	.66	--
TOTAL	2.41	--	2.42	--	2.85	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	17.53	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: LOWER MERCER
RANK: MED VOLATILE BITUMINOUS

BED CODE: 103
SAMPLE NO. 301

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.2	.3	4.1	.06	.57	13224	.9
FLOAT 1.40	17.6	23.4	6.8	.02	.73	12944	1.1
FLOAT 1.60	64.8	79.0	9.6	.03	.66	11895	1.1
CUM(1-1/2" X 100M)	100.0	100.0	23.3	.08	.54	9756	1.1
100M X 0	1.9	2.6	2.2	.29	.82	13465	1.2
TOTAL(1-1/2" X 0)	100.0	100.0	22.9	.08	.55	9826	1.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.1	.1	3.4	.09	.75	13520	1.1
FLOAT 1.40	11.5	15.8	4.5	.02	.74	13454	1.1
FLOAT 1.60	59.1	73.8	7.8	.03	.65	12254	1.1
CUM(3/8" X 100M)	100.0	100.0	23.2	.07	.50	9817	1.0
100M X 0	12.5	13.9	17.3	.12	.63	10882	1.2
TOTAL(3/8" X 0)	100.0	100.0	22.5	.08	.52	9950	1.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.3	.4	3.9	.13	.82	13697	1.2
FLOAT 1.40	11.4	15.6	2.9	.12	.74	13178	1.1
FLOAT 1.60	52.2	66.3	7.1	.12	.64	12258	1.0
CUM(14M X 0)	100.0	100.0	24.0	.12	.50	9656	1.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	47.1
3/8" X 14M	40.0
14M X 100M	11.0
100M X 0	1.9

MOISTURE, %

TOTAL	9.8
AS RECEIVED	6.3

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: LOWER MERCER
RANK: MED VOLATILE BITUMINOUS

BED CODE: 103
SAMPLE NO. 301

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	6.30	4.60	4.60	--	--	--	--	--	--
ASH	22.35	6.87	41.02	23.85	7.20	43.00	--	--	--
VOLATILE MATTER	22.63	24.54	21.56	24.15	25.72	22.60	31.71	27.72	39.65
FIXED CARBON	48.72	63.99	32.82	52.00	67.08	34.40	68.29	72.28	60.35
BTU/LB	9065	11682	6439	9675	12245	6750	12705	13195	11841

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	55.60	70.68	37.26	59.34	74.09	39.06	77.92	79.84	68.53
HYDROGEN	3.63	4.15	2.80	3.13	3.81	2.40	4.11	4.11	4.21
NITROGEN	.65	.87	.48	.69	.92	.50	.91	.99	.88
SULFUR	.54	.59	.35	.57	.62	.36	.75	.67	.64
OXYGEN	17.23	16.84	18.09	12.41	13.36	14.68	16.30	14.40	25.75
ASH	22.35	6.87	41.02	23.85	7.20	43.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.08	.10	.11	.09	.11	.12	.12	.12	.21
SULFATIC	.02	.01	.04	.03	.01	.04	.03	.01	.07
ORGANIC	.43	.48	.19	.46	.50	.20	.60	.54	.35
TOTAL	.54	.59	.35	.57	.62	.36	.75	.67	.64

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	44.75	41.76	--
Al2O3 (ALUMINUM OXIDE)	38.47	40.73	--
Fe2O3 (IRON OXIDE)	9.44	9.44	--
TiO2 (TITANIUM OXIDE)	3.33	3.66	--
CaO (CALCIUM OXIDE)	.11	.50	--
MgO (MAGNESIUM OXIDE)	.66	.60	--
Na2O (SODIUM OXIDE)	.22	.24	--
K2O (POTASSIUM OXIDE)	2.60	1.76	--
SO3 (SULFITES)	.16	.20	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.15	.15
DOLomite	.06	.09
HYDROGEN/CARBON	.63	.62
OXYGEN/CARBON	.16	.14
R250	.90	.90
SILICA	.81	.80
SILICA/ALUMINA	1.16	1.03

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	--
SOFTENING TEMPERATURE (ST)	2910+	2910+	--
FLUID TEMPERATURE (FT)	2910+	2910+	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.02	--	--
NA (SODIUM) (CALCULATED)	.04	.01	--
MINERAL MATTER (PARR)	26.97	8.12	46.64

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	0	0	--
HARD-GROVE GRINDABILITY (HGI)	95	--	--

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 302

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.6	65.2	3.4	.50	14749	2.3
FLOAT 1.40	76.1	85.7	5.1	.82	14424	2.7
FLOAT 1.60	83.4	92.2	6.5	1.18	14157	3.2
CUM(1-1/2" X 100M)	100.0	100.0	13.6	4.44	12803	8.9
100M X 0	1.5	1.5	14.5	3.57	12631	7.3
TOTAL(1-1/2" X 0)	100.0	100.0	13.6	4.43	12801	8.8

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.8	71.3	3.0	.32	14825	2.1
FLOAT 1.40	76.7	87.0	4.4	.55	14558	2.4
FLOAT 1.60	83.4	92.8	5.8	.85	14291	2.8
CUM(3/8" X 100M)	100.0	100.0	13.4	4.46	12841	8.4
100M X 0	4.1	4.2	12.1	3.68	13089	7.6
TOTAL(3/8" X 0)	100.0	100.0	13.3	4.43	12851	8.4

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.9	65.4	2.5	.43	14920	2.1
FLOAT 1.40	74.3	85.4	3.9	.56	14653	2.4
FLOAT 1.60	81.9	92.4	5.3	.78	14386	2.7
CUM(14M X 0)	100.0	100.0	13.9	4.56	12746	8.7

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.3
3/8" X 14M	19.8
14M X 100M	5.4
100M X 0	1.5

----- MOISTURE, % -----
TOTAL AS RECEIVED
2.7
1.2

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 302

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.20	1.40 1.10	--	--	--	--
ASH	14.13	5.13 54.32	14.30	5.20 54.93	--	--
VOLATILE MATTER	37.31	40.42 23.91	37.77	40.99 24.17	44.07	43.24 53.63
FIXED CARBON	47.36	53.05 20.67	47.93	53.81 20.90	55.93	56.76 46.37
BTU/LB	12560	14169 4858	12713	14370 4912	14834	15158 10899

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	70.71	79.11 22.06	71.57	80.23 22.31	83.51	84.63 49.49
HYDROGEN	5.08	5.81 1.53	5.00	5.74 1.42	5.84	6.05 3.16
NITROGEN	1.27	1.45 .38	1.29	1.47 .38	1.51	1.55 .84
SULFUR	5.25	1.84 20.73	5.32	1.87 20.96	6.20	1.97 46.51
OXYGEN	3.55	6.66 --	2.52	5.49 --	2.94	5.79 --
ASH	14.13	5.13 54.32	14.30	5.20 54.93	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	4.65	.74 20.44	4.70	.75 20.67	5.49	.79 45.86
SULFATIC	.00	.00 .01	.01	.00 .01	.01	.00 .02
ORGANIC	.60	1.10 .28	.61	1.12 .28	.71	1.18 .62
TOTAL	5.25	1.84 20.73	5.32	1.87 20.96	6.20	1.97 46.51

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.84	.86
OXYGEN/CARBON	.03	.05
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	1970	2330 2030
SOFTENING TEMPERATURE (ST)	2020	2380 2080
FLUID TEMPERATURE (FT)	2130	2460 2180
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.20	--
MINERAL MATTER (PARR)	18.37	6.64 70.85

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	7 1/2	7 1/2 --
HARDGROVE GRINDABILITY (HGI)	52	--

STATE: PENNSYLVANIA
 COUNTY: BUTLER
 BED: MIDDLE KITTANNING
 RANK: HIGH VOLATILE B BITUMINOUS
 BED CODE: 80
 SAMPLE NO. 303

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	RECOVERY, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	87.2	2.2	89.8	.07	.51	15137	.7
FLOAT 1.40	95.1	2.7	97.4	.08	.51	15045	.7
FLOAT 1.60	97.5	3.2	99.2	.08	.52	14953	.7
CUM(1-1/2" X 100M)	100.0	4.6	100.0	.11	.54	14695	.7
100M X 0	1.2	17.1	1.0	1.46	2.01	12389	3.2
TOTAL(1-1/2" X 0)	100.0	4.8	100.0	.13	.56	14667	.8

SAMPLE CRUSHED TO PASS 3/8"
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	RECOVERY, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	83.1	1.9	86.2	.07	.48	15193	.6
FLOAT 1.40	94.1	2.5	96.9	.07	.48	15082	.6
FLOAT 1.60	96.8	3.0	99.1	.07	.49	14990	.7
CUM(3/8" X 100M)	100.0	4.9	100.0	.11	.51	14639	.7
100M X 0	2.9	10.4	2.7	.36	.80	13625	1.2
TOTAL(3/8" X 0)	100.0	5.1	100.0	.12	.52	14610	.7

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	RECOVERY, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.9	1.2	65.0	.04	.50	15322	.7
FLOAT 1.40	91.2	2.1	94.8	.05	.50	15156	.7
FLOAT 1.60	96.0	2.9	98.8	.05	.50	15008	.7
CUM(14M X 0)	100.0	5.2	100.0	.09	.53	14584	.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.8
3/8" X 14M	16.4
14M X 100M	4.6
100M X 0	1.2

MOISTURE, %

TOTAL	7.8
AS RECEIVED	5.9

STATE: PENNSYLVANIA
COUNTY: BUTLER

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 80
SAMPLE NO. 303

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.90	3.40	3.40	--	--	--	--	--	--
ASH	4.70	2.90	55.93	4.99	3.00	57.90	--	--	--
VOLATILE MATTER	37.61	39.27	20.87	39.97	40.65	21.60	42.07	41.91	51.31
FIXED CARBON	51.79	54.43	19.80	55.04	56.35	20.50	57.93	58.09	48.69
BTU/LB	13155	13773	4355	13979	14258	4509	14714	14699	10709

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	74.79	78.50	30.66	79.48	81.26	31.74	83.66	83.77	75.39
HYDROGEN	5.59	5.54	2.79	5.25	5.34	2.50	5.52	5.51	5.94
NITROGEN	1.49	1.56	.58	1.58	1.62	.60	1.66	1.67	1.43
SULFUR	.46	.48	1.21	.49	.49	1.26	.52	.51	2.98
OXYGEN	12.97	11.03	8.82	8.21	8.29	6.01	8.64	8.54	14.26
ASH	4.70	2.90	55.93	4.99	3.00	57.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.09	.05	1.01	.10	.06	1.05	.11	.06	2.49
SULFATIC	.00	.00	.01	.01	.00	.01	.01	.00	.02
ORGANIC	.36	.42	.19	.39	.44	.20	.41	.45	.46
TOTAL	.46	.48	1.21	.49	.49	1.26	.52	.51	2.98

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.79	.79
OXYGEN/CARBON	.08	.08
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	5	4 1/2	0
HARDGROVE GRINDABILITY (HGI)	47	--	--

STATE: PENNSYLVANIA
 COUNTY: BUTLER
 BED: MIDDLE KITANNING
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 80
 SAMPLE NO. 304

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.3	3.9	.86	14553	2.5
FLOAT 1.40	81.8	5.9	1.45	14196	3.4
FLOAT 1.60	91.5	7.4	1.81	13929	4.0
CUM(1-1/2" X 100M)	100.0	10.9	2.68	13304	5.5
100M X 0	.8	16.3	4.28	12341	9.5
TOTAL(1-1/2" X 0)	100.0	10.9	2.69	13297	5.6

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.8	3.3	.54	14660	2.1
FLOAT 1.40	80.6	5.1	1.01	14339	2.8
FLOAT 1.60	89.6	6.7	1.38	14054	3.3
CUM(3/8" X 100M)	100.0	11.5	2.50	13197	5.3
100M X 0	4.6	11.4	3.93	13215	6.9
TOTAL(3/8" X 0)	100.0	11.5	2.57	12998	5.3

SAMPLE CRUSHED TO PASS 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.0	2.7	.41	14767	1.9
FLOAT 1.40	78.4	4.4	.70	14464	2.4
FLOAT 1.60	89.1	5.9	1.05	14196	2.8
CUM(14M X 0)	100.0	10.7	2.51	13340	5.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.0
3/8" X 14M	17.5
14M X 100M	4.7
100M X 0	.8

MOISTURE, %

TOTAL	3.7
AS RECEIVED	1.9

STATE: PENNSYLVANIA
COUNTY: BUTLER
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 80
SAMPLE NO. 304

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.90	1.60	--	--	--	--
ASH	10.92	6.00	11.13	6.10	--	--
VOLATILE MATTER	39.03	41.14	39.79	41.81	44.77	44.53
FIXED CARBON	48.15	51.25	49.08	52.09	55.23	55.47
BTU/LB	13068	13884	13321	14110	14989	15027
		6170		6270		12616

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	71.97	76.66	73.37	77.91	82.56	82.97
HYDROGEN	5.12	5.43	5.00	5.34	5.63	5.69
NITROGEN	1.37	1.49	1.40	1.51	1.57	1.61
SULFUR	3.64	2.04	3.72	2.07	4.18	2.20
OXYGEN	6.98	8.38	5.39	7.07	6.07	7.53
ASH	10.92	6.00	11.13	6.10	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.55	1.05	2.60	1.07	2.93	1.14
SULFATIC	.02	.02	.03	.02	.03	.02
ORGANIC	1.07	.96	1.09	.98	1.23	1.04
TOTAL	3.64	2.04	3.72	2.07	4.18	2.20

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.82	.82
OXYGEN/CARBON	.06	.07
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2090	2300
SOFTENING TEMPERATURE (ST)	2140	2380
FLUID TEMPERATURE (FT)	2260	2580

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.13	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (FARR)	14.06	7.73
		62.92

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSL)	6	7
HARDGROVE GRINDABILITY (HGI)	51	--

STATE: PENNSYLVANIA
COUNTY: CLARION

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 305

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	72.9	4.0	.09	14805	1.1
FLOAT 1.40	89.1	4.9	.10	14639	1.1
FLOAT 1.60	98.1	6.6	.11	14326	1.1
FLOAT 1.90	99.1	6.9	.11	14270	1.1
CUM(1-1/2" X 100M)	100.0	7.7	.12	14123	1.1
100M X 0	.1	34.4	.32	9199	1.5
TOTAL(1-1/2" X 0)	100.0	7.7	.12	14118	1.1

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	68.3	2.8	.09	15027	.9
FLOAT 1.40	86.2	3.8	.09	14842	.9
FLOAT 1.60	97.0	5.9	.10	14455	1.0
FLOAT 1.90	99.1	6.9	.11	14270	1.1
CUM(3/8" X 100M)	100.0	7.7	.12	14123	1.0
100M X 0	.2	20.6	.25	11744	1.3
TOTAL(3/8" X 0)	100.0	7.7	.12	14118	1.0

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY,		ASH, %	SULFUR, %		HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
	WEIGHT	%		PYRITIC	TOTAL		
	35.4	38.2	2.0	.05	15174	.9	
FLOAT 1.30		88.0	3.8	.06	14842	.9	
FLOAT 1.40	83.3	98.4	5.6	.06	14510	.9	
FLOAT 1.60	95.3	100.1	6.9	.11	14270	1.1	
FLOAT 1.90	99.1	100.0	8.1	.11	14049	1.0	
CUM(14M X 0)	100.0						

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0
1

----- MOISTURE, %

TOTAL	3.5
AS RECEIVED	2.2

STATE: PENNSYLVANIA		BED: MIDDLE KITTANNING		BED CODE: 80	
COUNTY: CLARION		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 305	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
	AS RECEIVED	MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60 SK 1.60	RAW	SK 1.60	RAW FL 1.60	SK 1.60
MOISTURE	2.20	--	--	--	--
ASH	7.60	--	--	--	--
VOLATILE MATTER	35.73	--	--	39.61	--
FIXED CARBON	54.47	--	--	60.39	--
BTU/LB	13317	--	--	14765	--
----- ULTIMATE ANALYSIS, % -----					
	AS RECEIVED	MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60 SK 1.60	RAW	SK 1.60	RAW FL 1.60	SK 1.60
CARBON	--	--	--	--	--
HYDROGEN	--	--	--	--	--
NITROGEN	--	--	--	--	--
SULFUR	.69	--	--	.76	--
OXYGEN	--	--	--	--	--
ASH	7.60	--	--	--	--
----- SULFUR FORMS ANALYSIS, % -----					
	AS RECEIVED	MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60 SK 1.60	RAW	SK 1.60	RAW FL 1.60	SK 1.60
PYRITIC	.13	--	--	.14	--
SULFATIC	.02	--	--	.02	--
ORGANIC	.54	--	--	.60	--
TOTAL	.69	--	--	.76	--
----- MINERAL ANALYSIS OF ASH, % -----					
	AS RECEIVED	MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60 SK 1.60	RAW	SK 1.60	RAW FL 1.60	SK 1.60
OXIDES	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----					
	AS RECEIVED	MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60 SK 1.60	RAW	SK 1.60	RAW FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--
----- MISCELLANEOUS DATA, % -----					
CL (CHLORINE) (ANALYZED)	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	8.78	--
----- PHYSICAL PARAMETERS, INDEX -----					
	AS RECEIVED	MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60	RAW	SK 1.60	RAW FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--
----- COAL UTILIZATION RATIOS -----					
	AS RECEIVED	MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60	RAW	SK 1.60	RAW FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--
DOLOMITE	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--
R250	--	--	--	--	--
SILICA	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--

STATE: PENNSYLVANIA
 COUNTY: CLARION
 BED: MIDDLE KITTANNING
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 80
 SAMPLE NO. 306

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.2	3.4	.42	14550	1.4
FLOAT 1.40	88.1	5.1	.67	14192	1.9
FLOAT 1.60	94.5	6.2	.74	13996	2.0
CUM(1-1/2" X 100M)	100.0	9.0	.87	13511	2.3
100M X 0	1.1	23.8	2.31	10879	7.2
TOTAL(1-1/2" X 0)	100.0	9.2	.89	13482	2.3

SAMPLE CRUSHED TO PASS 3/8"
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.1	2.5	.16	14760	1.1
FLOAT 1.40	82.7	3.6	.31	14509	1.3
FLOAT 1.60	91.2	5.1	.43	14244	1.5
CUM(3/8" X 100M)	100.0	9.4	.82	13486	2.1
100M X 0	5.2	21.7	2.54	11252	6.9
TOTAL(3/8" X 0)	100.0	10.0	.91	13370	2.3

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.6	2.2	.09	14720	1.0
FLOAT 1.40	80.4	3.0	.14	14521	1.1
FLOAT 1.60	89.4	4.5	.23	14245	1.2
CUM(14M X 0)	100.0	9.9	.95	13296	2.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	80.2
3/8" X 14M	14.6
14M X 100M	4.1
100M X 0	1.1

MOISTURE, %

TOTAL AS RECEIVED	5.3
	2.7

STATE: PENNSYLVANIA
COUNTY: CLARION

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 306

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.70	2.50	1.90	--	--	--	--	--	--
ASH	9.24	4.58	54.05	9.50	4.70	55.10	--	--	--
VOLATILE MATTER	36.83	38.76	19.33	37.85	39.75	19.70	41.82	41.71	43.88
FIXED CARBON	51.23	54.16	24.72	52.65	55.55	25.20	58.18	58.29	56.12
BTU/LB	12994	13860	5229	13355	14215	5331	14757	14917	11873

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	73.14	77.85	30.65	75.17	79.85	31.24	83.06	83.79	69.58
HYDROGEN	5.31	5.59	2.47	5.15	5.45	2.30	5.69	5.72	5.12
NITROGEN	1.46	1.56	.59	1.50	1.60	.60	1.66	1.68	1.34
SULFUR	1.47	.92	7.36	1.52	.95	7.50	1.67	.99	16.70
OXYGEN	9.37	9.49	4.89	7.16	7.45	3.26	7.91	7.82	7.26
ASH	9.24	4.58	54.05	9.50	4.70	55.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRLITIC	.81	.24	6.89	.83	.25	7.02	.92	.26	15.64
SULFATIC	.08	.07	.10	.09	.07	.10	.09	.07	.22
ORGANIC	.58	.61	.37	.60	.63	.38	.66	.84	.84
TOTAL	1.47	.92	7.36	1.52	.95	7.50	1.67	.99	16.70

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60		RAW	FL 1.60	SK 1.60
OXIDES							
SiO2 (SILICON OXIDE)	--	--	--	INITIAL DEFORMATION (ID)	RAW	FL 1.60	SK 1.60
AL2O3 (ALUMINUM OXIDE)	--	--	--	SOFTENING TEMPERATURE (ST)	2180	2360	--
FE2O3 (IRON OXIDE)	--	--	--	FLUID TEMPERATURE (FT)	2270	2410	--
TiC2 (TITANIUM OXIDE)	--	--	--		2410	2460	--
CaO (CALCIUM OXIDE)	--	--	--	----- MISCELLANEOUS DATA, % -----			
MgO (MAGNESIUM OXIDE)	--	--	--	CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
Na2O (SODIUM OXIDE)	--	--	--	NA (SODIUM) (CALCULATED)	.14	--	--
K2O (POTASSIUM OXIDE)	--	--	--	MINERAL MATTER (PARR)	11.09	5.60	63.63
SO3 (SULFITES)	--	--	--		--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60		PHYSICAL PARAMETERS, INDEX		
BASE/ACID	--	--				
DOLOMITE	--	--				
HYDROGEN/CARBON	.82	.82				
OXYGEN/CARBON	.07	.07				
R250	--	--		FREE SWELLING (FSI)	RAW	FL 1.60
SILICA	--	--		HARDGROVE GRINDABILITY (HGI)	6 1/2	6
SILICA/ALUMINA	--	--			47	42

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: MIDDLE KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 80
SAMPLE NO. 307

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.7	3.0	.07	14943	1.2
FLOAT 1.40	88.3	5.0	.19	14589	1.4
FLOAT 1.60	97.0	6.4	.30	14342	1.5
CUM(1-1/2" X 100M)	100.0	7.4	.63	14165	2.0
100M X 0	.6	10.7	1.25	13582	2.9
TOTAL(1-1/2" X 0)	100.0	7.4	.63	14161	2.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.2	2.6	.09	15013	1.2
FLOAT 1.40	87.6	4.6	.18	14660	1.3
FLOAT 1.60	96.8	6.1	.26	14395	1.4
CUM(3/8" X 100M)	100.0	7.4	.67	14165	2.0
100M X 0	2.3	9.5	1.03	13794	2.6
TOTAL(3/8" X 0)	100.0	7.4	.68	14156	2.0

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.4	2.0	.09	15119	1.2
FLOAT 1.40	81.6	3.9	.14	14783	1.3
FLOAT 1.60	96.3	5.9	.25	14430	1.5
CUM(14M X 0)	100.0	7.3	.65	14183	2.0

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---

SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	56.4
3/8" X 14M	32.7
14M X 100M	10.3
100M X 0	.6

--- MOISTURE, % ---

TOTAL	3.2
AS RECEIVED	1.2

STATE: PENNSYLVANIA BED: MIDDLE KITTANNING BED CODE: 80
COUNTY: CLEARFIELD RANK: MED VOLATILE BITUMINOUS SAMPLE NO. 307

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	1.20	1.20	7.30	5.70	25.73	22.60
ASH	7.21	5.63	23.86	24.34	74.26	77.40
VOLATILE MATTER	23.57	24.05	68.84	69.96		
FIXED CARBON	68.01	69.12				
BTU/LB	14059	14247	14230	14420	15351	15292

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	--	--	--	--	--	--
OXYGEN	1.51	1.08	1.53	1.09	1.65	1.16
ASH	7.21	5.63	7.30	5.70	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	.68	.22	.69	.23	.74	.24
SULFATIC	.00	.00	.00	.00	.00	.00
ORGANIC	.83	.85	.84	.87	.91	.92
TOTAL	1.51	1.08	1.53	1.09	1.65	1.16

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY	--	--	--	--	--	--

STATE: PENNSYLVANIA
 COUNTY: CLEARFIELD
 BED: MIDDLE KITTANNING
 RANK: MED VOLATILE BITUMINOUS
 BED CODE: 80
 SAMPLE NO. 308

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.9	4.0	.31	14805	1.4
FLOAT 1.40	66.6	6.3	.43	14381	1.5
FLOAT 1.60	87.2	10.8	.60	13551	1.8
CUM(1-1/2" X 100M)	100.0	15.0	1.85	12777	3.8
100M X 0	1.3	12.7	3.69	13201	6.5
TOTAL(1-1/2" X 0)	100.0	15.0	1.87	12782	3.8

SAMPLE CRUSHED TO PASS 3/8"
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.4	3.3	.26	14934	1.2
FLOAT 1.40	68.3	5.4	.36	14547	1.4
FLOAT 1.60	86.0	9.3	.51	13828	1.6
CUM(3/8" X 100M)	100.0	14.5	1.78	12869	3.6
100M X 0	3.9	12.1	3.72	13311	5.7
TOTAL(3/8" X 0)	100.0	14.4	1.84	12886	3.7

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.8	2.8	.23	15027	1.4
FLOAT 1.40	64.1	5.0	.28	14621	1.4
FLOAT 1.60	85.4	8.6	.56	13957	1.8
CUM(14M X 0)	100.0	14.1	1.82	12943	3.8

RAW CCAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	55.1
3/8" X 14M	30.4
14M X 100M	13.2
100M X 0	1.3
TOTAL	2.5
AS RECEIVED	.5

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: MIDDLE KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 80
SAMPLE NO. 308

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.50	1.20	.85	--	--	--	--	--	--
ASH	14.03	8.60	47.20	14.10	8.70	47.60	--	--	--
VOLATILE MATTER	20.79	21.34	16.56	20.90	21.60	16.70	24.33	23.66	31.87
FIXED CARBON	64.68	68.86	35.40	65.00	69.70	35.70	75.67	76.34	68.13
BTU/LB	13913	13783	6980	13983	13950	7040	16278	15279	13435

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.27	1.11	9.32	2.28	1.13	9.40	--	--	--
OXYGEN	--	--	--	--	--	--	2.65	1.23	17.94
ASH	14.03	8.60	47.20	14.10	8.70	47.60	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.71	.50	9.11	1.72	.50	9.19	2.00	.55	17.54
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.55	.60	.20	.55	.61	.20	.64	.67	.38
TOTAL	2.27	1.11	9.32	2.28	1.13	9.40	2.65	1.23	17.94

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	RAW	FL 1.60	SK 1.60
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	2630	2910+	2180
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	2680	2910+	2260
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	2730	2910+	2340
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	MISCELLANEOUS DATA, %		
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	CL (CHLORINE) (ANALYZED)		
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	NA (SODIUM) (CALCULATED)		
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	MINERAL MATTER (PARR)		
SO3 (SULFITES)	--	--	--	--	--	--	RAW	FL 1.60	SK 1.60

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	16.48	10.00	56.58
HYDROGEN/CARBON	--	--	--	--	--	--	PHYSICAL PARAMETERS, INDEX		
OXYGEN/CARBON	--	--	--	--	--	--	RAW	FL 1.60	SK 1.60
R250	--	--	--	--	--	--	9	9	1
SILICA	--	--	--	--	--	--	96	97	--
SILICA/ALUMINA	--	--	--	--	--	--	FREE SWELLING (FSI)		
	--	--	--	--	--	--	HARDGROVE GRINDABILITY (HGI)		

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD
BED: MIDDLE KITTANNING
RANK: MED VOLATILE BITUMINOUS
BED CODE: 80
SAMPLE NO. 309

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.7	3.6	.38	14883	1.7
FLOAT 1.40	80.4	6.6	1.08	14308	2.6
FLOAT 1.60	93.0	8.3	1.43	13982	3.2
CUM(1-1/2" X 100M)	100.0	10.5	2.21	13561	4.5
100M X 0	2.8	9.5	2.09	13753	4.5
TOTAL(1-1/2" X 0)	100.0	10.5	2.21	13567	4.5

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.5	3.3	.38	14940	1.6
FLOAT 1.40	82.6	6.0	.81	14423	2.3
FLOAT 1.60	92.3	7.4	1.10	14155	2.6
CUM(3/8" X 100M)	100.0	10.3	2.33	13599	4.6
100M X 0	4.6	9.5	2.35	13753	4.9
TOTAL(3/8" X 0)	100.0	10.3	2.33	13607	4.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.2	2.9	.35	15017	1.5
FLOAT 1.40	79.0	5.1	.60	14595	2.3
FLOAT 1.60	91.9	6.9	.92	14251	2.6
CUM(14M X 0)	100.0	9.9	2.18	13676	4.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	47.6
3/8" X 14M	37.1
14M X 100M	12.5
100M X 0	2.8

--- MOISTURE, % ---

TOTAL AS RECEIVED	2.8
	.8

STATE: PENNSYLVANIA

COUNTY: CLEARFIELD

BED: MIDDLE KITTANNING

RANK: MED VOLATILE BITUMINOUS

BED CODE: 80

SAMPLE NO. 309

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW

FL 1.60

SK 1.60

MOISTURE

ASH

VOLATILE MATTER

FIXED CARBON

BTU/LB

13605

14133

7171

MOISTURE FREE

RAW

FL 1.60

SK 1.60

9.80

22.12

68.08

13715

24.52

75.48

15205

15300

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

9.80

22.48

70.92

14290

32.74

75.93

12814

7240

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

CARBON

HYDROGEN

NITROGEN

SULFUR

OXYGEN

ASH

2.86

9.72

1.65

6.53

43.09

17.38

MOISTURE FREE

RAW

FL 1.60

SK 1.60

2.89

9.80

6.60

17.54

43.50

3.20

1.78

31.05

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

2.89

9.80

6.60

17.54

43.50

3.20

1.78

31.05

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

PYRITIC

SULFATIC

ORGANIC

TOTAL

2.01

.02

.82

2.86

MOISTURE FREE

RAW

FL 1.60

SK 1.60

.83

.01

1.02

1.65

16.32

.04

1.02

17.38

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

.84

.01

.87

2.89

16.48

.04

1.03

17.54

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

OXIDES

SiO2 (SILICON OXIDE)

AL2O3 (ALUMINUM OXIDE)

FE2O3 (IRON OXIDE)

TiO2 (TITANIUM OXIDE)

CaO (CALC'UM OXIDE)

MgO (MAGNESIUM OXIDE)

Na2O (SODIUM OXIDE)

K2O (POTASSIUM OXIDE)

SO3 (SULFITES)

2.01

.02

.82

2.86

.83

.01

1.02

1.65

MOISTURE FREE

RAW

FL 1.60

SK 1.60

2.03

.03

.83

2.89

.84

.01

.82

1.67

16.48

.04

1.03

17.54

16.48

.04

1.03

17.54

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

2.25

.03

.92

3.20

2.25

.03

.92

3.20

29.16

.07

1.82

31.05

29.16

.07

1.82

31.05

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

RAW

FL 1.60

SK 1.60

2130

2180

2500

2630

2680

2730

INITIAL DEFORMATION (ID)

SOFTENING TEMPERATURE (ST)

FLUID TEMPERATURE (FT)

MISCELLANEOUS DATA, %

RAW

FL 1.60

SK 1.60

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

12.17

8.04

56.63

PHYSICAL PARAMETERS, INDEX

RAW

FL 1.60

SK 1.60

FREE SWELLING

HARDGROVE GRINDABILITY (HGI)

9

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: MIDDLE KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 80
SAMPLE NO. 310

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.1	3.3	.24	15130	1.5
FLOAT 1.40	82.0	5.6	.43	14703	1.8
FLOAT 1.60	88.8	6.7	.59	14499	2.0
CUM(1-1/2" X 100M)	100.0	11.6	2.11	13589	4.3
100M X 0	1.2	10.4	2.19	13812	4.6
TOTAL(1-1/2" X 0)	100.0	11.6	2.11	13592	4.3

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.2	3.1	.18	15167	1.6
FLOAT 1.40	82.5	5.2	.36	14777	1.9
FLOAT 1.60	89.1	6.3	.48	14573	2.0
CUM(3/8" X 100M)	100.0	11.1	1.98	13682	4.2
100M X 0	4.3	10.2	2.16	13849	4.4
TOTAL(3/8" X 0)	100.0	11.1	1.99	13689	4.2

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.2	2.5	.10	15278	1.5
FLOAT 1.40	80.0	4.5	.27	14907	1.6
FLOAT 1.60	89.3	6.1	.44	14610	1.8
CUM(14M X 0)	100.0	11.2	2.16	13663	4.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	28.2
3/8" X 14M	48.6
14M X 100M	22.0
100M X 0	1.2

MOISTURE, %

TOTAL	2.5
AS RECEIVED	.5

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS									
	AS RECEIVED		RAW	MOISTURE FREE		MOISTURE AND ASH FREE			
	RAW	FL 1.60		SK 1.60	FL 1.60	SK 1.60	RAW		
MOISTURE	.50	.80	--	--	--	--	--	--	--
ASH	11.34	5.95	11.40	6.00	51.70	--	--	--	--
VOLATILE MATTER	24.73	25.54	24.85	25.75	18.10	28.05	27.39	37.47	
FIXED CARBON	63.43	67.70	63.75	68.25	30.20	71.95	72.61	62.53	
BTU/LB	13602	14473	13670	14590	6140	15429	15521	12712	
ULTIMATE ANALYSIS, %									
	AS RECEIVED		RAW	MOISTURE FREE		MOISTURE AND ASH FREE			
	RAW	FL 1.60		SK 1.60	FL 1.60	SK 1.60	RAW		
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.99	1.24	3.00	1.25	16.82	3.39	1.33	34.83	
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	11.34	5.95	11.40	6.00	51.70	--	--	--	--
SULFUR FORMS ANALYSIS, %									
	AS RECEIVED		RAW	MOISTURE FREE		MOISTURE AND ASH FREE			
	RAW	FL 1.60		SK 1.60	FL 1.60	SK 1.60	RAW		
PYRITIC	2.18	.39	2.19	.46	16.51	2.47	.42	34.19	
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.02	
ORGANIC	.80	.84	.80	.84	.30	.90	.90	.62	
TOTAL	2.99	1.24	3.00	1.25	16.82	3.39	1.33	34.83	
MINERAL ANALYSIS OF ASH, %									
	AS RECEIVED		RAW	MOISTURE FREE		MOISTURE AND ASH FREE			
	RAW	FL 1.60		SK 1.60	FL 1.60	SK 1.60	RAW		
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--
COAL UTILIZATION RATIOS									
	AS RECEIVED		RAW	MOISTURE FREE		MOISTURE AND ASH FREE			
	RAW	FL 1.60		SK 1.60	FL 1.60	SK 1.60	RAW		
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--
FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)									
	AS RECEIVED		RAW	MOISTURE FREE		MOISTURE AND ASH FREE			
	RAW	FL 1.60		SK 1.60	FL 1.60	SK 1.60	RAW		
INITIAL DEFORMATION (ID)	--	--	--	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--	--	--	--
MISCELLANEOUS DATA, %									
			RAW						
	RAW	FL 1.60		SK 1.60	FL 1.60	SK 1.60	RAW		
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	13.96	7.17	65.09	
PHYSICAL PARAMETERS, INDEX									
			RAW						
	RAW	FL 1.60		SK 1.60	FL 1.60	SK 1.60	RAW		
FREE SWELLING (FSI)	--	--	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--

STATE: PENNSYLVANIA BED: MIDDLE KITTANNING BED CODE: 80
COUNTY: CLEARFIELD RANK: MED VOLATILE BITUMINOUS SAMPLE NO. 311

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	6.9	4.8	1.18	14658	3.2
FLOAT 1.40	36.5	9.6	2.62	13772	6.0
FLOAT 1.60	69.8	13.5	4.18	13053	9.3
FLOAT 1.90	80.9	15.6	5.24	12666	11.7
CUM(1-1/2" X 100M)	100.0	23.5	6.95	11209	16.8
100M X 0	.3	22.9	8.08	11320	19.0
TOTAL(1-1/2" X 0)	100.0	23.5	6.95	11209	16.8

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	12.5	4.3	.98	14750	3.1
FLOAT 1.40	44.8	8.6	2.19	13957	5.5
FLOAT 1.60	70.6	11.9	3.36	13348	7.8
FLOAT 1.90	80.9	15.6	5.24	12666	11.7
CUM(3/8" X 100M)	100.0	23.2	6.66	11264	16.2
100M X 0	1.0	22.8	8.01	11338	19.1
TOTAL(3/8" X 0)	100.0	23.2	6.67	11265	16.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	8.6	4.3	.95	14750	3.0
FLOAT 1.40	39.6	7.8	1.92	14104	5.0
FLOAT 1.60	68.7	11.3	2.96	13459	7.1
FLOAT 1.90	80.9	15.6	5.24	12666	11.7
CUM(14M X 0)	100.0	23.5	6.73	11209	16.4

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
3/8" X 14M ---
14M X 100M ---
100M X 0 .3

----- MOISTURE, % -----
TOTAL .6
AS RECEIVED .4

STATE: PENNSYLVANIA BED: MIDDLE KITTINGING BED CODE: 80
COUNTY: CLEARFIELD RANK: MED VOLATILE BITUMINOUS SAMPLE NO. 311

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	40	--	--	--	--	--
ASH	22.47	--	--	22.56	--	--
VOLATILE MATTER	24.53	--	--	24.63	--	--
FIXED CARBON	52.60	--	--	52.81	--	--
BTU/LB	11637	--	--	11684	--	15088

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	8.75	--	--	8.78	--	11.34
OXYGEN	--	--	--	--	--	--
ASH	22.47	--	--	22.56	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	7.43	--	--	7.46	--	9.64
SULFATIC	.12	--	--	.12	--	.15
ORGANIC	1.20	--	--	1.20	--	1.55
TOTAL	8.75	--	--	8.78	--	11.34

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	29.20	--	--	29.20	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

BED CODE:	80
SAMPLE NO.	312

----- SAMPLE CRUSHED TO PASS 1-1/2"

HEATING VALUE
BTU/LB
14181
13781
13545
13163
10034
13119

----- SAMPLE CRUSHED TO PASS 3/8"

HEATING VALUE	BTU/LB
	13854
	13727
	13563
	13181
	9434
	13016

----- SAMPLE CRUSHED TO PASS 14M

HEATING VALUE
BTU/LB
15164
13836
13581
13072

PAW COAL SIZE AND MOISTURE ANALYSIS

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	63.7
3/8" X 1/4"	28.7
1/4" X 1/8"	6.2
1/8" X 1/16"	1.4

TOTAL
AS RECEIVED

8.6 6.4

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: MIDDLE KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 80
SAMPLE NO. 312

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % A.D. BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	6.40	1.70 1.70				
ASH	13.14	10.42 57.51	14.04	10.60 58.50		
VOLATILE MATTER	18.51	19.57 18.87	19.77	19.90 19.20	23.00	22.27 46.27
FIXED CARBON	61.95	68.31 21.92	66.19	69.50 22.30	77.00	77.73 53.73
BTU/LB	12092	13418 4807	12919	13650 4890	15029	15268 11783

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	70.39	77.46 27.30	75.20	78.80 27.77	87.48	88.14 66.92
HYDROGEN	4.42	4.23 2.06	3.96	4.11 1.90	4.61	4.60 4.58
NITROGEN	1.33	1.47 .49	1.43	1.50 .50	1.66	1.68 1.20
SULFUR	.87	.43 8.73	.93	.44 8.88	1.08	.49 21.40
OXYGEN	9.85	5.98 3.92	4.45	4.55 2.45	5.17	5.09 5.90
ASH	13.14	10.42 57.51	14.04	10.60 58.50		

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.58	.12 8.53	.62	.12 8.68	.72	.13 20.91
SULFATIC	.09	.03 .02	.10	.03 .02	.11	.03 .05
ORGANIC	.20	.29 .18	.21	.29 .18	.24	.32 .44
TOTAL	.87	.43 8.73	.93	.44 8.88	1.08	.49 21.40

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES						
SiO2 (SILICON OXIDE)	--	--				
Al2O3 (ALUMINUM OXIDE)	--	--				
Fe2O3 (IRON OXIDE)	--	--				
TiO2 (TITANIUM OXIDE)	--	--				
CaO (CALCIUM OXIDE)	--	--				
MgO (MAGNESIUM OXIDE)	--	--				
Na2O (SODIUM OXIDE)	--	--				
K2O (POTASSIUM OXIDE)	--	--				
SO3 (SULFITES)	--	--				

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--				
DOLOMITE	--	--				
HYDROGEN/CARBON	.63	.63				
OXYGEN/CARBON	.04	.04				
R250	--	--				
SILICA	--	--				
SILICA/ALUMINA	--	--				

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING						
HARDGROVE GRINDABILITY						
(FSI)	1	1 1/2				
(HGI)	79	--				

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
INITIAL DEFORMATION (ID)						
SOFTENING TEMPERATURE (ST)						
FLUID TEMPERATURE (FT)						

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)						
NA (SODIUM) (CALCULATED)						
MINERAL MATTER (PARR)						
	15.67	11.69				

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: MIDDLE KITTINGING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 80
SAMPLE NO. 313

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	19.2	2.2	.06	15330	.8
FLOAT 1.40	80.8	6.2	.09	14552	.8
FLOAT 1.60	89.8	7.2	.36	14361	1.3
CUM(1-1/2" X 100M)	100.0	10.8	1.94	13704	3.9
100M X 0	2.7	12.5	2.71	13278	6.1
TOTAL(1-1/2" X 0)	100.0	10.8	1.96	13692	3.9

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.0	2.0	.06	15360	.8
FLOAT 1.40	81.9	5.8	.07	14570	.8
FLOAT 1.60	89.9	6.8	.16	14388	1.0
CUM(3/8" X 100M)	100.0	10.9	1.98	13626	3.9
100M X 0	5.3	11.2	2.42	13527	5.5
TOTAL(3/8" X 0)	100.0	10.9	2.00	13621	4.0

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.4	1.7	.08	15370	.8
FLOAT 1.40	74.0	5.0	.08	14638	.9
FLOAT 1.60	90.2	6.7	.13	14290	1.0
CUM(14M X 0)	100.0	11.2	2.04	13431	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"

3/8" X 14M

14M X 100M

100M X 0

28.0

50.7

18.6

2.7

TOTAL

AS RECEIVED

2.1

1.6

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: MIDDLE KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 80
SAMPLE NO. 313

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.60	.90	---	---	---	---
ASH	11.02	6.34	11.20	6.40	21.30	20.39
VOLATILE MATTER	18.61	18.91	18.29	19.09	78.70	79.61
FIXED CARBON	68.77	73.84	27.73	74.51	21.30	39.74
BTU/LB	13216	14207	5362	14336	15125	15316

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	77.18	82.72	78.43	83.47	88.32	89.17
HYDROGEN	4.21	4.46	4.10	4.40	4.61	4.70
NITROGEN	1.28	1.39	1.30	1.40	1.46	1.50
SULFUR	2.92	.73	2.97	.73	3.34	.78
OXYGEN	3.40	4.37	2.01	3.60	2.26	3.84
ASH	11.02	6.34	11.20	6.40	---	---

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.08	.14	2.11	.14	2.38	.15
SULFATIC	.18	.08	.19	.08	.21	.09
ORGANIC	.66	.50	.67	.51	.75	.54
TOTAL	2.92	.73	2.97	.73	3.34	.78

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	---	---	---	---	---	---
SiO2 (SILICON OXIDE)	---	---	---	---	---	---
Al2O3 (ALUMINUM OXIDE)	---	---	---	---	---	---
Fe2O3 (IRON OXIDE)	---	---	---	---	---	---
TiO2 (TITANIUM OXIDE)	---	---	---	---	---	---
CaO (CALCIUM OXIDE)	---	---	---	---	---	---
MgO (MAGNESIUM OXIDE)	---	---	---	---	---	---
Na2O (SODIUM OXIDE)	---	---	---	---	---	---
K2O (POTASSIUM OXIDE)	---	---	---	---	---	---
SO3 (SULFITES)	---	---	---	---	---	---

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	---	---	---	---	---	---
DOLOMITE	---	---	---	---	---	---
HYDROGEN/CARBON	.63	.63	---	---	---	---
OXYGEN/CARBON	.02	.03	---	---	---	---
R250	---	---	---	---	---	---
SILICA	---	---	---	---	---	---
SILICA/ALUMINA	---	---	---	---	---	---

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	---	---	---	---	---	---
SOFTENING TEMPERATURE (ST)	---	---	---	---	---	---
FLUID TEMPERATURE (FT)	---	---	---	---	---	---
MISCELLANEOUS DATA, %	---	---	---	---	---	---
CL (CHLORINE) (ANALYZED)	---	---	---	---	---	---
NA (SODIUM) (CALCULATED)	---	---	---	---	---	---
MINERAL MATTER (PARR)	---	---	---	---	---	---
PHYSICAL PARAMETERS, INDEX	---	---	---	---	---	---
FREE SWELLING (FSI)	---	---	---	---	---	---
HARDGROVE GRINDABILITY (HGI)	---	---	---	---	---	---

STATE: PENNSYLVANIA
COUNTY: TIOGA

BED: MIDDLE KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 80
SAMPLE NO. 314

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.9	34.9	3.2	.10	.75	15049	1.0
FLOAT 1.40	91.6	94.3	5.6	.24	.90	14606	1.2
FLOAT 1.60	96.4	98.5	6.2	.33	.98	14495	1.4
CUM(1-1/2" X 100M)	100.0	100.0	7.9	.62	1.26	14182	1.8
100M X 0	2.0	1.9	10.2	.73	1.33	13757	1.9
TOTAL(1-1/2" X 0)	100.0	100.0	7.9	.62	1.26	14173	1.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.7	44.6	2.9	.05	.70	15104	.9
FLOAT 1.40	88.9	92.8	4.8	.11	.70	14754	.9
FLOAT 1.60	95.1	98.3	5.6	.21	.79	14606	1.1
CUM(3/8" X 100M)	100.0	100.0	8.2	.70	1.27	14126	1.8
100M X 0	3.8	3.9	6.9	.48	1.01	14366	1.4
TOTAL(3/8" X 0)	100.0	100.0	8.2	.69	1.26	14135	1.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.5	41.5	2.4	.05	.68	15196	.9
FLOAT 1.40	84.7	89.1	4.4	.11	.68	14827	.9
FLOAT 1.60	94.4	98.0	5.5	.14	.71	14624	1.0
CUM(14M X 0)	100.0	100.0	8.4	.68	1.24	14089	1.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	46.4	TOTAL AS RECEIVED
3/8" X 14M	38.9	
14M X 100M	12.7	
100M X 0	2.0	

MOISTURE, %
2.6
.6

STATE: PENNSYLVANIA		BED: MIDDLE KITTANNING		BED CODE: 80	
COUNTY: TIOGA		RANK: MED VOLATILE BITUMINOUS		SAMPLE NO. 314	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
		AS RECEIVED		MOISTURE FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.60	.80	.70		
ASH	8.02	5.36	55.21	8.06	55.60
VOLATILE MATTER	21.70	22.00	15.59	21.83	15.70
FIXED CARBON	69.68	71.84	28.50	70.10	28.70
BTU/LE	14106	14489	5341	14191	14605
				5379	15436
					12114
----- ULTIMATE ANALYSIS, % -----					
		AS RECEIVED		MOISTURE FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--
HYDROGEN	--	--	--	--	--
NITROGEN	--	--	--	--	--
SULFUR	1.14	.76	10.11	1.15	10.18
OXYGEN	--	--	--	--	--
ASH	8.02	5.36	55.21	8.06	55.60
----- SULFUR FORMS ANALYSIS, % -----					
		AS RECEIVED		MOISTURE FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.63	.15	9.71	.63	.15 9.78
SULFATIC	.00	.00	.01	.01	.00 .01
ORGANIC	.51	.61	.38	.51	.39
TOTAL	1.14	.76	10.11	1.15	10.18
----- MINERAL ANALYSIS OF ASH, % -----					
		AS RECEIVED		MOISTURE FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--
----- COAL UTILIZATION RATIOS -----					
	RAW	FL 1.60			
BASE/ACID	--	--			
DOLOMITE	--	--			
HYDROGEN/CARBON	--	--			
OXYGEN/CARBON	--	--			
R250	--	--			
SILICA	--	--			
SILICA/ALUMINA	--	--			
----- FUSIBILITY OF ASH, DEGREES F -----					
(IN OXIDIZING ATMOSPHERE)					
		AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--
----- MISCELLANEOUS DATA, % -----					
		AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--
MINERAL MATTER (PARR)	9.34	6.25	65.65		
----- PHYSICAL PARAMETERS, INDEX -----					
		AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	9	7	1/2		
HARDGROVE GRINDABILITY (HGI)	--	--	--		

STATE: PENNSYLVANIA
 COUNTY: TIOGA
 BED: MIDDLE KITANNING
 RANK: LOW VOLATILE BITUMINOUS
 BED CODE: 80
 SAMPLE NO. 315

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	5.7	2.5	.27	15288	1.2
FLOAT 1.40	81.5	8.0	.62	14251	1.9
FLOAT 1.60	96.6	9.7	.66	13931	1.9
CUM(1-1/2" X 100M)	100.0	11.0	.88	13686	2.3
100M X 0	1.3	14.6	1.70	13007	4.6
TOTAL(1-1/2" X 0)	100.0	11.0	.89	13677	2.3

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	18.0	2.3	.17	15326	1.2
FLOAT 1.40	76.9	6.9	.45	14459	1.6
FLOAT 1.60	95.4	9.1	.57	14044	1.8
CUM(3/8" X 100M)	100.0	10.8	.90	13724	2.3
100M X 0	3.5	11.1	1.34	13667	3.3
TOTAL(3/8" X 0)	100.0	10.8	.92	13722	2.4

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	18.9	2.1	.15	15363	1.2
FLOAT 1.40	74.3	6.2	.33	14591	1.4
FLOAT 1.60	93.9	8.6	.47	14138	1.6
CUM(14M X 0)	100.0	10.7	.93	13742	2.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"	MOISTURE, %
1-1/2" X 3/8"	66.0
3/8" X 14M	23.7
14M X 100M	9.0
100M X 0	1.3

TOTAL AS RECEIVED 2.8 .8

STATE: PENNSYLVANIA		BED: MIDDLE KITTANNING		BED CODE: 80	
COUNTY: TIOGA		RANK: LOW VOLATILE BITUMINOUS		SAMPLE NO. 315	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
AS RECEIVED				MOISTURE FREE	
MOISTURE	.80	.80	.80	FL 1.60	SK 1.60
ASH	10.61	8.43	41.47	10.70	41.80
VOLATILE MATTER	19.80	20.08	15.87	19.96	16.00
FIXED CARBON	68.78	70.69	41.86	69.34	42.20
BTU/LB	13640	14037	7817	13750	7880
				14150	15398
				15464	13540
----- ULTIMATE ANALYSIS, % -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
AS RECEIVED				MOISTURE FREE	
CARBON	--	--	--	FL 1.60	SK 1.60
HYDROGEN	--	--	--	--	--
NITROGEN	--	--	--	--	--
SULFUR	1.52	1.10	8.62	1.54	8.69
OXYGEN	--	--	--	--	--
ASH	10.61	8.43	41.47	10.70	41.80
				8.50	14.92
----- SULFUR FORMS ANALYSIS, % -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
AS RECEIVED				MOISTURE AND ASH FREE	
PYRITIC	.85	.42	7.95	.86	.46
SULFATIC	.01	.01	.02	.02	.01
ORGANIC	.65	.67	.65	.66	.74
TOTAL	1.52	1.10	8.62	1.54	1.72
				8.69	14.92
----- MINERAL ANALYSIS OF ASH, % -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES				MOISTURE AND ASH FREE	
SiO2 (SILICON OXIDE)	--	--	--	FL 1.60	SK 1.60
Al2O3 (ALUMINUM OXIDE)	--	--	--	2910+	2520
Fe2O3 (IRON OXIDE)	--	--	--	2910+	2570
TiO2 (TITANIUM OXIDE)	--	--	--	2910+	2620
CaO (CALCIUM OXIDE)	--	--	--		
MgO (MAGNESIUM OXIDE)	--	--	--		
Na2O (SODIUM OXIDE)	--	--	--		
K2O (POTASSIUM OXIDE)	--	--	--		
SO3 (SULFITES)	--	--	--		
----- COAL UTILIZATION RATIOS -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	FL 1.60	SK 1.60
DOLOMITE	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--
R250	--	--	--	12.40	9.79
SILICA	--	--	--	9.79	49.92
SILICA/ALUMINA	--	--	--		
----- PHYSICAL PARAMETERS, INDEX -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	9	1
HARDGROVE GRINDABILITY	--	--	--	--	--
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
AS RECEIVED				MOISTURE AND ASH FREE	
INITIAL DEFORMATION (ID)	--	--	--	FL 1.60	SK 1.60
SOFTENING TEMPERATURE (ST)	--	--	--	2910+	2520
FLUID TEMPERATURE (FT)	--	--	--	2910+	2620
----- MISCELLANEOUS DATA, % -----					
CL (CHLORINE) (ANALYZED)	--	--	--	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--	--	--
MINERAL MATTER (FARR)	12.40	9.79	49.92	12.40	9.79
----- PHYSICAL PARAMETERS, INDEX -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	9	1
HARDGROVE GRINDABILITY	--	--	--	--	--

STATE: PENNSYLVANIA BED: MIDDLE KITTANNING BED CODE: 80
COUNTY: TIOGA RANK: MED VOLATILE BITUMINOUS SAMPLE NO. 316

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
100M X 0	1.5	18.4	1.6	1.33	12361	3.2
TOTAL(1-1/2" X 0)	100.0	21.6	100.0	1.63	11797	3.5
100M X 0	1.5	18.4	1.6	1.33	12361	3.2
TOTAL(1-1/2" X 0)	100.0	21.6	100.0	1.63	11797	3.5

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
100M X 0	4.5	13.1	5.1	1.07	13310	2.5
TOTAL(3/8" X 0)	100.0	20.9	100.0	1.61	11908	3.5
100M X 0	4.5	13.1	5.1	1.07	13310	2.5
TOTAL(3/8" X 0)	100.0	20.9	100.0	1.61	11908	3.5

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
100M X 0	75.8	9.4	89.0	1.68	11896	3.6
TOTAL(14M X 0)	100.0	21.0	100.0	1.68	11896	3.6
100M X 0	75.8	9.4	89.0	1.68	11896	3.6
TOTAL(14M X 0)	100.0	21.0	100.0	1.68	11896	3.6

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	46.7
3/8" X 14M	38.5
14M X 100M	13.3
100M X 0	1.5

----- MOISTURE, % -----

TOTAL	2.6
AS RECEIVED	.6

STATE: PENNSYLVANIA
COUNTY: TIOGA

BED: MIDDLE KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 80
SAMPLE NO. 316

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.60	.80	.60	--	--	--
ASH	20.68	9.13	55.27	20.80	9.20	55.50
VOLATILE MATTER	20.97	22.62	15.61	21.10	22.80	15.70
FIXED CARBON	57.75	67.46	28.53	58.10	68.00	28.70
BTU/LB	11764	13967	5696	11835	14080	5730

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.04	.66	6.67	2.06	.67	6.71
OXYGEN	--	--	--	--	--	--
ASH	20.68	9.13	55.27	20.80	9.20	55.60

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.55	.18	6.28	1.56	.18	6.32
SULFATIC	.01	.01	.02	.02	.01	.02
ORGANIC	.48	.48	.37	.48	.48	.37
TOTAL	2.04	.66	6.67	2.06	.67	6.71

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2780
SOFTENING TEMPERATURE (ST)	2910+	2910+	2830
FLUID TEMPERATURE (FT)	2910+	2910+	2890
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	23.59	10.30	63.74

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	1
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: PENNSYLVANIA BED: MIDDLE KITTINGING BED CODE: 80
COUNTY: TIOGA RANK: LOW VOLATILE BITUMINOUS SAMPLE NO. 317

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	% PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	4.8	5.6	2.9	.28	.74	15177	1.0
FLOAT 1.40	65.3	72.2	7.8	1.05	1.49	14260	2.1
FLOAT 1.60	88.2	94.2	10.4	1.53	2.02	13774	2.9
CUM(1-1/2" X 100M)	100.0	100.0	15.1	2.35	2.82	12895	4.4
100M X 0	1.0	1.0	13.3	2.02	2.75	13231	4.2
TOTAL(1-1/2" X 0)	100.0	100.0	15.1	2.35	2.82	12898	4.4

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	% PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.0	9.4	2.7	.22	.71	15215	.9
FLOAT 1.40	67.4	74.6	7.6	.83	1.32	14298	1.8
FLOAT 1.60	87.1	93.9	9.6	1.31	1.75	13924	2.5
CUM(3/8" X 100M)	100.0	100.0	15.0	2.48	2.97	12913	4.6
100M X 0	3.2	3.3	12.9	2.09	2.85	13306	4.3
TOTAL(3/8" X 0)	100.0	100.0	14.9	2.47	2.97	12926	4.6

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	% PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	17.4	20.4	3.4	.27	1.25	15084	1.7
FLOAT 1.40	64.1	72.4	6.5	.56	1.37	14504	1.9
FLOAT 1.60	85.5	94.1	8.5	.80	1.42	14130	2.0
CUM(14M X 0)	100.0	100.0	15.4	2.45	3.04	12839	4.7

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----		----- MOISTURE, % -----	
SAMPLE CRUSHED TO PASS 1-1/2"			
1-1/2" X 3/8"	57.1	TOTAL	2.7
3/8" X 14M	30.5	AS RECEIVED	.7
14M X 100M	11.4		
100M X 0	1.0		

STATE: PENNSYLVANIA
COUNTY: TIOGA

BED: MIDDLE KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 80
SAMPLE NO. 317

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	RAW	AS RECEIVED	FL 1.60	SK 1.60	RAW	MOISTURE FREE	FL 1.60	SK 1.60	RAW	MOISTURE AND ASH FREE
MOISTURE	.70	1.00	.50							
ASH	14.80	8.32	53.57		14.90	8.40	53.84			
VOLATILE MATTER	19.59	20.27	15.18		19.73	20.47	15.26		23.18	22.35
FIXED CARBON	64.92	70.41	30.75		65.37	71.13	30.90		76.82	77.65
BTU/LB	12909	13949	5608		13000	14090	5636		15276	15382
										12211

ULTIMATE ANALYSIS, %

	RAW	AS RECEIVED	FL 1.60	SK 1.60	RAW	MOISTURE FREE	FL 1.60	SK 1.60	RAW	MOISTURE AND ASH FREE
CARBON	--	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--	--
SULFUR	2.96	1.52	12.53		2.99	1.54	12.60		3.51	1.68
OXYGEN	--	--	--	--	--	--	--	--	--	--
ASH	14.80	8.32	53.57		14.90	8.40	53.84		--	--

SULFUR FORMS ANALYSIS, %

	RAW	AS RECEIVED	FL 1.60	SK 1.60	RAW	MOISTURE FREE	FL 1.60	SK 1.60	RAW	MOISTURE AND ASH FREE
PYRITIC	2.41	.79	12.12		2.43	.80	12.18		2.86	.87
SULFATIC	.01	.01	.02		.02	.01	.02		.01	.04
ORGANIC	.54	.72	.40		.54	.73	.40		.63	.86
TOTAL	2.96	1.52	12.53		2.99	1.54	12.60		3.51	1.68

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2680	2910+	2130
SOFTENING TEMPERATURE (ST)	2730	2910+	2190
FLUID TEMPERATURE (FT)	2780	2910+	2260

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	17.73	9.92	65.08

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	1
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: PENNSYLVANIA
COUNTY: ALLEGHENY

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 318

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.5	3.2	.22	14643	1.1
FLOAT 1.40	91.7	4.6	.33	14395	1.3
FLOAT 1.60	95.0	5.2	.35	14288	1.3
CUM(1-1/2" X 100M)	100.0	8.0	.57	13790	1.6
100M X 0	1.1	16.2	1.86	12333	4.1
TOTAL(1-1/2" X 0)	100.0	8.1	.58	13774	1.7

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.5	2.9	.07	14697	1.0
FLOAT 1.40	90.7	4.3	.19	14448	1.1
FLOAT 1.60	94.6	5.0	.23	14323	1.2
CUM(3/8" X 100M)	100.0	8.1	.49	13772	1.6
100M X 0	5.1	10.7	1.33	13310	3.0
TOTAL(3/8" X 0)	100.0	8.2	.53	13749	1.7

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.4	2.6	.12	14750	1.0
FLOAT 1.40	88.7	4.1	.21	14483	1.1
FLOAT 1.60	94.6	5.0	.26	14323	1.2
CUM(14M X 0)	100.0	7.9	.59	13808	1.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	75.3	TOTAL AS RECEIVED 3.7 2.9
3/8" X 14M	18.9	
14M X 100M	4.7	
100M X 0	1.1	

STATE: PENNSYLVANIA
COUNTY: ALLEGHENY

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 318

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.90	1.30	--	--	--	--
ASH	7.67	4.74	7.90	4.80	--	--
VOLATILE MATTER	35.36	36.90	36.42	37.38	39.54	39.27
FIXED CARBON	54.07	57.06	55.68	57.82	60.46	60.73
BTU/LB	13458	14124	13860	14310	15049	15032

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	75.42	79.08	77.67	80.12	84.33	84.16
HYDROGEN	5.23	5.32	5.06	5.24	5.49	5.51
NITROGEN	1.43	1.51	1.47	1.53	1.60	1.61
SULFUR	1.10	.87	1.13	.88	1.23	.92
OXYGEN	9.15	8.49	6.77	7.43	7.35	7.80
ASH	7.67	4.74	7.90	4.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.54	.25	.56	.25	.61	.26
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.54	.61	.56	.62	.61	.65
TOTAL	1.10	.87	1.13	.88	1.23	.92

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	2580	2910+
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	2630	2910+
Fe2O3 (IRON OXIDE)	--	--	--	--	2680	2910+
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	.40	.50	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.78	.79	--	--	.09	.02
OXYGEN/CARBON	.07	.07	--	--	.02	.09
R250	--	--	--	--	9.15	5.67
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	8	8 1/2	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	56	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: ALLEGHENY

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 319

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	41.4	3.0	.16	14617	1.2
FLOAT 1.40	70.8	5.5	.43	14202	1.6
FLOAT 1.60	78.7	7.0	.52	13951	1.7
CUM(1-1/2" X 100M)	100.0	22.5	.58	11412	1.9
100M X 0	1.6	21.6	1.70	11567	4.2
TOTAL(1-1/2" X 0)	100.0	22.5	.50	11414	2.0

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	38.6	2.5	.12	14676	1.2
FLOAT 1.40	69.1	5.0	.35	14281	1.5
FLOAT 1.60	77.1	6.5	.38	14029	1.7
CUM(3/8" X 100M)	100.0	23.2	.48	11294	2.0
100M X 0	5.5	25.9	1.17	10861	3.0
TOTAL(3/8" X 0)	100.0	23.3	.52	11270	2.0

SAMPLE CRUSHED TO PASS 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	39.5	2.6	.11	14729	1.2
FLOAT 1.40	66.4	4.7	.26	14347	1.5
FLOAT 1.60	79.0	7.0	.40	13972	1.6
CUM(14M X 0)	100.0	21.3	.58	11638	2.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.1
3/8" X 14M	17.5
14M X 100M	4.8
100M X 0	1.6

MOISTURE, %

TOTAL	2.5
AS RECEIVED	2.2

STATE: PENNSYLVANIA
COUNTY: ALLEGHENY

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 319

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.20	2.00	--	--	--	--
ASH	21.66	6.96	22.15	7.10	--	--
VOLATILE MATTER	31.07	36.34	21.77	37.08	40.80	39.91
FIXED CARBON	45.07	54.71	46.08	55.82	59.20	60.09
BTU/LB	11259	13678	11512	13957	14788	15024

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	63.26	76.82	64.69	78.39	83.10	84.38
HYDROGEN	4.57	5.31	4.42	5.19	5.68	5.59
NITROGEN	1.29	1.56	1.32	1.59	1.69	1.71
SULFUR	1.21	1.13	1.24	1.15	1.60	1.24
OXYGEN	8.00	8.23	6.18	6.58	7.94	7.08
ASH	21.66	6.96	22.15	7.10	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.53	.35	.54	.36	.69	.39
SULFATIC	.02	.01	.03	.01	.03	.01
ORGANIC	.67	.76	.68	.78	.87	.84
TOTAL	1.21	1.13	1.24	1.15	1.60	1.24

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	60.93	54.97
Al2O3 (ALUMINUM OXIDE)	26.78	29.79
Fe2O3 (IRON OXIDE)	3.92	7.84
TiO2 (TITANIUM OXIDE)	1.67	1.67
CaO (CALCIUM OXIDE)	1.40	1.40
MgO (MAGNESIUM OXIDE)	.96	.80
Na2O (SODIUM OXIDE)	.59	--
K2O (POTASSIUM OXIDE)	2.39	2.10
SO3 (SULFITES)	.39	.34

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.10	--
DOLOMITE	.25	--
HYDROGEN/CARBON	.82	.79
OXYGEN/CARBON	.07	.06
R250	.94	.90
SILICA	.91	.84
SILICA/ALUMINA	2.28	1.85

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2680	2780
SOFTENING TEMPERATURE (ST)	2780	2910+
FLUID TEMPERATURE (FT)	2910+	2910+

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.05	--
NA (SODIUM) (CALCULATED)	.10	--
MINERAL MATTER (PARR)	24.61	8.30

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	7 1/2	8
HARDGROVE GRINDABILITY (HGI)	54	51

STATE: PENNSYLVANIA
COUNTY: ALLEGHENY
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 320

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.1	3.3	58.6	.19	14464	1.4
FLOAT 1.40	88.9	4.9	94.5	.36	14194	1.6
FLOAT 1.60	93.3	5.6	98.4	.48	14076	1.8
CUM(1-1/2" X 100M)	100.0	9.9	100.0	.77	13350	2.3
100M X 0	1.1	16.3	1.0	2.52	12270	5.3
TOTAL(1-1/2" X 0)	100.0	10.0	100.0	.79	13338	2.3

--- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.9	3.1	62.6	.19	14498	1.2
FLOAT 1.40	87.9	4.6	93.4	.35	14245	1.4
FLOAT 1.60	93.5	5.5	98.3	.48	14093	1.6
CUM(3/8" X 100M)	100.0	9.6	100.0	.78	13401	2.1
100M X 0	3.8	16.2	3.5	2.08	12287	4.7
TOTAL(3/8" X 0)	100.0	9.9	100.0	.83	13359	2.2

--- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.7	2.5	56.5	.12	14599	.9
FLOAT 1.40	81.9	4.3	87.6	.25	14295	1.1
FLOAT 1.60	93.1	5.7	97.9	.28	14059	1.3
CUM(14M X 0)	100.0	9.8	100.0	.83	13367	2.1

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.3
3/8" X 14M	17.9
14M X 100M	4.7
100M X 0	1.1

--- MOISTURE, % ---

TOTAL	4.0
AS RECEIVED	2.7

STATE: PENNSYLVANIA
COUNTY: ALLEGHENY
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 320

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.70	2.30 1.00	--	--	--	--
ASH	9.54	5.57 62.57	9.80	63.20	--	--
VOLATILE MATTER	36.70	38.37 16.73	37.72	16.90	41.82	45.92
FIXED CARBON	51.06	53.76 19.70	52.48	19.90	58.18	54.08
BTU/LB	13058	13688 4306	13420	4350	14878	11821

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	72.46	76.51 23.92	74.47	24.16	82.57	65.65
HYDROGEN	5.15	5.36 2.09	4.98	2.00	5.53	5.43
NITROGEN	1.47	1.55 .50	1.51	.50	1.68	1.36
SULFUR	1.42	.99 8.23	1.46	8.31	1.62	22.58
OXYGEN	9.96	10.03 2.70	7.77	1.83	8.62	4.97
ASH	9.54	5.57 62.57	9.80	63.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.83	.30 8.17	.86	8.25	.95	22.42
SULFATIC	.01	.01 .01	.01	.01	.01	.03
ORGANIC	.57	.68 .05	.59	.05	.65	.14
TOTAL	1.42	.99 8.23	1.46	8.31	1.62	22.58

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
(SILICON OXIDE)	--	--
AL2O3 (ALUMINUM OXIDE)	--	--
FE2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CAO (CALCIUM OXIDE)	--	--
MGO (MAGNESIUM OXIDE)	--	--
NA2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.80	.80
OXYGEN/CARBON	.08	.08
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2410	2910+
SOFTENING TEMPERATURE (ST)	2460	2910+
FLUID TEMPERATURE (FT)	2600	2910+

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.04	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (FARR)	11.39	6.74
		72.83

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	7 1/2	7 1/2
HARDGROVE GRINDABILITY (HGI)	46	--

STATE: PENNSYLVANIA
COUNTY: ALLEGHENY
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 321

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	45.4	4.2	.52	14379	1.8
FLOAT 1.40	87.3	6.3	.95	14015	2.6
FLOAT 1.60	93.3	7.2	1.12	13858	2.9
CUM(1-1/2" X 100M)	100.0	10.7	1.49	13251	3.5
100M X 0	1.4	17.6	2.67	12054	5.8
TOTAL(1-1/2" X 0)	100.0	10.8	1.51	13234	3.5

--- SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	48.1	3.8	.39	14448	1.6
FLOAT 1.40	84.4	5.9	.82	14084	2.3
FLOAT 1.60	92.1	7.0	1.04	13893	2.7
CUM(3/8" X 100M)	100.0	11.1	1.58	13182	3.5
100M X 0	4.0	12.2	2.36	12991	5.0
TOTAL(3/8" X 0)	100.0	11.1	1.61	13174	3.6

--- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	47.2	3.3	.31	14535	1.8
FLOAT 1.40	80.0	5.1	.55	14223	2.2
FLOAT 1.60	91.9	6.7	.87	13945	2.6
CUM(14M X 0)	100.0	10.8	1.61	13234	3.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	79.1
3/8" X 14M	15.2
14M X 100M	4.3
100M X 0	1.4

--- MOISTURE, % ---

TOTAL AS RECEIVED	6.2
	5.8

STATE: PENNSYLVANIA
COUNTY: ALLEGHENY

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 321

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	5.80	1.80 1.00	--	--	--	--
ASH	10.58	6.78 55.24	11.23	6.90 55.80	--	--
VOLATILE MATTER	36.17	39.40 20.00	38.40	40.13 20.20	43.26	43.10 45.70
FIXED CARBON	47.45	52.02 23.76	50.37	52.98 24.00	56.74	56.90 54.30
BTU/LB	12448	13611 5366	13214	13860 5420	14886	14887 12262

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	68.92	75.73 28.58	73.17	77.12 28.87	82.43	82.84 65.31
HYDROGEN	5.29	5.33 2.09	4.94	5.22 2.00	5.56	5.61 4.52
NITROGEN	1.33	1.47 .59	1.42	1.50 .60	1.59	1.61 1.36
SULFUR	2.18	1.71 10.52	2.31	1.74 10.63	2.61	1.87 24.04
OXYGEN	11.69	8.99 2.98	6.93	7.52 2.11	7.81	8.08 4.77
ASH	10.58	6.78 55.24	11.23	6.90 55.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.55	.77 9.91	1.65	.78 10.01	1.86	.84 22.64
SULFATIC	.02	.01 .03	.02	.01 .03	.02	.01 .07
ORGANIC	.61	.93 .58	.64	.95 .59	.72	1.02 1.33
TOTAL	2.18	1.71 10.52	2.31	1.74 10.63	2.61	1.87 24.04

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES (SILICON OXIDE)	--	--	--	--	--	--
AL2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
FE2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	.30	.40 .30	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.81	.81	--	--	--	--
OXYGEN/CARBON	.07	.07	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: PENNSYLVANIA COUNTY: ARMSTRONG BED: PITTSBURGH RANK: HIGH VOLATILE A BITUMINOUS BED CODE: 36 SAMPLE NO. 322

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	14.8	17.9	5.2	.45	14886	2.1
FLOAT 1.40	65.0	74.4	9.6	.82	13729	2.7
FLOAT 1.60	82.4	90.5	12.9	1.04	13164	3.1
CUM(1-1/2" X 100M)	100.0	100.0	19.7	1.40	11989	3.9
100M X 0	1.0	1.0	21.7	1.51	11635	5.1
TOTAL(1-1/2" X 0)	100.0	100.0	19.7	1.40	11986	3.9

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	19.8	24.4	4.7	.39	14619	2.1
FLOAT 1.40	60.6	70.7	8.7	.71	13864	2.7
FLOAT 1.60	79.5	88.7	12.2	.96	13256	3.0
CUM(3/8" X 100M)	100.0	100.0	20.3	1.43	11887	4.0
100M X 0	5.2	5.5	16.9	1.63	12473	4.6
TOTAL(3/8" X 0)	100.0	100.0	20.1	1.44	11918	4.0

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	23.1	28.7	4.7	.31	14622	1.8
FLOAT 1.40	59.3	70.6	8.1	.55	14038	2.3
FLOAT 1.60	78.0	89.0	11.4	.72	13450	2.6
CUM(14M X 0)	100.0	100.0	20.9	1.47	11789	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	71.0
3/8" X 14M	23.0
14M X 100M	5.0
100M X 0	1.0

MOISTURE, %

TOTAL AS RECEIVED	5.2
	1.3

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 322

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.30	1.20	1.25	--	--	--	--	--	--
ASH	19.80	11.71	53.82	20.06	11.86	54.50	--	--	--
VOLATILE MATTER	31.05	33.68	19.75	31.46	34.09	20.00	39.35	38.67	43.96
FIXED CARBON	47.85	53.41	25.18	48.48	54.06	25.50	60.65	61.33	56.04
BTU/LB	11758	13220	5835	11913	13381	5909	14903	15181	12986

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	65.85	73.60	33.15	66.72	74.49	33.57	83.46	84.51	73.78
HYDROGEN	4.59	5.04	2.61	4.50	4.97	2.50	5.63	5.63	5.49
NITROGEN	1.36	1.49	.69	1.38	1.51	.70	1.73	1.71	1.54
SULFUR	2.24	1.76	4.44	2.27	1.78	4.49	2.84	2.02	9.87
OXYGEN	6.16	6.39	5.30	5.07	5.39	4.24	6.34	6.12	9.31
ASH	19.80	11.71	53.82	20.06	11.86	54.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.43	.78	4.08	1.45	.79	4.13	1.81	.90	9.07
SULFATIC	.02	.02	.02	.02	.02	.02	.03	.02	.04
ORGANIC	.79	.96	.34	.80	.97	.34	1.00	1.10	.76
TOTAL	2.24	1.76	4.44	2.27	1.78	4.49	2.84	2.02	9.87

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO ₂ (SILICON OXIDE)	55.40	53.69	56.25
Al ₂ O ₃ (ALUMINUM OXIDE)	27.53	29.04	26.40
Fe ₂ O ₃ (IRON OXIDE)	12.01	11.44	11.72
TiO ₂ (TITANIUM OXIDE)	1.33	1.67	1.00
CaO (CALCIUM OXIDE)	.28	.48	.11
MgO (MAGNESIUM OXIDE)	.60	.56	.63
Na ₂ O (SODIUM OXIDE)	.22	.24	.13
K ₂ O (POTASSIUM OXIDE)	1.98	1.90	2.02
SO ₃ (SULFITES)	.07	.12	.17

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.18	.17
DOLomite	.06	.07
HYDROGEN/CARBON	.81	.80
OXYGEN/CARBON	.06	.05
R250	.87	.87
SILICA	.81	.81
SILICA/ALUMINA	2.01	1.85

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2520	2620	--
SOFTENING TEMPERATURE (ST)	2610	2730	--
FLUID TEMPERATURE (FT)	2840	2910+	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.04	--	--
MINERAL MATTER (PARR)	.03	.02	.05
	22.92	13.79	61.33

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7	1 1/2	8 1/2
HARDGROVE GRINDABILITY (HGI)	60	56	--

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG
BED: PITTSBURGH (BOT)
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 323

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" ----- (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)							
PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	21.9	26.9	5.4	.45	1.03	14418	1.4
FLOAT 1.40	69.8	81.1	10.1	.47	1.26	13622	1.8
FLOAT 1.60	83.4	94.0	12.5	.67	1.44	13216	2.2
CUM(1-1/2" X 100M)	100.0	100.0	21.3	1.04	1.72	11725	2.9
100M X 0	1.0	1.0	23.1	1.84	3.02	11420	5.3
TOTAL(1-1/2" X 0)	100.0	100.0	21.3	1.05	1.73	11722	3.0

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.8	4.6	.27	14554	1.5
FLOAT 1.40	64.3	8.9	.53	13825	1.6
FLOAT 1.60	80.9	11.9	.71	13317	1.9
CUM(3/8" X 100M)	100.0	21.9	1.01	11623	2.7
100M X 0	6.4	17.7	1.24	12335	3.3
TOTAL(3/8" X 0)	100.0	21.6	1.02	11669	2.7

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.9	4.2	.17	14622	1.4
FLOAT 1.40	57.7	7.8	.27	14012	1.5
FLOAT 1.60	80.0	11.4	.55	13402	1.8
CUM(14M X 0)	100.0	21.6	1.02	11674	2.8

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % ----- SAMPLE CRUSHED TO PASS 1-1/2"		----- MOISTURE, % -----	
1-1/2" X 3/8"	74.0	TOTAL	4.1
3/8" X 14M	19.9	AS RECEIVED	2.8
14M X 100M	5.1		
100M X 0	1.0		

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: PITTSBURGH (BOT)
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 323

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.80	1.10 .60	--	--	--	--
ASH	21.84	11.57 62.62	22.45	11.70 63.00	--	--
VOLATILE MATTER	29.31	33.33 16.80	30.16	33.71 16.90	38.90	38.17 45.68
FIXED CARBON	46.05	54.00 19.98	47.38	54.60 20.10	61.11	61.83 54.32
BTU/LB	11256	13164 4622	11580	13310 4650	14935	15074 12568

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	63.43	73.77 27.01	65.25	74.59 27.17	84.16	84.47 73.43
NITROGEN	4.52	4.99 2.15	4.33	4.92 2.10	5.59	5.57 5.68
SULFUR	1.28	1.48 .50	1.32	1.50 .50	1.70	1.70 1.35
OXYGEN	7.38	7.09 4.36	5.03	6.18 3.85	2.07	1.26 9.15
ASH	21.84	11.57 62.62	22.46	11.70 63.00	6.49	7.00 10.39

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRLITIC	.95	.49 2.88	.98	.50 2.90	1.26	.56 7.84
SULFATIC	.01	.01 .02	.02	.01 .02	.02	.01 .05
ORGANIC	.59	.60 .46	.61	.61 .47	.79	.69 1.26
TOTAL	1.56	1.10 3.36	1.60	1.11 3.39	2.07	1.26 9.15

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	RAW	FL 1.60 SK 1.60
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	2730	2910+ 2630
Fe2O3 (IRON OXIDE)	--	--	--	--	2790	2910+ 2680
TiO2 (TITANIUM OXIDE)	--	--	--	--	2910+	2910+ 2910+
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.80	.79	--	--	--	--
OXYGEN/CARBON	.06	.06	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	7	8	7	8	7	8
HARDGROVE GRINDABILITY (HGI)	58	--	58	--	58	--

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: PITTSBURGH (TOP)
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 324

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.5	5.8	.40	14383	1.8
FLOAT 1.40	63.1	9.1	.76	13818	2.4
FLOAT 1.60	79.7	12.6	1.09	13219	2.9
CUM(1-1/2" X 100M)	100.0	23.5	1.49	11353	3.9
100M X 0	.8	22.5	2.39	11524	6.7
TOTAL(1-1/2" X 0)	100.0	23.5	1.50	11354	3.9

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.4	5.2	.40	14486	1.8
FLOAT 1.40	59.9	8.4	.72	13938	2.2
FLOAT 1.60	76.0	12.0	.97	13322	2.7
CUM(3/8" X 100M)	100.0	24.8	1.49	11130	4.0
100M X 0	3.2	21.4	2.17	11712	5.1
TOTAL(3/8" X 0)	100.0	24.7	1.51	11149	4.0

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.0	5.1	.24	14503	1.6
FLOAT 1.40	52.1	7.9	.47	14024	2.0
FLOAT 1.60	73.0	11.7	.69	13373	2.3
CUM(14M X 0)	100.0	25.5	1.54	11010	4.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	74.8
3/8" X 14M	19.5
14M X 100M	4.9
100M X 0	.8

MOISTURE, %

TOTAL AS RECEIVED

3.9
2.6

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: PITTSBURGH (TOP)
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 324

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.60	1.20	--	--	--	--
ASH	23.86	11.86	24.50	12.00	40.33	39.37
VOLATILE MATTER	29.66	34.23	30.45	34.65	59.67	60.63
FIXED CARBON	43.88	52.71	45.05	53.35	--	--
BTU/LB	10919	13140	11210	13300	14848	15114
		4526		4600		12399

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	61.46	73.42	63.10	74.31	83.58	84.44
HYDROGEN	4.45	5.01	4.27	4.93	5.65	5.60
NITROGEN	1.13	1.42	1.16	1.44	1.54	1.63
SULFUR	2.15	1.55	2.21	1.57	2.92	1.78
OXYGEN	6.95	6.75	4.76	5.75	6.31	6.54
ASH	23.86	11.86	24.50	12.00	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.38	.65	1.42	.66	1.88	.75
SULFATIC	.03	.03	.04	.03	.05	.03
ORGANIC	.73	.87	.75	.88	.11	.11
TOTAL	2.15	1.55	2.21	1.57	2.92	1.78

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	.81	.80	2620	2680
OXYGEN/CARBON	.06	.06	2670	2730
R250	--	--	2720	2910+
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	.07	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--
MINERAL MATTER (PARR)	27.67	13.82	70.20	--
FREE SWELLING (FSI)	6 1/2	8	--	--
HARDGROVE GRINDABILITY (HGI)	56	--	--	--

BED CODE: 36
SAMPLE NO. 325

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: FAYETTE

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	63.1	4.3	66.4	.17	14725	1.2
FLOAT 1.40	92.5	6.0	95.4	.37	14443	1.5
FLOAT 1.60	95.9	6.5	98.3	.47	14357	1.7
CUM(1-1/2" X 100M)	100.0	8.4	100.0	.88	14000	2.3
100M X 0	1.1	11.6	1.1	1.91	13403	4.1
TOTAL(1-1/2" X 0)	100.0	8.4	100.0	.89	13994	2.3

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	57.4	3.6	60.9	.16	14741	1.3
FLOAT 1.40	90.2	5.5	93.7	.31	14424	1.5
FLOAT 1.60	95.3	6.2	98.2	.40	14307	1.6
CUM(3/8" X 100M)	100.0	8.7	100.0	.89	13890	2.4
100M X 0	7.8	8.0	7.9	1.28	14016	3.1
TOTAL(3/8" X 0)	100.0	8.6	100.0	.92	13900	2.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	58.4	3.2	61.7	.19	14771	1.2
FLOAT 1.40	89.6	5.1	92.8	.30	14477	1.3
FLOAT 1.60	96.0	6.0	98.3	.39	14316	1.4
CUM(14M X 0)	100.0	8.0	100.0	.95	13978	2.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	72.1
3/8" X 14M	21.4
14M X 100M	5.4
100M X 0	1.1

--- MOISTURE, % ---
TOTAL AS RECEIVED
2.1
1.4

STATE: PENNSYLVANIA
COUNTY: FAYETTE

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 325

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.40	1.10 1.30	--	--	--	--
ASH	7.79	6.13 54.66	7.90	55.38	--	--
VOLATILE MATTER	35.69	36.40 18.84	36.19	19.09	39.30	42.78
FIXED CARBON	55.12	56.37 25.20	55.91	25.53	60.70	57.22
BTU/LB	13798	14128 5878	13994	5956	15194	15230
						13348

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	77.82	79.53 26.78	78.92	27.13	85.69	85.72
HYDROGEN	5.22	5.33 1.89	5.14	1.77	5.58	5.61
NITROGEN	1.56	1.60 .34	1.58	.34	1.71	1.73
SULFUR	1.55	1.08 14.60	1.57	14.79	1.70	1.16
OXYGEN	6.07	6.34 1.74	4.89	.59	5.31	33.15
ASH	7.79	6.13 54.66	7.90	55.38	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.86	.35 14.20	.87	.35 14.39	.94	.37
SULFATIC	.02	.03	.02	.03	.02	.01
ORGANIC	.67	.72 .37	.68	.37	.74	.83
TOTAL	1.55	1.08 14.60	1.57	14.79	1.70	1.16

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	45.60	49.43 37.93				
SiO2 (SILICON OXIDE)	27.91	32.43 16.59				
Al2O3 (ALUMINUM OXIDE)	16.87	10.29 35.17				
Fe2O3 (IRON OXIDE)	1.33	1.67 .67				
TiO2 (TITANIUM OXIDE)	3.08	1.99 4.76				
CaO (CALCIUM OXIDE)	.76	.70				
MgO (MAGNESIUM OXIDE)	.57	.46				
Na2O (SODIUM OXIDE)	1.76	1.81 1.64				
K2O (POTASSIUM OXIDE)	1.89	.81 2.06				
SO3 (SULFITES)						

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.31	.19				
DOLOMITE	.17	.17				
HYDROGEN/CARBON	.78	.79				
OXYGEN/CARBON	.05	.05				
R250	.79	.87				
SILICA	.69	.79				
SILICA/ALUMINA	1.63	1.52				

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.11	--				
NA (SODIUM) (CALCULATED)	.03	.03				
MINERAL MATTER (PAR)	9.40	7.30				
INITIAL DEFORMATION (ID)	2360	2910+				
SOFTENING TEMPERATURE (ST)	2410	2910+				
FLUID TEMPERATURE (FT)	2650	2910+				
FREE SWELLING (FSI)	8	9				
HARDGROVE GRINDABILITY (HGI)	63	57				

STATE: PENNSYLVANIA
COUNTY: FAYETTE
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 326

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.4	4.9	27.7	.14	14531	2.8
FLOAT 1.40	64.1	9.3	72.3	.75	13816	3.6
FLOAT 1.60	86.7	13.7	92.6	1.02	13088	4.1
CUM(1-1/2" X 100M)	100.0	18.4	100.0	1.61	12257	5.2
100M X 0	1.1	18.4	1.1	2.67	12269	8.1
TOTAL(1-1/2" X 0)	100.0	18.4	100.0	1.62	12257	5.3

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.8	4.7	29.7	.26	14684	2.7
FLOAT 1.40	63.4	8.9	72.6	.63	14030	3.2
FLOAT 1.60	84.4	12.9	91.7	.84	13323	3.6
CUM(3/8" X 100M)	100.0	18.8	100.0	1.68	12260	5.2
100M X 0	8.6	15.5	9.0	2.26	12785	6.5
TOTAL(3/8" X 0)	100.0	18.5	100.0	1.73	12305	5.3

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.5	4.6	39.0	.53	14732	2.7
FLOAT 1.40	64.9	8.0	74.8	.58	14124	3.0
FLOAT 1.60	82.5	11.3	91.2	.69	13562	3.2
CUM(14M X 0)	100.0	18.5	100.0	1.71	12263	5.2

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	66.9
3/8" X 14M	25.0
14M X 100M	7.0
100M X 0	1.1

--- MOISTURE, % ---

TOTAL	3.2
AS RECEIVED	1.1

STATE: PENNSYLVANIA
COUNTY: FAYETTE

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 326

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		RAW	MOISTURE FREE		MOISTURE AND ASH FREE		
	FL 1.60	SK 1.60		FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.10	.80	--	--	--	--	--	--
ASH	18.40	11.31	18.60	11.40	53.20	--	--	--
VOLATILE MATTER	30.79	33.00	31.13	33.27	20.60	38.25	37.55	44.02
FIXED CARBON	49.71	54.89	50.27	55.33	26.20	51.75	62.45	55.98
BTU/LB	12113	13438	12248	13547	6039	15046	15290	12904

ULTIMATE ANALYSIS, %

	AS RECEIVED		RAW	MOISTURE FREE		MOISTURE AND ASH FREE		
	FL 1.60	SK 1.60		FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	66.19	73.46	66.93	74.05	31.35	82.22	83.58	66.99
HYDROGEN	4.46	4.87	4.38	4.82	2.30	5.39	5.43	4.91
NITROGEN	1.29	1.39	1.30	1.40	.70	1.60	1.58	1.50
SULFUR	3.31	2.13	3.35	2.15	8.52	4.11	2.43	18.20
OXYGEN	6.36	6.85	5.44	6.18	3.93	6.68	6.98	8.40
ASH	18.40	11.31	18.60	11.40	53.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		RAW	MOISTURE FREE		MOISTURE AND ASH FREE		
	FL 1.60	SK 1.60		FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.69	.63	1.71	.64	6.58	2.10	.72	14.06
SULFATIC	.09	.07	.10	.07	.22	.12	.08	.46
ORGANIC	1.52	1.43	1.54	1.44	1.72	1.89	1.63	3.68
TOTAL	3.31	2.13	3.35	2.15	8.52	4.11	2.43	18.20

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		RAW	MOISTURE FREE		MOISTURE AND ASH FREE		
	FL 1.60	SK 1.60		FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES								
SiO2 (SILICON OXIDE)	51.99	54.12	49.86			2460	2780	--
Al2O3 (ALUMINUM OXIDE)	27.15	30.92	21.50			2560	2910+	--
Fe2O3 (IRON OXIDE)	14.58	8.58	23.16			2750	2910+	--
TiO2 (TITANIUM OXIDE)	1.67	1.67	1.33					
CaO (CALCIUM OXIDE)	.73	1.06	.48					
MgO (MAGNESIUM OXIDE)	.60	.63	.53					
Na2O (SODIUM OXIDE)	.43	.30	.30					
K2O (POTASSIUM OXIDE)	2.05	2.10	2.10					
SO3 (SULFITES)	.53	.64	.64					

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		RAW	MOISTURE FREE		MOISTURE AND ASH FREE		
	FL 1.60	SK 1.60		FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)						2460	2780	--
SOFTENING TEMPERATURE (ST)						2560	2910+	--
FLUID TEMPERATURE (FT)						2750	2910+	--

MISCELLANEOUS DATA, %

	AS RECEIVED		RAW	MOISTURE FREE		MOISTURE AND ASH FREE		
	FL 1.60	SK 1.60		FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)						.01	--	--
NA (SODIUM) (CALCULATED)						.06	.03	.12
MINERAL MATTER (PARR)						21.93	13.49	62.34

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		RAW	MOISTURE FREE		MOISTURE AND ASH FREE		
	FL 1.60	SK 1.60		FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING						7 1/2	8	--
HARDGROVE GRINDABILITY (HGI)						67	61	--

COAL UTILIZATION RATIOS

	AS RECEIVED		RAW	MOISTURE FREE		MOISTURE AND ASH FREE		
	FL 1.60	SK 1.60		FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	.23	.15						
DOLomite	.07	.13						
HYDROGEN/CARBON	.79	.78						
OXYGEN/CARBON	.06	.06						
R250	.84	.90						
SILICA	.77	.84						
SILICA/ALUMINA	1.91	1.75						

STATE: PENNSYLVANIA
COUNTY: GREENE
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 327

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.8	3.9	.35	14523	1.7
FLOAT 1.40	73.6	5.4	.69	14289	2.2
FLOAT 1.60	77.5	6.2	.77	14166	2.3
CUM(1-1/2" X 100M)	100.0	22.8	1.46	11375	3.8
100M X 0	1.2	17.8	1.97	12252	3.2
TOTAL(1-1/2" X 0)	100.0	22.7	1.47	11386	3.8

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.8	3.8	.28	14598	1.4
FLOAT 1.40	70.8	5.1	.54	14374	1.8
FLOAT 1.60	75.1	6.0	.64	14225	2.0
CUM(3/8" X 100M)	100.0	24.4	1.47	11106	3.7
100M X 0	4.9	16.0	2.26	12557	4.9
TOTAL(3/8" X 0)	100.0	24.0	1.51	11177	3.8

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.8	3.8	.21	14720	1.4
FLOAT 1.40	70.6	5.2	.39	14436	1.7
FLOAT 1.60	76.8	6.3	.49	14244	1.8
CUM(14M X 0)	100.0	23.3	1.46	11352	3.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	68.2
3/8" X 14M	24.5
14M X 100M	6.1
100M X 0	1.2

--- MOISTURE, % ---

TOTAL	2.5
AS RECEIVED	1.0

STATE: PENNSYLVANIA
COUNTY: GREENE

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 327

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.00	.90	--	--	--	--
ASH	23.99	6.54	24.23	6.60	79.80	--
VOLATILE MATTER	32.74	39.39	11.33	39.74	11.50	--
FIXED CARBON	42.27	53.17	8.57	53.66	8.70	--
BTU/LB	11102	14070	1733	11214	14198	1759
					14800	15201
						8710

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	61.79	78.35	62.42	79.06	82.38	84.65
HYDROGEN	4.37	5.37	4.30	5.32	5.68	5.69
NITROGEN	1.19	1.48	1.20	1.49	1.58	1.59
SULFUR	1.99	1.23	2.01	1.24	2.65	1.33
OXYGEN	6.67	7.04	5.84	6.30	7.70	6.74
ASH	23.99	6.54	24.23	6.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.49	.45	1.50	.45	1.98	.48
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.50	.77	.50	.78	.66	.84
TOTAL	1.99	1.23	2.01	1.24	2.65	1.33

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES				
SiO2 (SILICON OXIDE)	59.23	51.56	2700	2520
Al2O3 (ALUMINUM OXIDE)	24.51	27.15	2780	2680
Fe2O3 (IRON OXIDE)	8.58	12.01	2910+	2910+
TiO2 (TITANIUM OXIDE)	1.33	1.33		
CaO (CALCIUM OXIDE)	1.15	2.21		
MgO (MAGNESIUM OXIDE)	.80	.80		
Na2O (SODIUM OXIDE)	.65	.62		
K2O (POTASSIUM OXIDE)	2.92	1.88		
SO3 (SULFITES)	.54	.68		

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.17	.22	.08	.30
DOLomite	.14	.17	.12	.03
HYDROGEN/CARBON	.83	.81	27.28	7.81
OXYGEN/CARBON	.07	.06		
R250	.90	.85		
SILICA	.85	.77		
SILICA/ALUMINA	2.42	1.90		

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	6	7 1/2		
HARDGROVE GRINDABILITY (HGI)	56	52		

STATE: PENNSYLVANIA		BED: PITTSBURGH		BED CODE: 36	
COUNTY: GREENE		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 328	
CUMULATIVE WASHABILITY DATA (DRY BASIS)					
----- SAMPLE CRUSHED TO PASS 1-1/2" -----					
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)					
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.2	3.9	.24	14622	1.4
FLOAT 1.40	89.8	6.9	.72	14104	2.3
FLOAT 1.60	95.4	7.8	.90	13948	2.6
CUM(1-1/2" X 100M)	100.0	9.4	1.34	13672	3.2
100M X 0	1.3	12.8	3.32	13085	6.6
TOTAL(1-1/2" X 0)	100.0	9.4	1.37	13664	3.3
----- SAMPLE CRUSHED TO PASS 3/8" -----					
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)					
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.6	3.6	.20	14673	1.3
FLOAT 1.40	88.6	6.6	.61	14155	2.0
FLOAT 1.60	95.2	7.5	.82	14000	2.3
CUM(3/8" X 100M)	100.0	9.3	1.32	13689	3.1
100M X 0	2.3	12.0	3.34	13223	6.6
TOTAL(3/8" X 0)	100.0	9.4	1.37	13678	3.2
----- SAMPLE CRUSHED TO PASS 14M -----					
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)					
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.5	3.9	.11	14622	1.2
FLOAT 1.40	87.5	6.2	.38	14224	1.8
FLOAT 1.60	95.7	7.3	.50	14035	2.0
CUM(14M X 0)	100.0	9.1	1.26	13724	3.2
RAW COAL SIZE AND MOISTURE ANALYSES					
----- SIZE DISTRIBUTION, % -----					
SAMPLE CRUSHED TO PASS 1-1/2"				MOISTURE, %	
1-1/2" X 3/8"				2.7	
3/8" X 14M				1.3	
14M X 100M					
100M X 0					
TOTAL AS RECEIVED					

STATE: PENNSYLVANIA
COUNTY: GREENE
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 328

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	1.30	1.40	--	--	--	--
ASH	9.18	7.00	9.30	50.20	--	--
VOLATILE MATTER	33.95	34.81	34.40	35.30	37.93	38.00
FIXED CARBON	55.57	56.79	56.30	57.60	62.07	62.00
BTU/LB	13601	13922	13780	14120	15193	15199

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.19	1.29	2.22	1.31	2.45	1.41
OXYGEN	--	--	--	--	--	--
ASH	9.18	7.00	9.30	7.10	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	1.32	.48	1.34	.49	1.48	.53
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.86	.80	.87	.92	.96	.87
TOTAL	2.19	1.29	2.22	1.31	2.45	1.41

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
(SILICON OXIDE)	--	--	--
SiO2	--	--	--
(ALUMINUM OXIDE)	--	--	--
Al2O3	--	--	--
(IRON OXIDE)	--	--	--
Fe2O3	--	--	--
(TITANIUM OXIDE)	--	--	--
TiO2	--	--	--
(CALCIUM OXIDE)	--	--	--
CaO	--	--	--
(MAGNESIUM OXIDE)	--	--	--
MgO	--	--	--
(SODIUM OXIDE)	--	--	--
Na2O	--	--	--
(POTASSIUM OXIDE)	--	--	--
K2O	--	--	--
(SULFITES)	--	--	--
SO3	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2120	2720	--
SOFTENING TEMPERATURE (ST)	2170	2770	--
FLUID TEMPERATURE (FT)	2410	2835	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	11.27	8.39	64.72

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8 1/2	9	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

STATE: PENNSYLVANIA
COUNTY: GREENE

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 329

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.1	4.5	.37	14518	2.2
FLOAT 1.40	91.4	6.1	.66	14242	2.7
FLOAT 1.60	95.7	6.7	.76	14138	2.8
CUM(1-1/2" X 100M)	100.0	8.4	1.42	13845	3.9
100M X 0	.8	12.3	2.45	13171	6.4
TOTAL(1-1/2" X 0)	100.0	8.4	1.43	13839	3.9

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.7	4.4	.26	14535	2.2
FLOAT 1.40	91.5	5.9	.48	14276	2.6
FLOAT 1.60	96.0	6.6	.63	14155	2.8
CUM(3/8" X 100M)	100.0	8.1	1.22	13896	3.7
100M X 0	2.0	10.7	2.46	13447	5.9
TOTAL(3/8" X 0)	100.0	8.2	1.24	13887	3.8

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.9	3.9	.21	14622	2.0
FLOAT 1.40	90.2	5.7	.38	14311	2.2
FLOAT 1.60	95.5	6.2	.56	14224	2.5
CUM(14M X 0)	100.0	8.2	1.30	13879	3.7

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

----- MOISTURE, % -----

TOTAL
AS RECEIVED
2.4
1.0

STATE: PENNSYLVANIA
COUNTY: GREENE

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 329

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.00	1.00	--	--	--	--
ASH	8.12	6.04 47.94	8.20	6.10 48.62	--	--
VOLATILE MATTER	36.23	37.03	36.60	37.40	39.87	39.83
FIXED CARBON	54.65	55.94	55.20	56.50	60.13	60.17
BTU/LB	13702	14107	13840	14250	15076	15176

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.85	1.68 20.37	2.88	1.70 20.66	3.14	1.81 40.22
OXYGEN	--	--	--	--	--	--
ASH	8.12	6.04 47.94	8.20	6.10 48.62	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.25	.50 16.77	1.26	.50 17.00	1.37	.54 33.09
SULFATIC	.07	.05 .10	.08	.10	.08	.05
ORGANIC	1.53	1.13 3.51	1.55	1.15 3.56	1.69	1.22 6.93
TOTAL	2.85	1.68 20.37	2.88	1.70 20.66	3.14	1.81 40.22

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: PENNSYLVANIA		BED: PITTSBURGH		BED CODE: 36	
COUNTY: GREENE		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 330	
CUMULATIVE WASHABILITY DATA (DRY BASIS)					
----- SAMPLE CRUSHED TO PASS 1-1/2" -----					
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	56.4	4.3	.23	14513	2.8
FLOAT 1.40	81.4	6.1	.57	14356	3.2
FLOAT 1.60	89.8	7.5	.81	14107	3.6
CUM(1-1/2" X 100M)	100.0	12.3	2.03	13271	5.4
100M X 0	1.8	20.3	2.72	11720	7.2
TOTAL(1-1/2" X 0)	100.0	12.4	2.04	13243	5.5
----- SAMPLE CRUSHED TO PASS 3/8" -----					
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	60.0	4.0	.14	14531	2.5
FLOAT 1.40	82.3	5.7	.29	14289	2.8
FLOAT 1.60	88.6	6.9	.44	14089	3.0
CUM(3/8" X 100M)	100.0	12.7	1.98	13074	5.3
100M X 0	10.1	11.8	1.96	13248	5.8
TOTAL(3/8" X 0)	100.0	12.6	1.98	13091	5.3
----- SAMPLE CRUSHED TO PASS 14M -----					
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	53.0	3.2	.10	14757	2.5
FLOAT 1.40	81.3	5.0	.18	14465	2.6
FLOAT 1.60	88.8	6.3	.30	14234	2.8
CUM(14M X 0)	100.0	12.1	2.06	13186	5.4
RAW COAL SIZE AND MOISTURE ANALYSES					
----- SIZE DISTRIBUTION, % -----					
SAMPLE CRUSHED TO PASS 1-1/2"					
1-1/2" X 3/8"	60.2	----- MOISTURE, % -----			
3/8" X 14M	29.0	TOTAL			
14M X 100M	9.0	AS RECEIVED			
100M X 0	1.8	1.5			
		.9			

STATE: PENNSYLVANIA
COUNTY: GREENE
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 330

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.90	.80	1.10	--	--	--	--	--	--
ASH	12.47	6.45	57.86	12.58	6.50	58.50	--	--	--
VOLATILE MATTER	36.26	38.16	21.86	36.59	38.47	22.10	41.86	41.15	53.25
FIXED CARBON	50.37	54.59	19.19	50.83	55.03	19.40	58.15	58.86	46.75
BTU/LB	12996	14090	4776	13114	14204	4829	15002	15192	11636

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	72.39	78.29	23.38	73.05	78.92	23.64	83.56	84.41	56.96
HYDROGEN	4.91	5.32	1.77	4.86	5.28	1.67	5.56	5.64	4.02
NITROGEN	1.38	1.50	.48	1.40	1.51	.49	1.60	1.62	1.18
SULFUR	3.36	1.96	15.53	3.39	1.98	15.70	3.88	2.12	37.84
OXYGEN	5.48	6.47	--	4.73	5.81	--	5.41	6.21	--
ASH	12.47	6.45	57.86	12.58	6.50	58.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.88	.27	15.47	1.90	.27	15.64	2.17	.29	37.69
SULFATIC	.00	.00	.00	.00	.00	.00	.00	.00	.00
ORGANIC	1.48	1.70	.06	1.49	1.71	.06	1.70	1.83	.15
TOTAL	3.36	1.96	15.53	3.39	1.98	15.70	3.88	2.12	37.84

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	47.73	52.84	36.22
Al2O3 (ALUMINUM OXIDE)	22.63	31.68	13.58
Fe2O3 (IRON OXIDE)	18.59	6.29	35.46
TiO2 (TITANIUM OXIDE)	1.67	2.00	1.00
CaO (CALCIUM OXIDE)	2.77	2.74	6.16
MgO (MAGNESIUM OXIDE)	.76	.93	.86
Na2O (SODIUM OXIDE)	.54	.70	.57
K2O (POTASSIUM OXIDE)	1.71	1.71	1.54
SO3 (SULFITES)	.38	.35	2.03

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.34	.14
DOLOMITE	.14	.30
HYDROGEN/CARBON	.80	.80
OXYGEN/CARBON	.05	.06
R250	.77	.90
SILICA	.68	.84
SILICA/ALUMINA	2.11	1.67

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2130	2680	--
SOFTENING TEMPERATURE (ST)	2180	2780	--
FLUID TEMPERATURE (FT)	2560	2910+	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.06	--	--
NA (SODIUM) (CALCULATED)	.05	.03	.25
MINERAL MATTER (PARR)	15.46	8.11	71.82

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6	1/2	7
HARDGROVE GRINDABILITY (HGI)	62	56	--

STATE: PENNSYLVANIA
 COUNTY: GREENE
 BED: PITTSBURGH
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 36
 SAMPLE NO. 331

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.8	4.1	.65	14552	2.4
FLOAT 1.40	85.3	5.5	1.15	14313	3.2
FLOAT 1.60	92.2	6.5	1.44	14142	3.6
CUM(1-1/2" X 100M)	100.0	10.5	2.43	13460	5.2
100M X 0	.8	11.2	1.97	13341	4.9
TOTAL(1-1/2" X 0)	100.0	10.5	2.43	13459	5.2

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.3	3.6	.41	14637	2.2
FLOAT 1.40	84.5	4.9	.77	14415	2.7
FLOAT 1.60	91.0	6.0	1.06	14228	3.1
CUM(3/8" X 100M)	100.0	10.3	2.29	13494	5.1
100M X 0	2.3	11.0	3.01	13375	6.1
TOTAL(3/8" X 0)	100.0	10.3	2.31	13491	5.1

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.2	3.1	.32	14722	2.1
FLOAT 1.40	85.0	4.4	.21	14501	2.2
FLOAT 1.60	89.8	5.2	.65	14364	2.5
CUM(14M X 0)	100.0	10.5	2.45	13460	5.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
 3/8" X 14M
 14M X 100M
 100M X 0

--- MOISTURE, % ---

TOTAL
 AS RECEIVED
 2.5
 1.1

STATE: PENNSYLVANIA
COUNTY: GREENE

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 331

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.10	1.10	1.40	--	--	--	--	--	--
ASH	10.38	5.34	56.40	10.50	5.40	57.20	--	--	--
VOLATILE MATTER	37.78	39.76	--	38.20	40.20	--	42.68	42.49	--
FIXED CARBON	50.74	53.80	--	51.30	54.40	--	57.32	57.51	--
BTU/LB	13312	14172	--	13460	14330	--	15039	15148	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.57	1.87	18.87	3.61	1.89	19.14	4.03	2.00	44.73
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	10.38	5.34	56.40	10.50	5.40	57.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.57	.65	18.04	2.60	.66	18.30	2.91	.70	42.75
SULFATIC	.02	.02	.02	.02	.02	.02	.02	.02	.05
ORGANIC	.98	1.20	.81	.99	1.21	.83	1.11	1.28	1.93
TOTAL	3.57	1.87	18.87	3.61	1.89	19.14	4.03	2.00	44.73

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
--	-----	---------

BASE/ACID
DOLOMITE
HYDROGEN/CARBON
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1960	2410	--
SOFTENING TEMPERATURE (ST)	2010	2460	--
FLUID TEMPERATURE (FT)	2080	2520	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	13.33	6.87	72.30

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8 1/2	8 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: PENNSYLVANIA
COUNTY: INDIANA
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 332

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.3	3.8	.12	14636	1.2
FLOAT 1.40	75.0	8.6	.17	13776	1.3
FLOAT 1.60	83.7	10.4	.18	13459	1.3
CUM(1-1/2" X 100M)	100.0	17.1	.26	12349	1.5
100M X 0	1.5	31.5	59.52	9889	2.8
TOTAL(1-1/2" X 0)	100.0	17.3	1.15	12312	1.5

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.5	3.8	.12	14604	1.2
FLOAT 1.40	71.3	7.6	.17	13920	1.3
FLOAT 1.60	81.8	9.3	.18	13621	1.3
CUM(3/8" X 100M)	100.0	17.0	.23	12344	1.4
100M X 0	11.4	22.0	.42	11492	1.8
TOTAL(3/8" X 0)	100.0	17.6	.25	12247	1.4

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.2	3.8	.10	14568	1.2
FLOAT 1.40	67.9	7.4	.14	13930	1.3
FLOAT 1.60	82.4	9.6	.17	13537	1.3
CUM(14M X 0)	100.0	17.5	.26	12212	1.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	58.5
3/8" X 14M	33.0
14M X 100M	7.0
100M X 0	1.5

--- MOISTURE, % ---

TOTAL	2.8
AS RECEIVED	1.9

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 332

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.90	1.30	1.20	--	--	--	--	--	--
ASH	17.17	9.87	54.44	17.50	10.00	55.10	--	--	--
VOLATILE MATTER	30.09	32.21	20.65	30.67	32.63	20.90	37.17	36.26	46.55
FIXED CARBON	50.85	56.62	23.71	51.83	57.37	24.00	62.83	63.74	53.45
BTU/LB	11980	13302	5858	12212	13477	5929	14803	14975	13205

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	68.20	74.33	34.00	69.53	75.31	34.41	84.27	83.68	76.64
HYDROGEN	4.69	5.02	2.70	4.56	4.94	2.60	5.53	5.49	5.79
NITROGEN	1.40	1.56	.69	1.43	1.58	.70	1.73	1.75	1.56
SULFUR	.82	.80	1.23	.83	.81	1.25	1.01	.90	2.77
OXYGEN	7.73	8.42	6.94	6.16	7.36	5.94	7.46	8.18	13.24
ASH	17.17	9.87	54.44	17.50	10.00	55.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.49	.15	.67	.50	.15	.68	.60	.17	1.52
SULFATIC	.01	.01	.02	.02	.01	.02	.02	.01	.04
ORGANIC	.31	.64	.54	.32	.65	.54	.39	.72	1.21
TOTAL	.82	.80	1.23	.83	.81	1.25	1.01	.90	2.77

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	57.10	56.68	53.84
Al2O3 (ALUMINUM OXIDE)	23.00	25.64	13.23
Fe2O3 (IRON OXIDE)	13.44	10.29	22.02
TiO2 (TITANIUM OXIDE)	1.33	2.00	1.00
CaO (CALCIUM OXIDE)	.31	.67	.08
MgO (MAGNESIUM OXIDE)	.60	.60	.56
Na2O (SODIUM OXIDE)	.22	.24	.19
K2O (POTASSIUM OXIDE)	2.34	2.12	2.34
SO3 (SULFITES)	.01	.03	.01

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.21	.17
DOLOMITE	.05	.09
HYDROGEN/CARBON	.79	.79
OXYGEN/CARBON	.07	.07
R250	.85	.88
SILICA	.80	.83
SILICA/ALUMINA	2.48	2.21

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2460	2620	--
SOFTENING TEMPERATURE (ST)	2520	2720	--
FLUID TEMPERATURE (FT)	2720	2910+	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.02	--	--
MINERAL MATTER (PARR)	.03	.02	.08
	19.28	11.21	60.19

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6	7	--
HARDGROVE GRINDABILITY (HGI)	67	62	--

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: PITTSBURGH (BOT)
RANK: MED VOLATILE BITUMINOUS

BED CODE: 36
SAMPLE NO. 333

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	16.2	3.1	18.6	.11	15146	1.4
FLOAT 1.40	83.0	6.7	91.2	.21	14525	1.5
FLOAT 1.60	88.4	7.3	96.5	.30	14422	1.6
CUM(1-1/2" X 100M)	100.0	14.3	100.0	.42	13214	1.8
100M X 0	2.3	13.4	2.3	.57	13369	2.0
TOTAL(1-1/2" X 0)	100.0	14.3	100.0	.42	13217	1.8

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	29.8	3.7	34.6	.13	15043	1.3
FLOAT 1.40	79.8	6.6	89.5	.22	14542	1.5
FLOAT 1.60	87.3	7.5	96.8	.30	14387	1.6
CUM(3/8" X 100M)	100.0	15.7	100.0	.43	12972	1.8
100M X 0	7.3	11.1	7.7	.63	13766	2.0
TOTAL(3/8" X 0)	100.0	15.4	100.0	.44	13030	1.8

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	22.5	3.2	25.9	.17	15129	1.4
FLOAT 1.40	71.7	6.4	79.4	.21	14577	1.5
FLOAT 1.60	89.5	8.2	97.0	.29	14266	1.6
CUM(14M X 0)	100.0	14.6	100.0	.45	13162	1.8

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	47.8
3/8" X 14M	39.2
14M X 100M	10.7
100M X 0	2.3

----- MOISTURE, % -----

TOTAL AS RECEIVED	4.3
	2.8

STATE: PENNSYLVANIA
COUNTY: SOMERSET
BED: PITTSBURGH (BOT)
RANK: MED VOLATILE BITUMINOUS
BED CODE: 36
SAMPLE NO. 333

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	2.80	1.20	--	--	--	--
ASH	14.29	7.71	14.70	7.80	23.88	23.78
VOLATILE MATTER	19.80	21.67	20.37	21.93	76.12	76.22
FIXED CARBON	63.11	69.43	64.93	70.27	15510	15466
BTU/LB	12860	14089	13230	14260	4230	12552

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	73.36	80.57	75.47	81.55	88.48	88.45
HYDROGEN	4.38	4.59	4.18	4.52	4.91	4.90
NITROGEN	1.59	1.74	1.64	1.76	1.92	1.91
SULFUR	1.20	1.14	1.23	1.15	1.44	1.25
OXYGEN	5.19	4.25	2.78	3.22	3.26	3.49
ASH	14.29	7.71	14.70	7.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	.46	.30	.47	.30	.55	.33
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.73	.83	.75	.84	.88	.91
TOTAL	1.20	1.14	1.23	1.15	1.44	1.25

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACL	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.67	.66
OXYGEN/CARBON	.03	.03
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2790	2800	2770
SOFTENING TEMPERATURE (ST)	2910+	2910+	2910+
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.00	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	16.55	9.06	72.64

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	0
HARDGROVE GRINDABILITY (HGI)	89	--	--

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: PITTSBURGH (TOP)
RANK: MED VOL-TILE BITUMINOUS

BED CODE: 36
SAMPLE NO. 334

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	.6	.7	2.7	.03	.83	14350	1.2
FLOAT 1.40	63.3	66.7	6.4	.04	.73	13728	1.1
FLOAT 1.60	95.4	97.0	9.3	.08	.71	13241	1.1
CUM(1-1/2" X 100M)	100.0	100.0	10.6	.08	.69	13022	1.1
100M X 0	3.6	3.5	12.1	.23	.96	12770	1.5
TOTAL(1-1/2" X 0)	100.0	100.0	10.7	.09	.70	13013	1.1

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	1.4	1.6	2.3	.09	.80	14417	1.1
FLOAT 1.40	57.1	60.8	5.7	.07	.76	13846	1.1
FLOAT 1.60	95.0	96.8	9.2	.08	.70	13257	1.1
CUM(3/8" X 100M)	100.0	100.0	10.7	.08	.69	13005	1.1
100M X 0	10.9	11.1	9.6	.10	.77	13190	1.2
TOTAL(3/8" X 0)	100.0	100.0	10.6	.08	.70	13025	1.1

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	.7	.8	1.8	.15	.88	14501	1.2
FLOAT 1.40	51.0	54.8	5.2	.12	.77	13930	1.1
FLOAT 1.60	91.8	94.8	8.5	.11	.72	13375	1.1
CUM(14M X 0)	100.0	100.0	11.0	.12	.70	12955	1.1

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"
1-1/2" X 3/8" 43.1
3/8" X 14M 37.3
14M X 100M 16.0
100M X 0 3.6

----- MOISTURE, % -----
TOTAL AS RECEIVED 6.2
5.8

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: PITTSBURGH (TOP)
RANK: MED VOLATILE BITUMINOUS

BED CODE: 36
SAMPLE NO. 334

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	5.80	4.50 4.50	--	--	--	--
ASH	10.27	8.40 38.72	10.90	8.80 40.55	--	--
VOLATILE MATTER	21.13	21.75 17.05	22.43	22.77 17.85	25.17	24.97 30.03
FIXED CARBON	62.81	65.35 39.73	66.67	68.43 41.60	74.83	75.03 69.97
BTU/LB	12274	12673 7625	13030	13270 7985	14624	14550 13431

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	71.58	74.29 45.02	75.99	77.79 47.14	85.28	85.30 79.29
HYDROGEN	4.32	4.32 2.98	3.90	3.99 2.60	4.38	4.38 4.37
NITROGEN	1.67	1.74 1.05	1.78	1.82 1.10	1.99	2.00 1.85
SULFUR	.68	.68 .45	.72	.71 .48	.81	.78 .80
OXYGEN	11.48	10.57 11.77	6.71	6.88 8.14	7.53	7.55 13.69
ASH	10.27	8.40 38.72	10.90	8.80 40.55	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.09	.09 .22	.09	.10 .23	.10	.11 .39
SULFATIC	.01	.01 .01	.01	.01 .01	.01	.01 .02
ORGANIC	.58	.57 .22	.62	.60 .23	.70	.66 .39
TOTAL	.68	.68 .45	.72	.71 .48	.81	.78 .80

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLomite	--	--
HYDROGEN/CARBON	.62	.62
OXYGEN/CARBON	.07	.07
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+
SOFTENING TEMPERATURE (ST)	2910+	2910+
FLUID TEMPERATURE (FT)	2910+	2910+

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.00	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	12.17	9.89 44.05

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	0	0
HARDGROVE GRINDABILITY (HGI)	89	--

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 335

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.6	3.2	.23	14697	1.1
FLOAT 1.40	91.6	4.6	.38	14463	1.4
FLOAT 1.60	94.2	5.0	.41	14389	1.4
CUM(1-1/2" X 100M)	100.0	8.0	.57	13877	1.7
100M X 0	1.2	12.8	1.34	12975	3.6
TOTAL(1-1/2" X 0)	100.0	8.1	.58	13866	1.7

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.9	2.8	.06	14707	1.2
FLOAT 1.40	89.8	4.3	.19	14451	1.4
FLOAT 1.60	93.5	4.9	.24	14352	1.5
CUM(3/8" X 100M)	100.0	8.3	.47	13751	1.8
100M X 0	5.8	9.3	.99	13596	2.9
TOTAL(3/8" X 0)	100.0	8.4	.50	13742	1.9

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.7	2.3	.05	14806	1.2
FLOAT 1.40	88.3	3.9	.11	14549	1.3
FLOAT 1.60	94.3	4.8	.16	14413	1.3
CUM(14M X 0)	100.0	7.8	.46	13871	1.8

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	71.8
3/8" X 14M	21.0
14M X 100M	6.0
100M X 0	1.2

----- MOISTURE, % -----

TOTAL AS RECEIVED	2.1 1.6
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STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 335

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.60	1.70 .90	--	--	--	--
ASH	7.37	4.72 59.19	7.49	4.80 59.73	--	--
VOLATILE MATTER	34.86	35.62 19.49	35.43	36.24 19.67	38.30	38.06 48.85
FIXED CARBON	56.17	57.96 20.41	57.08	58.96 20.60	61.70	61.93 51.15
BTU/LB	13695	14168 4595	13918	14413 4637	15044	15140 11513

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	76.76	79.40 26.62	78.00	80.77 26.86	84.32	84.84 66.70
HYDROGEN	5.11	5.28 1.78	5.01	5.18 1.70	5.42	5.44 4.22
NITROGEN	1.40	1.45 .40	1.42	1.47 .40	1.54	1.55 .99
SULFUR	1.18	.93 5.83	1.20	.95 5.89	1.29	1.00 14.62
OXYGEN	8.19	8.22 6.18	6.88	6.82 5.42	7.43	7.17 13.47
ASH	7.37	4.72 59.19	7.49	4.80 59.73	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.46	.17 5.37	.47	.18 5.42	.51	.18 13.47
SULFATIC	.00	.00 .01	.01	.00 .01	.01	.00 .02
ORGANIC	.71	.76 .45	.72	.77 .45	.78	.81 1.13
TOTAL	1.18	.93 5.83	1.20	.95 5.89	1.29	1.00 14.62

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES						
SiO2 (SILICON OXIDE)	49.01	51.61 50.29				
Al2O3 (ALUMINUM OXIDE)	27.91	31.85 21.12				
Fe2O3 (IRON OXIDE)	10.87	7.31 13.87				
TiO2 (TITANIUM OXIDE)	1.00	1.48 1.00				
CaO (CALCIUM OXIDE)	6.35	2.70 7.58				
MgO (MAGNESIUM OXIDE)	.93	.73 1.03				
Na2O (SODIUM OXIDE)	.92	1.08 .67				
K2O (POTASSIUM OXIDE)	1.49	1.55 1.54				
SO3 (SULFITES)	1.33	1.30 1.33				

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	.26	.16		
DOLOMITE	.35	.26		
HYDROGEN/CARBON	.77	.77		
OXYGEN/CARBON	.07	.06		
R250	.82	.89		
SILICA	.73	.83		
SILICA/ALUMINA	1.76	1.62		

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	9	9		
HARDGROVE GRINDABILITY (HGI)	66	54		

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
INITIAL DEFORMATION (ID)	2300	2910+		
SOFTENING TEMPERATURE (ST)	2350	2910+		
FLUID TEMPERATURE (FT)	2410	2910+		

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	.09	--		
NA (SODIUM) (CALCULATED)	.05	.04		
MINERAL MATTER (PARR)	8.74	5.71		

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 336

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO P/3 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.9	66.2	3.4	.39	1.10	14763	1.5
FLOAT 1.40	66.0	91.9	4.8	.61	1.34	14554	1.8
FLOAT 1.60	71.1	97.7	6.0	.72	1.44	14362	2.0
CUM(1-1/2" X 100M)	100.0	100.0	29.5	.70	1.25	10455	2.4
100M X 0	1.1	1.2	23.5	1.33	2.24	11404	3.9
TOTAL(1-1/2" X 0)	100.0	100.0	29.4	.71	1.26	10466	2.4

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.6	70.3	3.1	.21	.98	14727	1.3
FLOAT 1.40	64.3	91.6	4.5	.37	1.15	14500	1.6
FLOAT 1.60	69.2	97.3	5.7	.49	1.27	14312	1.8
CUM(3/8" X 100M)	100.0	100.0	30.8	.68	1.25	10183	2.5
100M X 0	6.1	7.3	19.1	1.04	1.76	12136	2.9
TOTAL(3/8" X 0)	100.0	100.0	30.1	.70	1.28	10302	2.5

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.6	63.3	3.3	.16	.89	14770	1.2
FLOAT 1.40	63.5	86.7	4.7	.28	1.02	14537	1.4
FLOAT 1.60	71.5	95.9	6.2	.37	1.10	14276	1.5
CUM(14M X 0)	100.0	100.0	28.2	.68	1.23	10641	2.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	72.2
3/8" X 14M	21.5
14M X 100M	5.2
100M X 0	1.1

MOISTURE, %

TOTAL	2.3
AS RECEIVED	1.4

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 336

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----

MOISTURE ASH VOLATILE MATTER FIXED CARBON BTU/LB	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	
	1.40	1.40 1.30	--	--	
	28.00	6.36 81.03	28.40	6.45 82.10	
	28.98	36.59 10.07	29.39	37.11 10.20	
	41.62	55.65 7.60	42.21	56.44 7.70	41.05 39.67 56.98 58.95 60.33 43.02
	10463	14039 1619	10612	14239 1640	14821 15220 9165

----- ULTIMATE ANALYSIS, % -----

CARBON HYDROGEN NITROGEN SULFUR OXYGEN ASH	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	
	57.97	77.40 10.36	58.79	78.50 10.50	
	4.09	5.21 1.33	3.99	5.12 1.20	
	1.18	1.58 .22	1.20	1.60 .22	
	1.36	1.09 1.54	1.38	1.11 1.56	82.11 83.91 58.66 5.57 5.48 6.70 1.68 1.71 1.23
	7.39	8.35 5.52	6.24	7.21 4.42	1.93 1.19 8.72
	28.00	6.36 81.03	28.40	6.45 82.10	8.71 7.71 24.69

----- SULFUR FORMS ANALYSIS, % -----

PYRITIC SULFATIC ORGANIC TOTAL	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	
	.69	.33 1.44	.70	.33 1.46	
	.00	.01 .01	.01	.00 .06	
	.67	.77 .09	.68	.78 .09	
	1.36	1.09 1.54	1.38	1.11 1.56	.95 .83 .52 1.93 1.19 8.72

----- MINERAL ANALYSIS OF ASH, % -----

OXIDES SiO2 (SILICON OXIDE) AL2O3 (ALUMINUM OXIDE) Fe2O3 (IRON OXIDE) TiO2 (TITANIUM OXIDE) CaO (CALCIUM OXIDE) MgO (MAGNESIUM OXIDE) Na2O (SODIUM OXIDE) K2O (POTASSIUM OXIDE) SO3 (SULFITES)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	
	63.50	54.55 64.77			
	24.51	28.28 23.76			
	5.15	9.15 4.29			
	1.33	1.67 1.33			2640 2620 8.14 2740 2720 -- 2910+ 2910+ --
	.70	1.40 .67			
	.73	.66 .73			
	.54	.75 .57			
	2.60	1.93 2.75			
	.20	.51 .43			

----- COAL UTILIZATION RATIOS -----

BASE/ACID DOLomite HYDROGEN/CARBON OXYGEN/CARBON P250 SILICA SILICA/ALUMINA	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	
	.11	.16			
	.15	.15			
	.81	.78			
	.08	.07			41.05 39.67 56.98 58.95 60.33 43.02
	.94	.89			14821 15220 9165
	.91	.83			
	2.59	1.93			

----- PHYSICAL PARAMETERS, INDEX -----

FREE SWELLING HARDGROVE GRINDABILITY (FSI) (HGI)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	
	5	1/2	5	1/2	
	54	51			

----- FUSIBILITY OF ASH, DEGREES F -----

(IN OXIDIZING ATMOSPHERE)

INITIAL DEFORMATION SOFTENING TEMPERATURE FLUID TEMPERATURE	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	
	2640	2620			
	2740	2720			
	2910+	2910+			

----- MISCELLANEOUS DATA, % -----

CL (CHLORINE) NA (SODIUM) MINERAL MATTER (ANALYZED) (CALCULATED) (PAPR)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	
	.07	--			
	.11	.04			
	31.44	7.57			

STATE: PENNSYLVANIA
COUNTY: WASHINGTON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 337

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.9	3.3	.19	14492	1.2
FLOAT 1.40	87.3	4.6	.53	14273	1.7
FLOAT 1.60	90.4	5.4	.61	14138	1.8
CUM(1-1/2" X 100M)	100.0	12.1	.86	13005	2.2
100M X 0	1.2	15.5	1.64	12431	3.5
TOTAL(1-1/2" X 0)	100.0	12.1	.87	12999	2.3

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.3	2.6	.22	14611	1.3
FLOAT 1.40	86.7	4.0	.40	14374	1.6
FLOAT 1.60	90.2	4.8	.48	14239	1.7
CUM(3/8" X 100M)	100.0	11.6	.80	13090	2.2
100M X 0	4.5	12.1	1.44	13005	3.2
TOTAL(3/8" X 0)	100.0	11.6	.83	13086	2.3

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.6	2.2	.12	14678	1.1
FLOAT 1.40	83.0	4.0	.24	14374	1.3
FLOAT 1.60	90.8	5.2	.33	14171	1.5
CUM(14M X 0)	100.0	11.4	.86	13124	2.3

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.2
3/8" X 14M	18.0
14M X 100M	4.6
100M X 0	1.2

----- MOISTURE, % -----

TOTAL	4.9
AS RECEIVED	3.9

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 337

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.90	2.10	1.50	--	--	--	--	--	--
ASH	11.39	5.19	70.92	11.86	5.30	72.00	--	--	--
VOLATILE MATTER	34.54	37.48	14.28	35.94	38.28	14.50	40.78	40.42	51.79
FIXED CARBON	50.16	55.23	13.30	52.20	56.42	13.50	59.22	59.57	48.21
BTU/LB	12575	13823	2837	13085	14120	2880	14845	14910	10286

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	70.83	77.48	16.57	73.71	79.14	16.82	83.62	83.57	60.07
HYDROGEN	5.01	5.22	1.74	4.76	5.10	1.60	5.40	5.38	5.71
NITROGEN	1.44	1.59	.30	1.50	1.62	.30	1.70	1.71	1.07
SULFUR	1.43	1.02	6.07	1.49	1.04	6.16	1.68	1.10	22.21
OXYGEN	9.90	9.50	4.40	6.69	7.80	3.12	7.59	8.24	11.13
ASH	11.39	5.19	70.92	11.86	5.30	72.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.75	.30	6.00	.78	.31	6.09	.88	.33	21.75
SULFATIC	.01	.01	.02	.02	.01	.02	.02	.01	.07
ORGANIC	.66	.70	.05	.69	.72	.05	.78	.76	.19
TOTAL	1.43	1.02	6.07	1.49	1.04	6.16	1.68	1.10	22.01

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES (SILICON OXIDE)	--	--	--
AL2O3 (ALUMINUM OXIDE)	--	--	--
FE2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CAO (CALCIUM OXIDE)	--	--	--
MGO (MAGNESIUM OXIDE)	--	--	--
NA2O (SODIUM OXIDE)	.50	.40	.50
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
--	-----	---------

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2480	2910+	2200
SOFTENING TEMPERATURE (ST)	2580	2910+	2300
FLUID TEMPERATURE (FT)	2880	2910+	2520

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.07	--	--
NA (SODIUM) (CALCULATED)	.04	.02	.27
MINERAL MATTER (PARR)	13.62	6.30	81.15

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7 1/2	7 1/2	0
HARDGROVE GRINDABILITY (HGI)	52	--	--

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 338

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.6	3.6	72.0	.10	.24	14599	.3
FLOAT 1.40	65.9	4.9	92.5	.13	.37	14394	.5
FLOAT 1.60	69.3	5.7	96.4	.15	.41	14262	.6
CUM(1-1/2" X 100M)	100.0	30.1	100.0	.59	.97	10257	1.9
100M X 0	1.0	26.1	1.1	1.16	1.98	10919	3.6
TOTAL(1-1/2" X 0)	100.0	30.1	100.0	.60	.98	10263	1.9

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.6	3.1	66.3	.07	.28	14686	.4
FLOAT 1.40	64.2	4.8	91.7	.12	.42	14421	.6
FLOAT 1.60	68.2	5.8	96.3	.14	.47	14253	.7
CUM(3/8" X 100M)	100.0	31.1	100.0	.58	.96	10094	1.9
100M X 0	7.7	19.7	9.1	.58	1.17	11971	2.0
TOTAL(3/8" X 0)	100.0	30.2	100.0	.58	.98	10239	1.9

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.0	3.2	53.4	.08	.22	14696	.3
FLOAT 1.40	56.5	5.4	84.1	.13	.43	14329	.6
FLOAT 1.60	64.6	7.0	94.3	.16	.51	14060	.7
CUM(14M X 0)	100.0	33.9	100.0	.46	.88	9629	1.8

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	78.0
3/8" X 14M	17.0
14M X 100M	4.0
100M X 0	1.0

----- MOISTURE, % -----

TOTAL	2.0
AS RECEIVED	1.5

STATE: PENNSYLVANIA
COUNTY: WASHINGTON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 338

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.50	.80	--	--	--	--
ASH	32.06	6.75	32.54	6.80	--	--
VOLATILE MATTER	26.64	35.24	27.04	35.52	40.09	38.11
FIXED CARBON	39.81	57.22	40.42	57.68	59.91	61.89
BTU/LB	9754	13977	9903	14090	14681	15118

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	55.17	78.10	56.01	78.73	83.03	84.47
HYDROGEN	3.88	5.10	3.77	5.05	5.59	5.42
NITROGEN	1.13	1.59	1.14	1.60	1.70	1.72
SULFUR	1.02	.55	1.04	.55	1.54	.33
OXYGEN	6.75	7.92	5.50	7.27	8.15	7.80
ASH	32.06	6.75	32.54	6.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.59	.14	.60	.14	.89	.15
SULFATIC	.01	.00	.01	.00	.01	.00
ORGANIC	.42	.40	.43	.41	.64	.44
TOTAL	1.02	.55	1.04	.55	1.54	.59

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	60.09	55.40	61.79	56.40	61.79	56.40
SiO2 (SILICON OXIDE)	26.02	29.79	26.40	26.40	26.40	26.40
AL2O3 (ALUMINUM OXIDE)	3.15	6.58	2.29	2.29	2.29	2.29
FE2O3 (IRON OXIDE)	1.33	1.33	1.33	1.33	1.33	1.33
TiC2 (TITANIUM OXIDE)	.87	1.06	.45	.45	.45	.45
CaO (CALCIUM OXIDE)	.76	.60	.83	.83	.83	.83
MGO (MAGNESIUM OXIDE)	.30	.57	.46	.46	.46	.46
Na2O (SODIUM OXIDE)	2.31	1.66	2.55	2.55	2.55	2.55
K2O (POTASSIUM OXIDE)	.36	.85	.60	.60	.60	.60
SO3 (SULFITES)						

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.08	.12	.07	.07	.07	.07
DOLOMITE	.22	.16	.22	.16	.22	.16
HYDROGEN/CARBON	.81	.77	.81	.77	.81	.77
OXYGEN/CARBON	.07	.07	.07	.07	.07	.07
R250	.96	.92	.96	.92	.96	.92
SILICA	.93	.87	.93	.87	.93	.87
SILICA/ALUMINA	2.31	1.86	2.31	1.86	2.31	1.86

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.07	.07	.07	.07	.07	.07
NA (SODIUM) (CALCULATED)	.07	.07	.07	.07	.07	.07
MINERAL MATTER (PARR)	35.96	7.65	35.96	7.65	35.96	7.65
FREE SWELLING (FSI)	7	8	7	8	7	8
HARDGROVE GRINDABILITY (HGI)	54	52	54	52	54	52

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 339

CUMULATIVE WASHABILITY DATA (DRY BASIS)

PRODUCT

FLOAT 1.30

FLOAT 1.40

FLOAT 1.60

CUM(1-1/2" X 100M)

100M X 0

TOTAL(1-1/2" X 0)

RECOVERY, %
WEIGHT

55.8

89.2

92.8

100.0

1.7

100.0

ASH, %

3.6

5.1

5.6

9.9

14.1

10.0

SULFUR, %
PYRITIC

.21

.75

.83

.89

1.53

.90

HEATING VALUE
BTU/LB

14676

14414

14327

13577

12844

13564

SO2 EMISSION
LB/MM BTU

1.2

1.9

2.0

2.1

3.8

2.1

PRODUCT

FLOAT 1.30

FLOAT 1.40

FLOAT 1.60

CUM(3/8" X 100M)

100M X 0

TOTAL(3/8" X 0)

RECOVERY, %
WEIGHT

61.3

87.3

91.4

100.0

4.8

100.0

ASH, %

3.1

4.4

5.0

10.0

11.0

10.0

SULFUR, %
PYRITIC

.22

.52

.64

.86

1.44

.89

HEATING VALUE
BTU/LB

14763

14536

14432

13559

13385

13551

SO2 EMISSION
LB/MM BTU

1.0

1.5

1.6

2.0

2.7

2.1

PRODUCT

FLOAT 1.30

FLOAT 1.40

FLOAT 1.60

CUM(14M X 0)

RECOVERY, %
WEIGHT

51.7

84.1

91.6

100.0

ASH, %

2.5

4.2

5.3

10.1

SULFUR, %
PYRITIC

.14

.22

.40

.96

HEATING VALUE
BTU/LB

14868

14571

14379

13542

SO2 EMISSION
LB/MM BTU

1.0

1.1

1.3

2.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"

3/8" X 14M

14M X 100M

100M X 0

70.2

22.1

6.0

1.7

MOISTURE, %
TOTAL
AS RECEIVED

4.6

5.0

STATE: PENNSYLVANIA
COUNTY: WASHINGTON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 339

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 1.4M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.00	2.00	1.90	--	--	--	--	--	--
ASH	9.80	5.10	61.51	10.10	5.20	62.70	--	--	--
VOLATILE MATTER	34.08	35.93	17.66	35.14	36.66	18.00	39.08	38.67	48.26
FIXED CARBON	53.12	56.97	18.93	54.76	58.14	19.30	60.92	61.33	51.74
BTU/LB	13153	14092	4277	13560	14380	4360	15083	15169	11689

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	73.95	79.19	23.82	76.24	80.81	24.28	84.80	85.24	65.09
HYDROGEN	5.07	5.28	1.88	4.88	5.16	1.70	5.43	5.44	4.56
NITROGEN	1.51	1.62	.49	1.56	1.66	.50	1.73	1.75	1.34
SULFUR	1.54	.80	7.55	1.58	.82	7.70	1.76	.86	20.65
OXYGEN	8.14	8.00	4.75	5.64	6.35	3.12	6.28	6.70	8.36
ASH	9.80	5.10	61.51	10.10	5.20	62.70	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.98	.35	6.93	1.01	.36	7.07	1.12	.38	18.95
SULFATIC	.02	.02	.03	.03	.02	.03	.03	.02	.08
ORGANIC	.53	.43	.59	.55	.44	.60	.61	.46	1.62
TOTAL	1.54	.80	7.55	1.58	.82	7.70	1.76	.86	20.65

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.77	.77
OXYGEN/CARBON	.06	.06
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2250	2420	2000
SOFTENING TEMPERATURE (ST)	2350	2520	2050
FLUID TEMPERATURE (FT)	2450	2720	2240

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.11	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	11.78	5.98	71.95

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8 1/2	8 1/2	0
HARDGROVE GRINDABILITY (HGI)	54	--	--

STATE: PENNSYLVANIA
 COUNTY: WASHINGTON
 BED: PITTSBURGH
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 36
 SAMPLE NO. 340

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.6	2.9	.11	14571	1.2
FLOAT 1.40	85.9	4.5	.44	14301	1.8
FLOAT 1.60	93.7	5.6	.65	14115	2.1
CUM(1-1/2" X 100M)	100.0	8.5	.82	13626	2.5
100% X 0	.9	12.9	2.02	12883	5.4
TOTAL(1-1/2" X 0)	100.0	8.5	.83	13619	2.5

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.2	3.3	.17	14503	1.3
FLOAT 1.40	88.8	4.8	.39	14250	1.7
FLOAT 1.60	93.2	5.4	.53	14149	1.9
CUM(3/8" X 100M)	100.0	8.5	.86	13626	2.5
100M X 0	2.3	10.3	1.71	13322	4.3
TOTAL(3/8" X 0)	100.0	8.5	.88	13619	2.5

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.3	3.0	.17	14554	1.4
FLOAT 1.40	86.1	3.9	.25	14402	1.5
FLOAT 1.60	93.8	5.0	.37	14216	1.8
CUM(14M X 0)	100.0	7.9	.91	13727	2.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
 3/8" X 14M ---
 14M X 100M ---
 100M X 0 ---

--- MOISTURE, % ---

TOTAL AS RECEIVED 3.2
 1.8

STATE: PENNSYLVANIA

COUNTY: WASHINGTON

BED: PITTSBURGH

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36

SAMPLE NO. 340

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW

FL 1.60

SK 1.60

MOISTURE

1.80

1.80

1.80

ASH

7.86

4.71

50.67

VOLATILE MATTER

34.96

35.55

FIXED CARBON

55.38

57.94

BTU/LB

13463

13993

MOISTURE FREE

RAW

FL 1.60

SK 1.60

8.00

4.80

51.60

35.60

36.20

56.40

59.00

13710

14250

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

38.70

38.03

61.30

61.97

14902

14968

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

CARBON

HYDROGEN

NITROGEN

SULFUR

1.59

1.20

9.34

OXYGEN

ASH

7.86

4.71

50.67

MOISTURE FREE

RAW

FL 1.60

SK 1.60

1.62

1.22

9.52

8.00

4.80

51.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

1.76

1.28

19.66

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

PYRITIC

.80

.33

8.92

SULFATIC

.05

.03

.07

ORGANIC

.75

.84

.36

TOTAL

1.59

1.20

9.34

MOISTURE FREE

RAW

FL 1.60

SK 1.60

.81

.33

.07

.05

.03

.05

.76

.86

.37

1.62

1.22

9.52

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

.88

.35

18.76

.05

.03

.14

.83

.90

.76

1.76

1.28

19.66

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

OXIDES

SiO2 (SILICON OXIDE)

Al2O3 (ALUMINUM OXIDE)

Fe2O3 (IRON OXIDE)

TiO2 (TITANIUM OXIDE)

CaO (CALCIUM OXIDE)

MgO (MAGNESIUM OXIDE)

Na2O (SODIUM OXIDE)

K2O (POTASSIUM OXIDE)

SO3 (SULFITES)

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

2140

2550

2190

2600

2520

2800

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

INITIAL DEFORMATION (ID)

SOFTENING TEMPERATURE (ST)

FLUID TEMPERATURE (FT)

2140

2550

2190

2520

2800

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

9.53

5.86

60.96

COAL UTILIZATION RATIOS

RAW

FL 1.60

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

8

1/2

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 341

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	55.8	3.3	.26	14519	1.5
FLOAT 1.40	90.3	4.7	.46	14254	1.9
FLOAT 1.60	94.3	5.4	.53	14122	2.0
CUM(1-1/2" X 100M)	100.0	8.3	.80	13573	2.5
100M X 0	1.0	10.7	1.52	13119	4.4
TOTAL(1-1/2" X 0)	100.0	8.3	.81	13568	2.5

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	58.9	3.0	.20	14576	1.5
FLOAT 1.40	88.6	4.6	.37	14273	1.8
FLOAT 1.60	92.8	5.4	.47	14122	1.9
CUM(3/8" X 100M)	100.0	9.3	.77	13384	2.5
100M X 0	2.9	10.0	1.64	13251	4.1
TOTAL(3/8" X 0)	100.0	9.3	.80	13380	2.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	60.9	2.5	.16	14670	1.3
FLOAT 1.40	88.7	4.3	.24	14330	1.7
FLOAT 1.60	93.7	5.4	.40	14122	1.8
CUM(14M X 0)	100.0	8.8	.83	13478	2.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

--- MOISTURE, % ---
TOTAL
AS RECEIVED
3.4
2.0

STATE: PENNSYLVANIA
COUNTY: WASHINGTON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
RED CODE: 36
SAMPLE NO. 341

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.00	2.10	1.20	--	--	--	--	--	--
ASH	8.23	5.08	57.90	8.40	5.18	58.60	--	--	--
VOLATILE MATTER	35.97	36.35	--	36.70	37.13	--	40.07	39.16	--
FIXED CARBON	53.80	56.48	--	54.90	57.69	--	59.93	60.84	--
BTU/LB	13283	13865	--	13554	14163	--	14797	14937	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.65	1.25	8.20	1.68	1.28	8.30	1.83	1.35	20.04
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	8.23	5.08	57.90	8.40	5.18	58.60	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.75	.36	7.14	.77	.37	7.23	.84	.39	17.45
SULFATIC	.09	.09	.11	.09	.09	.11	.10	.10	.26
ORGANIC	.80	.82	.95	.82	.82	.96	.89	.86	2.33
TOTAL	1.65	1.25	8.20	1.68	1.28	8.30	1.83	1.35	20.04

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2470	2620	--
SOFTENING TEMPERATURE (ST)	2550	2680	--
FLUID TEMPERATURE (FT)	2630	2790	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	10.00	6.30	67.85
PHYSICAL PARAMETERS, INDEX	--	--	--

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	8 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 342

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.1	4.0	.57	14256	2.4
FLOAT 1.40	90.9	5.0	.76	14080	2.7
FLOAT 1.60	94.7	5.7	.82	13956	2.8
CUM(1-1/2" X 100M)	100.0	8.4	.95	13480	3.0
100M X 0	1.1	14.2	2.93	12456	6.8
TOTAL(1-1/2" X 0)	100.0	8.5	.97	13468	3.1

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.7	3.1	.49	14415	2.2
FLOAT 1.40	89.7	4.8	.70	14115	2.5
FLOAT 1.60	94.7	5.6	.81	13974	2.7
CUM(3/8" X 100M)	100.0	8.3	.94	13497	2.9
100M X 0	3.8	10.9	2.45	13038	5.5
TOTAL(3/8" X 0)	100.0	8.4	1.00	13480	3.0

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.7	3.0	.48	14433	2.1
FLOAT 1.40	84.3	4.9	.61	14098	2.4
FLOAT 1.60	94.0	6.1	.78	13886	2.7
CUM(14M X 0)	100.0	9.2	.98	13338	3.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	83.3
3/8" X 14M	12.3
14M X 100M	3.3
100M X 0	1.1

MOISTURE, %

TOTAL	5.3
AS RECEIVED	4.3

STATE: PENNSYLVANIA		BED: PITTSBURGH		BED CODE: 36	
COUNTY: WASHINGTON		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 342	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	4.30	2.30 1.00	--	--	--
ASH	9.00	5.96 55.74	9.40	6.10 56.30	--
VOLATILE MATTER	38.02	40.13 21.09	39.73	41.07 21.30	43.85 43.74 48.74
FIXED CARBON	48.68	51.61 22.18	50.87	52.83 22.40	56.15 56.26 51.26
BTU/LB	12769	13530 4971	13343	13848 5021	14727 14748 11490
----- ULTIMATE ANALYSIS, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	71.42	75.68 30.79	74.63	77.47 31.10	82.38 82.50 71.17
HYDROGEN	5.36	5.44 2.39	5.11	5.30 2.30	5.64 5.65 5.26
NITROGEN	1.36	1.45 .59	1.42	1.48 .60	1.57 1.58 1.37
SULFUR	1.94	1.90 4.96	2.03	1.95 5.01	2.24 2.07 11.47
OXYGEN	10.92	9.57 5.53	7.41	7.70 4.69	8.18 8.20 10.73
ASH	9.00	5.96 55.74	9.40	6.10 56.30	--
----- SULFUR FORMS ANALYSIS, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	.99	.81 4.07	1.03	.83 4.11	1.14 .88 9.41
SULFATIC	.01	.01 .02	.02	.02	.02 .05
ORGANIC	.94	1.08 .87	.98	1.11 .88	1.08 1.18 2.01
TOTAL	1.94	1.90 4.96	2.03	1.95 5.01	2.24 2.07 11.47
----- MINERAL ANALYSIS OF ASH, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--
CAC (CALCIUM OXIDE)	--	--	--	--	--
MGO (MAGNESIUM OXIDE)	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--
----- COAL UTILIZATION RATIOS -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--
DOLOMITE	--	--	--	--	--
HYDROGEN/CARBON	.82	.82	--	--	--
OXYGEN/CARBON	.07	.07	--	--	--
R250	--	--	--	--	--
SILICA	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--
----- MISCELLANEOUS DATA, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--
FREE SWELLING (FSI)	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--
----- PHYSICAL PARAMETERS, INDEX -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--

BED CODE: 36
SAMPLE NO. 343

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.6	3.6	48.5	.44	14487	2.2
FLOAT 1.40	87.7	5.3	91.3	.94	14189	3.1
FLOAT 1.60	94.6	5.3	97.3	1.15	14014	3.4
CUM(1-1/2" X 100M)	100.0	8.5	100.0	1.92	13630	4.5
100M X 0	1.1	17.5	1.0	3.31	12056	6.7
TOTAL(1-1/2" X 0)	100.0	8.6	100.0	1.94	13612	4.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.4	3.2	51.7	.46	14556	2.2
FLOAT 1.40	86.7	4.9	90.7	.77	14259	2.8
FLOAT 1.60	94.4	6.0	97.4	.99	14067	3.1
CUM(3/8" X 100M)	100.0	8.5	100.0	1.78	13630	4.3
100M X 0	4.0	12.9	3.8	3.28	12860	6.7
TOTAL(3/8" X 0)	100.0	8.7	100.0	1.84	13599	4.4

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.3	3.2	47.6	.52	14556	2.3
FLOAT 1.40	85.3	4.9	89.7	.75	14259	2.7
FLOAT 1.60	94.4	6.2	97.7	1.03	14032	3.2
CUM(14M X 0)	100.0	8.9	100.0	1.93	13560	4.5

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	80.1
3/8" X 14M	14.7
14M X 100M	4.1
100M X 0	1.1

--- MOISTURE, % ---

TOTAL	5.9
AS RECEIVED	4.2

STATE: PENNSYLVANIA
COUNTY: WASHINGTON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 343

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.20	2.50	--	--	--	--
ASH	8.53	5.80	8.90	5.95	43.82	46.72
VOLATILE MATTER	38.24	40.09	39.92	41.11	56.18	53.28
FIXED CARBON	49.03	51.61	51.18	52.93	56.18	53.28
BTU/LB	12971	13638	13540	13987	14863	14873

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	71.60	75.57	74.74	77.51	82.04	82.42
HYDROGEN	5.25	5.34	5.00	5.19	5.49	5.52
NITROGEN	1.36	1.44	1.42	1.48	1.56	1.57
SULFUR	2.84	2.09	2.97	2.14	3.25	2.28
OXYGEN	10.42	9.75	6.98	7.72	7.66	8.21
ASH	8.53	5.80	8.90	5.95	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.77	.95	1.85	.97	2.03	1.03
SULFATIC	.01	.01	.02	.01	.02	.01
ORGANIC	1.05	1.13	1.10	1.16	1.21	1.23
TOTAL	2.84	2.09	2.97	2.14	3.25	2.28

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLomite	--	--	--	--	--	--
HYDROGEN/CARBON	.80	.80	--	--	--	--
OXYGEN/CARBON	.07	.07	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

BED CODE: 36
SAMPLE NO. 344

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.3	49.0	4.0	.78	14229	2.4
FLOAT 1.40	89.1	93.8	6.2	1.39	13849	3.3
FLOAT 1.60	93.8	98.0	6.8	1.55	13745	3.5
CUM(1-1/2" X 100M)	100.0	100.0	10.2	2.17	13159	4.6
100M X 0	1.3	1.1	19.2	4.12	11606	9.4
TOTAL(1-1/2" X 0)	100.0	100.0	10.3	2.20	13139	4.7

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.3	52.9	3.4	.48	14332	2.0
FLOAT 1.40	85.4	91.3	5.4	1.08	13987	2.8
FLOAT 1.60	92.1	97.3	6.3	1.33	13832	3.2
CUM(3/8" X 100M)	100.0	100.0	10.6	2.22	13090	4.7
100M X 0	4.2	4.0	14.0	3.84	12503	8.0
TOTAL(3/8" X 0)	100.0	100.0	10.7	2.29	13065	4.9

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.5	54.5	2.7	.27	14453	1.8
FLOAT 1.40	82.7	89.2	4.4	.51	14160	2.1
FLOAT 1.60	90.8	96.8	5.4	.75	13987	2.4
CUM(14M X 0)	100.0	100.0	10.4	2.21	13124	5.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	70.9
3/8" X 14M	22.2
14M X 100M	5.6
100M X 0	1.3

MOISTURE, %

TOTAL AS RECEIVED	3.8
	2.7

STATE: PENNSYLVANIA		BED: PITTSBURGH		BED CODE: 36	
COUNTY: WASHINGTON		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 344	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
	RAW	AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE	
	FL 1.60	SK 1.60	FL 1.60	SK 1.60	
MOISTURE	2.70	2.00 1.90	--	--	--
ASH	10.12	5.39 57.78	10.40	5.50 58.90	--
VOLATILE MATTER	37.29	39.47 18.74	38.32	40.28 19.10	42.77 46.47
FIXED CARBON	49.89	53.14 21.58	51.28	54.22 22.00	57.23 53.53
BTU/LB	12834	13632 4660	13190	13910 4750	14721 11557
----- ULTIMATE ANALYSIS, % -----					
	RAW	AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE	
	FL 1.60	SK 1.60	FL 1.60	SK 1.60	
CARBON	71.43	76.06 21.03	73.41	77.61 21.43	81.93 82.13
HYDROGEN	5.06	5.33 1.75	4.89	5.21 1.57	5.46 5.51
NITROGEN	1.45	1.57 .36	1.49	1.61 .37	1.67 1.70
SULFUR	3.22	1.48 17.39	3.31	1.51 17.73	3.69 1.60
OXYGEN	8.72	10.17 --	6.50	8.56 --	7.25 9.06
ASH	10.12	5.39 57.78	10.40	5.50 58.90	--
----- SULFUR FORMS ANALYSIS, % -----					
	RAW	AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE	
	FL 1.60	SK 1.60	FL 1.60	SK 1.60	
PYRITIC	2.30	.71 15.06	2.36	.72 15.35	2.63 .76
SULFATIC	.03	.01 .05	.03	.01 .05	.03 .01
ORGANIC	.90	.76 2.28	.92	.78 2.33	1.03 .83
TOTAL	3.22	1.48 17.39	3.31	1.51 17.73	3.69 1.60
----- MINERAL ANALYSIS OF ASH, % -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
OXIDES	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	2130	2350
Al2O3 (ALUMINUM OXIDE)	--	--	--	2180	2420
Fe2O3 (IRON OXIDE)	--	--	--	2270	2490
TiO2 (TITANIUM OXIDE)	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--
----- COAL UTILIZATION RATIOS -----					
	RAW	FL 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--
DOLomite	--	--	--	--	--
HYDROGEN/CARBON	.80	.81	--	--	--
OXYGEN/CARBON	.07	.08	--	--	--
R250	--	--	--	--	--
SILICA	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--
----- FUSIBILITY OF ASH, DEGREES F -----					
(IN OXIDIZING ATMOSPHERE)					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
INITIAL DEFORMATION (ID)	--	--	--	2130	2350
SOFTENING TEMPERATURE (ST)	--	--	--	2180	2420
FLUID TEMPERATURE (FT)	--	--	--	2270	2490
----- MISCELLANEOUS DATA, % -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	.09	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	13.05	6.77
----- PHYSICAL PARAMETERS, INDEX -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	--	--	--	6 1/2	6 1/2
HARDGROVE GRINDABILITY (HGI)	--	--	--	53	--

STATE: PENNSYLVANIA
COUNTY: WASHINGTON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 345

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.7	4.0	.69	14335	2.8
FLOAT 1.40	84.1	6.6	1.54	13868	4.1
FLOAT 1.60	93.0	7.6	1.85	13688	4.5
CUM(1-1/2" X 100M)	100.0	10.5	2.57	13167	5.7
100% X 0	.9	17.1	3.48	11981	8.0
TOTAL(1-1/2" X 0)	100.0	10.6	2.58	13156	5.7

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.3	3.3	.60	14461	2.6
FLOAT 1.40	82.2	5.7	1.18	14029	3.6
FLOAT 1.60	91.7	6.9	1.50	13814	4.0
CUM(3/8" X 100M)	100.0	10.6	2.56	13149	5.7
100M X 0	4.3	14.8	3.40	12394	7.6
TOTAL(3/8" X 0)	100.0	10.8	2.60	13116	5.8

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.1	3.2	.36	14479	2.4
FLOAT 1.40	80.9	5.2	.88	14119	3.1
FLOAT 1.60	91.3	6.6	1.14	13868	3.5
CUM(14M X 0)	100.0	10.7	2.65	13131	5.9

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	80.1
3/8" X 14M	15.2
14M X 100M	3.8
100M X 0	.9

--- MOISTURE, % ---

TOTAL	5.7
AS RECEIVED	5.1

STATE: PENNSYLVANIA

COUNTY: WASHINGTON

BED: PITTSBURGH

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36

SAMPLE NO. 345

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW

FL 1.60

SK 1.60

MOISTURE

5.10

2.50

1.40

ASH

9.96

6.53

53.44

VOLATILE MATTER

38.10

40.61

22.48

FIXED CARBON

46.83

50.36

22.68

BTU/LB

12536

13465

5236

MOISTURE FREE

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

44.86

44.64

49.78

55.14

55.36

50.22

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

CARBON

69.35

74.59

25.74

HYDROGEN

5.19

5.28

1.89

NITROGEN

1.30

1.40

.55

SULFUR

3.32

2.44

17.13

OXYGEN

10.88

9.75

--

ASH

9.96

6.53

53.44

MOISTURE FREE

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

81.65

82.00

57.01

5.44

5.50

3.84

1.53

1.54

1.21

3.91

2.68

37.94

7.47

8.28

--

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

SO2

2.23

1.21

16.89

AL2O3

.02

.02

.03

FE2O3

1.06

1.21

.22

SULFATIC

3.32

2.44

17.13

ORGANIC

--

--

--

TOTAL

--

--

--

MOISTURE FREE

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

2.63

1.33

37.39

.03

.02

.07

1.25

1.33

.49

3.91

2.68

37.94

FUSIBILITY OF ASH, DEGREES F

(IN OXIDIZING ATMOSPHERE)

RAW

FL 1.60

SK 1.60

INITIAL DEFORMATION (ID)

1950

2130

1950

SOFTENING TEMPERATURE (ST)

1990

2180

1990

FLUID TEMPERATURE (FT)

2090

2410

2030

MISCELLANEOUS DATA, %

RAW

FL 1.60

SK 1.60

CL (CHLORINE) (ANALYZED)

.04

--

--

NA (SODIUM) (CALCULATED)

--

--

--

MINERAL MATTER (PARR)

13.26

8.61

68.09

PHYSICAL PARAMETERS, INDEX

RAW

FL 1.60

SK 1.60

FREE SWELLING (FSI)

7

6 1/2

1

HARDGROVE GRINDABILITY (HGI)

48

--

--

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

OXIDES

--

--

--

SiO2 (SILICON OXIDE)

--

--

--

AL2O3 (ALUMINUM OXIDE)

--

--

--

Fe2O3 (IRON OXIDE)

--

--

--

TiO2 (TITANIUM OXIDE)

--

--

--

CaO (CALCIUM OXIDE)

--

--

--

MgO (MAGNESIUM OXIDE)

--

--

--

Na2O (SODIUM OXIDE)

--

--

--

K2O (POTASSIUM OXIDE)

--

--

--

SO3 (SULFITES)

--

--

--

COAL UTILIZATION RATIOS

RAW

FL 1.60

SK 1.60

BASE/ACID

--

--

--

DOLOMITE

--

--

--

HYDROGEN/CARBON

.80

.81

--

OXYGEN/CARBON

.07

.08

--

R250

--

--

--

SILICA

--

--

--

SILICA/ALUMINA

--

--

--

FUSIBILITY OF ASH, DEGREES F

(IN OXIDIZING ATMOSPHERE)

RAW

FL 1.60

SK 1.60

INITIAL DEFORMATION (ID)

1950

2130

1950

SOFTENING TEMPERATURE (ST)

1990

2180

1990

FLUID TEMPERATURE (FT)

2090

2410

2030

MISCELLANEOUS DATA, %

RAW

FL 1.60

SK 1.60

CL (CHLORINE) (ANALYZED)

.04

--

--

NA (SODIUM) (CALCULATED)

--

--

--

MINERAL MATTER (PARR)

13.26

8.61

68.09

PHYSICAL PARAMETERS, INDEX

RAW

FL 1.60

SK 1.60

FREE SWELLING (FSI)

7

6 1/2

1

HARDGROVE GRINDABILITY (HGI)

48

--

--

BED CODE: 36
SAMPLE NO. 346

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: WESTMORELAND

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.7	62.2	3.1	.06	.67	14757	.9
FLOAT 1.40	83.2	94.6	4.8	.14	.68	14476	.9
FLOAT 1.60	86.9	98.0	5.4	.16	.69	14363	1.0
CUM(1-1/2" X 100M)	100.0	100.0	15.0	.24	.77	12737	1.2
100M X 0	1.4	1.3	20.0	.59	1.29	11806	2.2
TOTAL(1-1/2" X 0)	100.0	100.0	15.1	.24	.78	12724	1.2

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.9	66.4	2.6	.05	.62	14836	.8
FLOAT 1.40	83.1	93.6	4.2	.12	.65	14565	.9
FLOAT 1.60	87.4	97.5	4.9	.14	.66	14437	.9
CUM(3/8" X 100M)	100.0	100.0	14.3	.23	.75	12937	1.2
100M X 0	6.3	6.2	15.3	.39	1.01	12639	1.6
TOTAL(3/8" X 0)	100.0	100.0	14.4	.24	.77	12918	1.2

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.5	66.5	2.8	.05	.70	14895	.9
FLOAT 1.40	78.1	90.2	4.3	.10	.76	14614	1.0
FLOAT 1.60	86.3	98.1	5.7	.20	.79	14374	1.1
CUM(14M X 0)	100.0	100.0	15.1	.24	.80	12649	1.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.3
3/8" X 14M	19.7
14M X 100M	5.6
100M X 0	1.4

--- MOISTURE, % ---

TOTAL	2.1
AS RECEIVED	1.9

STATE: PENNSYLVANIA
COUNTY: WESTMORELAND

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 346

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.90	1.70	1.30	--	--	--	--	--	--
ASH	15.30	5.41	76.79	15.60	5.50	77.80	38.32	37.31	63.96
VOLATILE MATTER	31.73	34.66	14.02	32.34	35.26	14.20	61.68	62.69	36.04
FIXED CARBON	51.07	58.23	7.90	52.06	59.24	8.00	--	--	--
BTU/LB	12336	14160	1523	12575	14405	1543	14899	15243	6949

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	70.03	78.97	13.62	71.38	80.34	13.80	84.58	85.01	62.16
HYDROGEN	4.75	5.27	1.43	4.63	5.17	1.30	5.48	5.47	5.86
NITROGEN	1.33	1.52	.20	1.35	1.55	.20	1.60	1.64	.90
SULFUR	.80	.75	.85	.81	.76	.86	.96	.81	3.89
OXYGEN	7.79	8.08	7.11	6.22	6.68	6.04	7.37	7.07	27.19
ASH	15.30	5.41	76.79	15.60	5.50	77.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.25	.18	.49	.25	.18	.49	.30	.19	2.22
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.05
ORGANIC	.54	.56	.36	.55	.57	.36	.65	.61	1.63
TOTAL	.80	.75	.85	.81	.76	.86	.96	.81	3.89

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	56.68	53.48	58.81	2450	2910+	--
SiO2 (SILICON OXIDE)	25.17	29.98	24.14	2560	2910+	--
Al2O3 (ALUMINUM OXIDE)	4.58	6.09	3.72	2680	2910+	--
Fe2O3 (IRON OXIDE)	1.33	1.49	1.33	MISCELLANEOUS DATA, %		
TiO2 (TITANIUM OXIDE)	3.41	2.38	3.64	CL (CHLORINE) (ANALYZED)	RAW	FL 1.60
CaO (CALCIUM OXIDE)	.87	.72	.90	NA (SODIUM) (CALCULATED)	.06	--
MgO (MAGNESIUM OXIDE)	2.10	2.30	2.10	MINERAL MATTER (PARR)	.24	1.21
Na2O (SODIUM OXIDE)	1.93	1.63	2.10		17.30	6.36
K2O (POTASSIUM OXIDE)	1.44	1.63	.79			84.50
SO3 (SULFITES)						

COAL UTILIZATION RATIOS

	AS RECEIVED			PHYSICAL PARAMETERS, INDEX		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	.15	.15	.15	FREE SWELLING (FSI)	9	--
DOLOMITE	.33	.24	.77	HARDGROVE GRINDABILITY (HGI)	59	55
HYDROGEN/CARBON	.78	.06	.06			
OXYGEN/CARBON	.07	.91	.85			
R250	.86	.85	1.78			
SILICA	2.25					
SILICA/ALUMINA						

BED CODE: 36
SAMPLE NO. 347

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: WESTMORELAND

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	50.2	3.4	.05	14777	1.0
FLOAT 1.40	89.1	6.1	.26	14309	1.3
FLOAT 1.60	95.4	7.0	.36	14155	1.5
CUM(1-1/2" X 100M)	100.0	9.2	.57	13776	1.8
100M X 0	1.2	14.3	1.41	12859	4.0
TOTAL(1-1/2" X 0)	100.0	9.3	.58	13765	1.9

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	53.4	2.9	.06	14748	1.2
FLOAT 1.40	86.6	5.4	.22	14369	1.4
FLOAT 1.60	95.1	6.6	.32	14155	1.5
CUM(3/8" X 100M)	100.0	9.0	.51	13743	1.8
100M X 0	6.9	9.0	.70	13774	2.1
TOTAL(3/8" X 0)	100.0	9.0	.52	13745	1.8

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	51.7	2.6	.07	14830	1.1
FLOAT 1.40	82.2	4.9	.07	14486	1.2
FLOAT 1.60	94.6	6.8	.29	14174	1.4
CUM(14M X 0)	100.0	9.7	.51	13670	1.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.8
3/8" X 14M	19.5
14M X 100M	5.5
100M X 0	1.2

MOISTURE, %

TOTAL	2.1
AS RECEIVED	1.4

STATE: PENNSYLVANIA
COUNTY: WESTMORELAND

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 347

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.40	1.40 .90	--	--	--	--
ASH	9.47	6.70 60.95	9.60	61.50	--	--
VOLATILE MATTER	33.40	34.33 16.05	33.88	34.82 16.20	37.48	37.36 42.08
FIXED CARBON	55.73	57.56 22.10	56.52	58.38 22.30	62.52	62.64 57.92
BTU/LB	13493	13976 4663	13685	14174 4705	15138	15209 12221

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	76.05	78.64 27.80	77.13	79.75 28.05	85.32	85.57 72.86
HYDROGEN	5.10	5.26 1.98	5.02	5.18 1.90	5.55	5.56 4.94
NITROGEN	1.50	1.56 .50	1.52	1.58 .50	1.68	1.69 1.30
SULFUR	1.19	1.08 4.48	1.21	1.10 4.52	1.34	1.18 11.74
OXYGEN	6.69	6.75 4.30	5.52	5.59 3.53	6.11	5.99 9.17
ASH	9.47	6.70 60.95	9.60	6.80 61.50	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.50	.27 4.32	.51	.27 4.36	.56	.29 11.34
SULFATIC	.01	.01 .01	.01	.01 .01	.01	.01 .03
ORGANIC	.68	.81 .14	.69	.82 .14	.76	.88 .38
TOTAL	1.19	1.08 4.48	1.21	1.10 4.52	1.34	1.18 11.74

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	52.84	53.27 54.55
SiO2 (SILICON OXIDE)	28.28	31.30 22.25
Al2O3 (ALUMINUM OXIDE)	9.44	7.72 13.44
Fe2O3 (IRON OXIDE)	1.67	1.67 1.33
TiO2 (TITANIUM OXIDE)	2.80	1.71 3.69
CaO (CALCIUM OXIDE)	.76	.63 .86
MgO (MAGNESIUM OXIDE)	.65	-- --
Na2O (SODIUM OXIDE)	1.88	1.83 1.93
K2O (POTASSIUM OXIDE)	1.02	.33 1.01
SO3 (SULFITES)	--	-- --

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.19	--
DOLOMITE	.23	--
HYDROGEN/CARBON	.78	--
OXYGEN/CARBON	.05	--
R250	.87	.90
SILICA	.80	.84
SILICA/ALUMINA	1.87	1.70

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2510	2910+
SOFTENING TEMPERATURE (ST)	2640	2910+
FLUID TEMPERATURE (FT)	2910+	2910+
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.05	-- --
MINERAL MATTER (PAR)	11.03	7.95 68.91

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	9	9
HARDGROVE GRINDABILITY (HGI)	65	59

STATE: PENNSYLVANIA
 COUNTY: FAYETTE
 BED: REDSTONE
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 33
 SAMPLE NO. 348

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.4	4.7	.36	14594	1.5
FLOAT 1.40	83.7	7.0	.65	14196	1.9
FLOAT 1.60	92.5	8.3	.81	13971	2.2
CUM(1-1/2" X 100M)	100.0	12.4	1.04	13261	2.6
100M X 0	.9	21.5	2.12	11686	6.4
TOTAL(1-1/2" X 0)	100.0	12.5	1.05	13247	2.7

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.6	4.2	.23	14680	1.3
FLOAT 1.40	81.6	6.6	.42	14265	1.6
FLOAT 1.60	90.9	8.0	.56	14023	1.8
CUM(3/8" X 100M)	100.0	13.0	.97	13157	2.5
100M X 0	5.7	13.1	1.30	13140	3.5
TOTAL(3/8" X 0)	100.0	13.0	.99	13156	2.5

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.0	3.2	.12	14854	1.2
FLOAT 1.40	82.2	5.8	.17	14404	1.3
FLOAT 1.60	90.4	7.1	.21	14179	1.4
CUM(14M X 0)	100.0	12.5	.97	13244	2.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	70.9
3/8" X 14M	22.6
14M X 100M	5.6
100M X 0	.9

MOISTURE, %

TOTAL	4.2
AS RECEIVED	2.9

STATE: PENNSYLVANIA

COUNTY: FAYETTE

BED: REDSTONE

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33

SAMPLE NO. 348

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW FL 1.60 SK 1.60

2.90 1.30 1.30

12.62 7.29 60.70

31.38 33.43 18.36

53.10 57.98 19.64

12804 13920 4698

MOISTURE FREE

RAW FL 1.60 SK 1.60

13.00 7.38 61.50

32.32 33.87 18.60

54.68 58.75 19.90

13186 14103 4760

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

37.15 36.57 48.31

62.85 63.43 51.69

15157 15228 12364

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

72.65 78.22 26.80

4.92 5.16 1.92

1.47 1.61 .49

1.58 .97 8.60

6.75 6.75 1.48

12.62 7.29 60.70

MOISTURE FREE

RAW FL 1.60 SK 1.60

74.82 79.25 27.15

4.74 5.08 1.80

1.51 1.63 .50

1.63 .98 8.72

4.30 5.67 .33

13.00 7.38 61.50

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

86.00 85.57 70.53

5.45 5.49 4.68

1.74 1.76 1.30

1.87 1.06 22.64

4.94 6.13 .85

-- -- --

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

.92 .23 8.02

.02 .01 .04

.64 .73 .54

1.58 .97 8.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

.94 .23 8.13

.03 .01 .04

.66 .74 .55

1.63 .98 8.72

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

1.08 .25 21.11

.03 .01 .10

.76 .80 1.43

1.87 1.06 22.64

-- -- --

MINERAL ANALYSIS OF ASH, %

OXIDES

RAW FL 1.60 SK 1.60

(SILICON OXIDE)

(ALUMINUM OXIDE)

(IRON OXIDE)

(TITANIUM OXIDE)

(CALCIUM OXIDE)

(MAGNESIUM OXIDE)

(SODIUM OXIDE)

(POTASSIUM OXIDE)

(SULFATES)

INITIAL DEFORMATION (ID)

SOFTENING TEMPERATURE (ST)

FLUID TEMPERATURE (FT)

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

14.94 8.52 71.21

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

2080 2530 1980

2140 2620 2030

2300 2910+ 2190

-- -- --

COAL UTILIZATION RATIOS

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

RAW FL 1.60

.76

.04

--

--

--

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

9 62

-- --

PHYSICAL PARAMETERS, INDEX

RAW FL 1.60 SK 1.60

9 9

62 --

STATE: PENNSYLVANIA
 COUNTY: FAYETTE
 BED: REDSTONE
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 33
 SAMPLE NO. 349

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	RECOVERY, % BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	71.3	4.5	75.2	4.5	.37	14557	1.3
FLOAT 1.40	90.3	5.6	93.9	5.6	.51	14350	1.5
FLOAT 1.60	96.1	6.4	98.9	6.4	.61	14199	1.7
CUM(1-1/2" X 100M)	100.0	8.5	100.0	8.5	1.24	13803	2.7
100M X 0	1.1	16.7	1.0	16.7	1.74	12255	4.9
TOTAL(1-1/2" X 0)	100.0	8.6	100.0	8.6	1.25	13786	2.7

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	RECOVERY, % BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	75.3	3.8	79.7	3.8	.17	14690	1.2
FLOAT 1.40	89.4	4.9	93.3	4.9	.24	14482	1.3
FLOAT 1.60	95.3	5.8	98.3	5.8	.29	14312	1.4
CUM(3/8" X 100M)	100.0	8.1	100.0	8.1	1.17	13878	2.8
100M X 0	6.6	8.2	6.6	8.2	1.05	13859	2.5
TOTAL(3/8" X 0)	100.0	8.1	100.0	8.1	1.16	13877	2.8

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	RECOVERY, % BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	60.4	2.9	64.6	2.9	.24	14859	1.2
FLOAT 1.40	88.5	4.5	92.7	4.5	.23	14557	1.3
FLOAT 1.60	95.3	5.7	98.3	5.7	.27	14331	1.3
CUM(14M X 0)	100.0	8.0	100.0	8.0	1.17	13897	2.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	66.6
3/8" X 14M	27.0
14M X 100M	5.3
100M X 0	1.1

--- MOISTURE, % ---

TOTAL	3.5
AS RECEIVED	2.4

STATE: PENNSYLVANIA
COUNTY: FAYETTE
BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 33
SAMPLE NO. 349

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	2.40	1.30	--	--	--	--
ASH	8.12	5.63	8.32	5.70	37.57	37.22
VOLATILE MATTER	33.62	34.65	34.45	35.10	62.42	62.78
FIXED CARBON	55.86	58.43	57.23	59.20	15105	15186
BTU/LB	13516	14134	13848	14320		10979

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	75.63	79.52	77.49	80.57	84.52	85.44
HYDROGEN	5.20	5.30	5.05	5.23	5.51	5.54
NITROGEN	1.59	1.67	1.63	1.69	1.78	1.80
SULFUR	1.90	.84	1.94	.85	2.12	.90
OXYGEN	7.56	7.04	5.56	5.96	6.07	6.32
ASH	8.12	5.63	8.32	5.70	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	1.22	.24	1.25	.24	1.37	.26
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.66	.59	.68	.59	.74	.63
TOTAL	1.90	.84	1.94	.85	2.12	.90

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.78	.78	--	--	--	--
OXYGEN/CARBON	.05	.06	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING	9	8 1/2	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	64	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: SOMERSET
BED: REDSTONE
RANK: MED VOLATILE BITUMINOUS
BED CODE: 33
SAMPLE NO. 350

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	2.1	2.0	2.5	.08	14631	1.4
FLOAT 1.40	53.5	7.7	58.3	.05	13652	1.3
FLOAT 1.60	91.5	11.5	95.0	.06	13000	1.3
CUM(1-1/2" X 100M)	100.0	14.3	100.0	.07	12519	1.3
100M X 0	2.0	18.0	1.9	.29	11884	1.7
TOTAL(1-1/2" X 0)	100.0	14.4	100.0	.07	12506	1.3

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	2.6	1.5	3.1	.04	14717	1.4
FLOAT 1.40	49.6	6.6	55.3	.03	13841	1.4
FLOAT 1.60	87.9	10.7	93.0	.04	13137	1.3
CUM(3/8" X 100M)	100.0	14.9	100.0	.07	12416	1.3
100M X 0	8.9	13.6	9.1	.12	12639	1.5
TOTAL(3/8" X 0)	100.0	14.8	100.0	.07	12436	1.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	9.0	2.6	10.5	.03	14528	1.4
FLOAT 1.40	53.7	5.6	60.2	.04	14013	1.4
FLOAT 1.60	88.3	9.5	94.2	.04	13343	1.4
CUM(14M X 0)	100.0	14.4	100.0	.08	12502	1.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	56.2
3/8" X 14M	31.9
14M X 100M	9.9
100M X 0	2.0

MOISTURE, %

TOTAL	7.2
AS RECEIVED	5.2

STATE: PENNSYLVANIA

COUNTY: SOMERSET

BED: REDSTONE

RANK: MED VOLATILE BITUMINOUS

BED CODE: 33

SAMPLE NO. 350

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----

AS RECEIVED

RAW FL 1.60 SK 1.60

5.20 2.70 2.70

13.75 9.44 49.91

20.12 20.60 21.11

60.93 67.26 26.27

MOISTURE FREE

RAW FL 1.60 SK 1.60

-- --

14.50 9.70 51.30

21.23 21.17 21.70

64.27 69.13 27.00

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

-- --

24.83 23.45 44.56

75.17 76.55 55.44

BTU/LB

11888 12902 5994

12540 13260 6160

14667 14684 12649

----- ULTIMATE ANALYSIS, % -----

AS RECEIVED

RAW FL 1.60 SK 1.60

69.32 74.76 36.03

4.12 4.07 2.64

1.61 1.75 .88

.75 .80 .47

10.45 9.19 10.07

13.75 9.44 49.91

MOISTURE FREE

RAW FL 1.60 SK 1.60

73.13 76.83 37.03

3.73 3.87 2.40

1.70 1.80 .90

.79 .82 .48

6.14 6.98 7.89

14.50 9.70 51.30

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

85.53 85.08 76.04

4.37 4.29 4.93

1.99 1.99 1.85

.93 .91 .99

7.19 7.73 16.20

-- --

----- SULFUR FORAS ANALYSIS, % -----

AS RECEIVED

RAW FL 1.60 SK 1.60

.08 .04 .37

.01 .01 .01

.66 .74 .09

.75 .80 .47

MOISTURE FREE

RAW FL 1.60 SK 1.60

.08 .04 .38

.01 .01 .01

.70 .77 .09

.47 .82 .48

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

.10 .05 .78

.01 .01 .02

.82 .85 .19

.93 .91 .99

----- MINERAL ANALYSIS OF ASH, % -----

AS RECEIVED

RAW FL 1.60 SK 1.60

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MOISTURE FREE

RAW FL 1.60 SK 1.60

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MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

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OXIDES

SIO2 (SILICON OXIDE)

AL2O3 (ALUMINUM OXIDE)

FE2O3 (IRON OXIDE)

TIO2 (TITANIUM OXIDE)

CAO (CALCIUM OXIDE)

MGO (MAGNESIUM OXIDE)

NA2O (SODIUM OXIDE)

K2O (POTASSIUM OXIDE)

SO3 (SULFITES)

INITIAL DEFORMATION (ID)

SOFTENING TEMPERATURE (ST)

FLUID TEMPERATURE (FT)

2180 2640 2030

2240 2740 2080

2440 2910+ 2280

----- MISCELLANEOUS DATA, % -----

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

.01 --

-- --

16.10 10.92 55.67

----- COAL UTILIZATION RATIOS -----

RAW FL 1.60

-- --

.61 .60

.06 .07

-- --

-- --

-- --

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----

RAW FL 1.60 SK 1.60

2180 2640 2030

2240 2740 2080

2440 2910+ 2280

----- PHYSICAL PARAMETERS, INDEX -----

RAW FL 1.60 SK 1.60

0 0

81 --

STATE: PENNSYLVANIA		BED: REDSTONE		BED CODE: 33	
COUNTY: WESTMORELAND		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 351	
CUMULATIVE WASHABILITY DATA (DRY BASIS)					
----- SAMPLE CRUSHED TO PASS 1-1/2" -----					
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	46.8	4.5	.36	14731	2.0
FLOAT 1.40	83.3	6.4	.86	14376	2.7
FLOAT 1.60	92.9	7.6	1.09	14151	3.0
CUM(1-1/2" X 100M)	100.0	10.9	1.77	13534	4.1
100M X 0	.8	24.9	2.43	10917	6.8
TOTAL(1-1/2" X 0)	100.0	11.0	1.78	13514	4.1
----- SAMPLE CRUSHED TO PASS 3/8" -----					
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	44.2	3.9	.32	14843	2.0
FLOAT 1.40	83.3	6.2	.65	14413	2.4
FLOAT 1.60	93.1	7.6	.95	14151	2.9
CUM(3/8" X 100M)	100.0	10.6	1.74	13591	4.1
100M X 0	4.6	15.8	2.63	12618	6.2
TOTAL(3/8" X 0)	100.0	10.8	1.78	13546	4.2
----- SAMPLE CRUSHED TO PASS 14M -----					
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	42.7	3.1	.20	14993	1.9
FLOAT 1.40	77.6	5.5	.33	14544	2.0
FLOAT 1.60	91.7	7.7	.51	14133	2.3
CUM(14M X 0)	100.0	11.5	1.54	13422	3.8
RAW COAL SIZE AND MOISTURE ANALYSES					
----- SIZE DISTRIBUTION, % -----					
SAMPLE CRUSHED TO PASS 1-1/2"					
1-1/2" X 3/8"	66.7	TOTAL			
3/8" X 14M	27.6	AS RECEIVED			
14M X 100M	4.9	2.0			
100M X 0	.8	1.8			

STATE: PENNSYLVANIA
COUNTY: WESTMORELAND

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33
SAMPLE NO. 351

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	1.80	1.30	1.30	--	--	--	--
ASH	10.90	7.30	54.90	11.10	7.39	38.14	49.52
VOLATILE MATTER	33.29	34.47	21.69	33.90	21.98	61.86	50.48
FIXED CARBON	54.01	56.94	22.11	55.00	22.40	--	--
BTU/LB	13296	13967	5103	13540	5170	15231	11651

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	74.35	78.69	26.35	75.72	26.70	85.17	60.17
HYDROGEN	4.91	5.14	1.82	4.80	1.70	5.40	3.83
NITROGEN	1.49	1.58	1.59	1.52	1.60	1.71	1.35
SULFUR	2.41	1.59	11.79	2.45	11.95	2.76	26.93
OXYGEN	5.93	5.71	4.54	4.41	3.43	4.96	7.73
ASH	10.90	7.30	54.90	11.10	55.62	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	1.50	.50	11.48	1.53	11.63	1.72	26.20
SULFATIC	.03	.02	.15	.03	.15	.03	.34
ORGANIC	.88	1.08	.17	.90	.17	1.01	.39
TOTAL	2.41	1.59	11.79	2.45	11.95	2.76	26.93

MINERAL ANALYSIS OF ASH, %

	RAW		FL 1.60		SK 1.60	
	RAW	FL 1.60	RAW	FL 1.60	RAW	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	2100	1990
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	2200	2040
Fe2O3 (IRON OXIDE)	--	--	--	--	2520	2140
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	RAW		FL 1.60	
	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	.76	.76	--	--
OXYGEN/CARBON	.05	.04	--	--
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	RAW		FL 1.60	
	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING	8	1 1/2	9	--
HARDGROVE GRINDABILITY (HGI)	64	--	--	--

BED CODE: 29
SAMPLE NO. 352

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: FAYETTE

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	17.2	4.4	19.2	.47	1.97	14448	2.7
FLOAT 1.40	81.2	8.1	87.2	1.38	2.65	13869	3.8
FLOAT 1.60	90.9	9.5	96.0	1.57	2.82	13637	4.1
CUM(1-1/2" X 100M)	100.0	13.8	100.0	1.58	2.95	12917	4.6
100M X 0	1.0	8.2	1.1	1.99	4.02	13885	5.8
TOTAL(1-1/2" X 0)	100.0	13.7	100.0	1.58	2.96	12926	4.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	34.4	4.3	38.6	.47	.90	14564	2.6
FLOAT 1.40	77.4	7.4	83.8	1.05	2.48	14031	3.5
FLOAT 1.60	89.7	9.1	95.0	1.30	2.69	13736	3.9
CUM(3/8" X 100M)	100.0	13.6	100.0	1.71	3.01	12966	4.6
100M X 0	5.9	13.2	5.9	1.99	3.49	13010	5.4
TOTAL(3/8" X 0)	100.0	13.6	100.0	1.73	3.04	12969	4.7

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	42.6	3.6	48.5	.29	1.73	14681	2.4
FLOAT 1.40	73.3	6.2	81.1	.61	2.06	14256	2.9
FLOAT 1.60	88.5	8.6	95.1	.94	2.34	13847	3.4
CUM(14M X 0)	100.0	14.0	100.0	1.63	2.96	12885	4.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	71.2
3/8" X 14M	22.6
14M X 100M	5.2
100M X 0	1.0

--- MOISTURE, % ---

TOTAL	2.0
AS RECEIVED	1.7

BED CODE: 29
SAMPLE NO. 353

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: GREENE

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	15.4	17.0	4.8	.12	14536	.9
FLOAT 1.40	80.9	85.3	8.9	.21	13908	1.1
FLOAT 1.60	94.9	97.5	11.0	.28	13548	1.3
CUM(1-1/2" X 100M)	100.0	100.0	13.1	.40	13188	1.5
100M X 0	1.0	.9	17.9	.88	12358	2.8
TOTAL(1-1/2" X 0)	100.0	100.0	13.1	.40	13180	1.5

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.2	31.3	4.3	.12	14635	1.0
FLOAT 1.40	79.0	84.0	8.2	.19	14027	1.1
FLOAT 1.60	93.6	96.8	10.4	.26	13642	1.2
CUM(3/8" X 100M)	100.0	100.0	13.0	.41	13195	1.4
100M X 0	6.3	6.3	13.6	.41	13093	1.6
TOTAL(3/8" X 0)	100.0	100.0	13.0	.41	13188	1.4

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.7	38.9	4.1	.06	14639	1.0
FLOAT 1.40	79.0	85.5	7.6	.11	14148	1.0
FLOAT 1.60	91.6	96.7	9.7	.17	13799	1.1
CUM(14M X 0)	100.0	100.0	13.9	.38	13071	1.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"	MOISTURE, %
1-1/2" X 3/8"	73.0
3/8" X 14M	20.0
14M X 100M	6.0
100M X 0	1.0

TOTAL
AS RECEIVED

2.7
2.1

STATE: PENNSYLVANIA
COUNTY: GREENE
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
RED CODE: 29
SAMPLE NO. 353

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	2.10	1.30	13.80	9.80	38.68	38.20
ASH	13.51	9.67	33.34	34.46	61.32	61.80
VOLATILE MATTER	32.64	34.01	52.86	55.74	51.66	51.66
FIXED CARBON	51.75	55.02		18.90	48.34	48.34
BTU/LB	12811	13604	13086	13783	15181	15281

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	71.96	76.17	73.50	77.18	85.27	85.56
HYDROGEN	4.91	5.10	4.78	5.02	5.55	5.56
NITROGEN	1.42	1.52	1.46	1.54	1.69	1.71
SULFUR	.94	.76	.96	.77	1.11	.85
OXYGEN	7.26	6.78	5.50	5.69	6.39	6.31
ASH	13.51	9.67	13.80	9.80		

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	.37	.15	.38	.15	.44	.17
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.56	.60	.57	.61	.66	.67
TOTAL	.94	.76	.96	.77	1.11	.85

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	57.10	59.66	54.12
Al2O3 (ALUMINUM OXIDE)	25.27	27.91	18.10
Fe2O3 (IRON OXIDE)	9.15	5.15	17.73
TiO2 (TITANIUM OXIDE)	1.67	2.00	1.00
CaO (CALCIUM OXIDE)	1.43	.59	2.57
MgO (MAGNESIUM OXIDE)	.93	.63	1.39
Na2O (SODIUM OXIDE)	.65	.73	.49
K2O (POTASSIUM OXIDE)	2.07	2.07	2.05
SO3 (SULFITES)	.70	.35	1.74

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.17	.10
DOLOMITE	.17	.13
HYDROGEN/CARBON	.78	.78
OXYGEN/CARBON	.06	.06
R250	.89	.94
SILICA	.83	.90
SILICA/ALUMINA	2.26	2.14

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2460	2910+	
SOFTENING TEMPERATURE (ST)	2560	2910+	
FLUID TEMPERATURE (FT)	2670	2910+	
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.04	--	--
MINERAL MATTER (PARR)	15.43	11.01	67.37

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	7 1/2	--
HARDGROVE GRINDABILITY (HGI)	61	54	--

BED CODE: 29
SAMPLE NO. 354

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: GREENE

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.8	5.0	.05	14452	.8
FLOAT 1.40	55.2	9.5	.18	13767	1.1
FLOAT 1.60	73.3	13.4	.36	13076	1.4
CUM(1-1/2" X 100M)	100.0	23.9	.71	11248	2.0
100M X 0	1.0	22.1	.93	11555	2.5
TOTAL(1-1/2" X 0)	100.0	23.9	.71	11251	2.0

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	15.3	4.5	.05	14536	.9
FLOAT 1.40	52.8	9.0	.15	13812	1.1
FLOAT 1.60	69.1	12.6	.27	13181	1.3
CUM(3/8" X 100M)	100.0	25.5	.76	10943	2.2
100M X 0	9.3	19.1	.70	12073	2.0
TOTAL(3/8" X 0)	100.0	24.9	.75	11048	2.2

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.2	4.3	.05	14586	.9
FLOAT 1.40	56.0	8.3	.12	13982	1.0
FLOAT 1.60	71.1	11.3	.24	13456	1.1
CUM(14M X 0)	100.0	24.0	.77	11234	2.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	72.4
3/8" X 14M	20.8
14M X 100M	5.8
100M X 0	1.0

MOISTURE, %

TOTAL
AS RECEIVED

2.3
1.4

STATE: PENNSYLVANIA
COUNTY: GREENE

BED: SEMICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 354

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW
FL 1.60 SK 1.60

1.40
24.61
32.10
41.88
10936

1.50
55.36
25.81
17.34
5558

1.50
56.20
26.20
17.60
5643

MOISTURE
ASH
VOLATILE MATTER
FIXED CARBON
BTU/LB

RAW
FL 1.60 SK 1.60

43.39
56.61
39.74
60.26
14781
15170
12883

SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW
FL 1.60 SK 1.60

61.31
4.28
1.33
1.12
7.35
24.61

32.01
2.63
1.65
2.16
7.25
55.36

32.50
2.50
1.68
2.19
6.01
56.22

CARBON
HYDROGEN
NITROGEN
SULFUR
OXYGEN
ASH

RAW
FL 1.60 SK 1.60

82.86
5.57
1.80
1.52
8.25
7.42
13.72

SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW
FL 1.60 SK 1.60

.74
.01
.37
1.12

2.04
.01
.10
2.16

2.07
.01
.10
2.19

PYRITIC
SULFATIC
ORGANIC
TOTAL

RAW
FL 1.60 SK 1.60

1.00
.28
.01
.56
1.52
.85
5.00

SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW
FL 1.60 SK 1.60

51.14
21.50
17.16
1.00
2.52
1.26
.57
2.14
1.98

48.15
19.99
20.59
1.00
3.08
1.36
2.17
.81
2.28

OXIDES
(SILICON OXIDE)
AL2O3
(ALUMINUM OXIDE)
FE2O3
(IRON OXIDE)
TiO2
(TITANIUM OXIDE)
CAO
(CALCIUM OXIDE)
MGO
(MAGNESIUM OXIDE)
Na2O
(SODIUM OXIDE)
K2O
(POTASSIUM OXIDE)
SO3
(SULFITES)

RAW
FL 1.60 SK 1.60

2080
2180
2420
2450
2500
2700

SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

AS RECEIVED

RAW
FL 1.60 SK 1.60

2080
2180
2420
2450
2500
2700

2080
2180
2420
2450
2500
2700

INITIAL DEFORMATION (ID)
SOFTENING TEMPERATURE (ST)
FLUID TEMPERATURE (FT)

RAW
FL 1.60 SK 1.60

2080
2180
2420
2450
2500
2700

SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60

MISCELLANEOUS DATA, %

AS RECEIVED

RAW
FL 1.60 SK 1.60

.02
.11
27.58
13.10
61.90

.02
.11
27.58
13.10
61.90

CL (CHLORINE) (ANALYZED)
NA (SODIUM) (CALCULATED)
MINERAL MATTER (PARR)

RAW
FL 1.60 SK 1.60

.02
.11
27.58
13.10
61.90

SK 1.60
SK 1.60
SK 1.60
SK 1.60
SK 1.60

PHYSICAL PARAMETERS, INDEX

AS RECEIVED

RAW
FL 1.60 SK 1.60

7 1/2
55
53

7 1/2
55
53

FREE SWELLING (FSI)
HARDGROVE GRINDABILITY (HGI)

RAW
FL 1.60 SK 1.60

7 1/2
55
53

SK 1.60
SK 1.60
SK 1.60

BED CODE: 29
SAMPLE NO. 355

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: GREENE

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"									
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)									
PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU			
	WEIGHT	BTU		TOTAL					
FLOAT 1.30	14.0	22.7	.30	.80	14584	1.1			
FLOAT 1.40	54.8	83.8	.47	1.07	13760	1.6			
FLOAT 1.60	61.4	91.8	.63	1.20	13468	1.8			
FLOAT 1.90	64.6	94.2	.71	1.25	13124	1.9			
CUM(1-1/2" X 100M)	100.0	100.0	.95	1.31	9003	2.9			
100M X 0	.6	.6	1.04	1.34	9041	3.0			
TOTAL(1-1/2" X 0)	100.0	100.0	.95	1.31	9004	2.9			

SAMPLE CRUSHED TO PASS 3/8"									
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)									
PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU			
	WEIGHT	BTU		TOTAL					
FLOAT 1.30	15.7	25.2	.28	.77	14567	1.1			
FLOAT 1.40	52.8	79.0	.37	.99	13571	1.5			
FLOAT 1.60	60.1	87.7	.53	1.11	13245	1.7			
FLOAT 1.90	64.6	94.2	.71	1.25	13124	1.9			
CUM(3/8" X 100M)	100.0	100.0	.92	1.30	9072	2.9			
100M X 0	1.8	1.8	1.04	1.27	9053	2.8			
TOTAL(3/8" X 0)	100.0	100.0	.92	1.30	9072	2.9			

SAMPLE CRUSHED TO PASS 14M									
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)									
PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU			
	WEIGHT	BTU		TOTAL					
FLOAT 1.30	12.4	20.0	.25	.48	14601	.7			
FLOAT 1.40	45.5	69.1	.29	.79	13777	1.1			
FLOAT 1.60	60.6	87.9	.41	.92	13159	1.4			
FLOAT 1.90	64.6	94.2	.71	1.25	13124	1.9			
CUM(14M X 0)	100.0	100.0	.97	1.30	9072	2.9			

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"		MOISTURE, %
1-1/2" X 3/8"	---	2.5
3/8" X 14M	---	1.5
14M X 100M	---	
100M X 0	.6	

TOTAL
AS RECEIVED

STATE: PENNSYLVANIA		BED: SEWICKLEY		BED CODE: 29	
COUNTY: GREENE		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 355	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
	AS RECEIVED	MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.50	--	--	--	--
ASH	37.70	--	--	--	--
VOLATILE MATTER	28.41	--	--	46.72	--
FIXED CARBON	32.39	--	--	53.28	--
BTU/LB	8934	--	--	14694	--
----- ULTIMATE ANALYSIS, % -----					
	AS RECEIVED	MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--
HYDROGEN	--	--	--	--	--
NITROGEN	--	--	--	--	--
SULFUR	1.26	--	--	2.07	--
OXYGEN	--	--	--	--	--
ASH	37.70	--	--	--	--
----- SULFUR FORMS ANALYSIS, % -----					
	AS RECEIVED	MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.98	--	--	1.61	--
SULFATIC	.01	--	--	.02	--
ORGANIC	.27	--	--	.44	--
TOTAL	1.26	--	--	2.07	--
----- MINERAL ANALYSIS OF ASH, % -----					
	AS RECEIVED	MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--
----- COAL UTILIZATION RATIOS -----					
	AS RECEIVED	MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--
DOLOMITE	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--
R250	--	--	--	--	--
SILICA	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----					
INITIAL DEFORMATION (ID)					
SOFTENING TEMPERATURE (ST)					
FLUID TEMPERATURE (FT)					
----- MISCELLANEOUS DATA, % -----					
CL (CHLORINE) (ANALYZED)					
NA (SODIUM) (CALCULATED)					
MINERAL MATTER (PARR)					
42.03					
----- PHYSICAL PARAMETERS, INDEX -----					
FREE SWELLING (FSI)					
HARDGROVE GRINDABILITY (HGI)					

BED CODE: 29
SAMPLE NO. 356

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: GREENE

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)							
PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE	SO2 EMISSION	
	WEIGHT		BTU		BTU/LB	LB/MM BTU	
FLOAT 1.30	24.1	4.4	.52	1.76	14514	2.4	
FLOAT 1.40	83.0	7.9	1.05	2.29	13917	3.3	
FLOAT 1.60	94.1	9.5	1.30	2.52	13644	3.7	
CUM(1-1/2" X 100M)	100.0	11.8	2.46	3.73	13252	5.6	
100M X 0	1.0	19.1	3.82	5.68	12006	9.5	
TOTAL(1-1/2" X 0)	100.0	11.9	2.47	3.75	13239	5.7	

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)							
PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE	SO2 EMISSION	
	WEIGHT		BTU		BTU/LB	LB/MM BTU	
FLOAT 1.30	38.0	4.3	.43	1.68	14531	2.3	
FLOAT 1.40	84.6	7.3	.84	2.05	14019	2.9	
FLOAT 1.60	93.9	8.8	1.13	2.32	13764	3.4	
CUM(3/8" X 100M)	100.0	11.4	2.23	3.45	13320	5.2	
100M X 0	2.4	14.5	3.58	5.00	12791	7.8	
TOTAL(3/8" X 0)	100.0	11.5	2.26	3.49	13307	5.2	

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)							
PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE	SO2 EMISSION	
	WEIGHT		BTU		BTU/LB	LB/MM BTU	
FLOAT 1.30	44.8	3.5	.19	1.50	14668	2.0	
FLOAT 1.40	83.2	6.8	.62	1.84	14105	2.6	
FLOAT 1.60	91.5	8.2	.77	2.01	13866	2.9	
CUM(14M X 0)	100.0	11.8	2.45	3.68	13252	5.6	

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %		MOISTURE, %	
SAMPLE CRUSHED TO PASS 1-1/2"		TOTAL	
1-1/2" X 3/8"	--	AS RECEIVED	2.9
3/8" X 14M	--		1.5
14M X 100M	--		
100M X 0	--		

STATE: PENNSYLVANIA
COUNTY: GREENE
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 356

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	1.50	1.40	--	--	--	--
ASH	11.23	7.89	11.40	8.00	39.28	38.26
VOLATILE MATTER	34.28	34.71	53.80	56.80	60.72	61.74
FIXED CARBON	52.99	56.00	--	--	--	--
BTU/LB	13120	13705	13320	13900	15034	15109

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.39	1.98	3.44	2.01	3.88	2.18
OXYGEN	--	--	--	--	--	--
ASH	11.23	7.89	11.40	8.00	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	2.24	.73	2.27	.74	2.56	.80
SULFATIC	.06	.04	.06	.04	.07	.04
ORGANIC	1.09	1.21	1.11	1.23	1.25	1.34
TOTAL	3.39	1.98	3.44	2.01	3.88	2.18

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLomite	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2150	2620	--
SOFTENING TEMPERATURE (ST)	2210	2680	--
FLUID TEMPERATURE (FT)	2520	2790	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	14.20	9.75	66.46

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

BED CODE: 29
SAMPLE NO. 357

BED: SEWICKLEY
RANK: MED VOLATILE BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: SOMERSET

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	77.7	4.7	.15	14804	1.2
FLOAT 1.40	91.0	5.5	.20	14666	1.3
FLOAT 1.60	96.5	6.6	.23	14476	1.3
CUM(1-1/2" X 100M)	100.0	8.6	.26	14130	1.4
100M X 0	1.6	12.2	.71	13508	2.1
TOTAL(1-1/2" X 0)	100.0	8.7	.27	14120	1.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	71.2	4.3	.06	14873	1.3
FLOAT 1.40	89.4	5.3	.13	14700	1.3
FLOAT 1.60	95.4	6.6	.16	14476	1.4
CUM(3/8" X 100M)	100.0	9.4	.20	13992	1.4
100M X 0	6.9	8.2	.26	14199	1.6
TOTAL(3/8" X 0)	100.0	9.3	.20	14006	1.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.2	3.1	.10	15081	1.2
FLOAT 1.40	88.7	5.0	.13	14752	1.3
FLOAT 1.60	94.7	6.1	.17	14562	1.4
CUM(14M X 0)	100.0	9.0	.23	14061	1.5

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	48.7
3/8" X 14M	39.0
14M X 100M	10.7
100M X 0	1.6

--- MOISTURE, % ---

TOTAL	2.7
AS RECEIVED	1.8

STATE: PENNSYLVANIA
COUNTY: SOMERSET
BED: SEWICKLEY
RANK: MED VOLATILE BITUMINOUS
BED CODE: 29
SAMPLE NO. 357

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	RAW	AS RECEIVED	FL 1.60	SK 1.60	RAW	MOISTURE FREE	FL 1.60	SK 1.60	RAW	MOISTURE AND ASH FREE	FL 1.60	SK 1.60
MOISTURE	1.80	2.10	2.10	2.10	9.40	6.10	59.80	59.80	25.91	25.62	74.38	64.43
ASH	9.23	23.05	23.84	14.00	67.12	69.84	25.90	25.90	74.09	74.38	64.43	64.43
VOLATILE MATTER	65.91	69.21	69.21	25.36	13795	14379	5169	14048	14510	5280	15505	13134
FIXED CARBON												
BTU/LB												

ULTIMATE ANALYSIS, %

	RAW	AS RECEIVED	FL 1.60	SK 1.60	RAW	MOISTURE FREE	FL 1.60	SK 1.60	RAW	MOISTURE AND ASH FREE	FL 1.60	SK 1.60
CARBON	78.75	82.21	82.21	30.81	80.20	82.96	31.47	31.47	88.52	88.35	78.28	78.28
HYDROGEN	4.75	4.85	4.85	2.49	4.64	4.79	2.30	2.30	5.12	5.10	5.72	5.72
NITROGEN	1.79	1.87	1.87	.69	1.82	1.89	.70	.70	2.01	2.01	1.74	1.74
SULFUR	.99	.97	.97	1.55	1.01	.98	1.58	1.58	1.12	1.04	3.93	3.93
OXYGEN	4.48	4.05	4.05	5.93	2.94	3.28	4.15	4.15	3.24	3.49	10.32	10.32
ASH	9.23	6.05	6.05	58.54	9.40	6.10	59.80	59.80	--	--	--	--

SULFUR FORMS ANALYSIS, %

	RAW	AS RECEIVED	FL 1.60	SK 1.60	RAW	MOISTURE FREE	FL 1.60	SK 1.60	RAW	MOISTURE AND ASH FREE	FL 1.60	SK 1.60
PYRITIC	.22	.15	.15	1.27	.22	.15	1.30	1.30	.25	.16	3.24	3.24
SULFATIC	.01	.00	.00	.01	.01	.00	.01	.01	.01	.00	.02	.02
ORGANIC	.77	.82	.82	.26	.78	.83	.27	.27	.86	.88	.67	.67
TOTAL	.99	.97	.97	1.55	1.01	.98	1.58	1.58	1.12	1.04	3.93	3.93

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.69	.69
OXYGEN/CARBON	.03	.03
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	0
HARDGROVE GRINDABILITY (HGI)	91	91	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2600
SOFTENING TEMPERATURE (ST)	2910+	2910+	2680
FLUID TEMPERATURE (FT)	2910+	2910+	2780

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.00	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	10.71	7.13	65.45

BED CODE: 29
SAMPLE NO. 358

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.1	4.5	.03	14418	1.1
FLOAT 1.40	89.0	7.8	.15	13901	1.2
FLOAT 1.60	95.4	8.8	.20	13734	1.3
CUM(1-1/2" X 100M)	100.0	10.8	.30	13389	1.4
100M X 0	.7	21.2	.94	11617	3.1
TOTAL(1-1/2" X 0)	100.0	10.9	.30	13376	1.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.1	3.9	.03	14513	1.2
FLOAT 1.40	85.4	7.3	.10	13975	1.2
FLOAT 1.60	94.4	8.7	.16	13744	1.4
CUM(3/8" X 100M)	100.0	11.3	.26	13309	1.5
100M X 0	5.4	12.9	.47	13028	2.1
TOTAL(3/8" X 0)	100.0	11.4	.27	13294	1.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.8	3.6	.06	14591	1.2
FLOAT 1.40	83.2	6.5	.10	14120	1.3
FLOAT 1.60	94.9	8.5	.16	13799	1.4
CUM(14M X 0)	100.0	11.0	.27	13368	1.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	79.1
3/8" X 14M	16.1
14M X 100M	4.1
100M X 0	.7

--- MOISTURE, % ---

TOTAL	3.4
AS RECEIVED	1.7

STATE: PENNSYLVANIA
COUNTY: WASHINGTON
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 358

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.70	1.30	--	--	--	--
ASH	11.25	8.36	11.44	8.50	38.34	38.04
VOLATILE MATTER	33.38	34.21	33.96	34.80	61.66	61.96
FIXED CARBON	53.67	55.73	54.60	56.70	15020	15081
BTU/LB	13075	13564	13302	13799	5092	5092

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	73.58	75.79	74.85	77.10	84.52	84.26
HYDROGEN	5.08	5.24	4.98	5.14	5.62	5.62
NITROGEN	1.55	1.60	1.57	1.63	1.78	1.78
SULFUR	1.10	.87	1.12	.88	1.26	.96
OXYGEN	7.45	8.14	6.04	6.75	6.82	7.37
ASH	11.25	8.36	11.44	8.50	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.30	.14	.31	.14	.35	.16
SULFATIC	.02	.02	.03	.02	.03	.02
ORGANIC	.77	.71	.78	.72	.89	.78
TOTAL	1.10	.87	1.12	.88	1.26	.96

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	57.10	57.96	57.96	57.96	57.96	57.96
SiO2 (SILICON OXIDE)	29.04	31.30	22.63	22.63	29.10+	29.10+
AL2O3 (ALUMINUM OXIDE)	6.58	4.00	10.58	10.58	29.10+	29.10+
Fe2O3 (IRON OXIDE)	1.67	2.00	1.67	1.67	29.10+	29.10+
TiO2 (TITANIUM OXIDE)	1.01	.76	1.48	1.48	--	--
CaO (CALCIUM OXIDE)	.86	.63	1.26	1.26	--	--
MgO (MAGNESIUM OXIDE)	.81	--	--	--	--	--
Na2O (SODIUM OXIDE)	2.19	2.24	2.17	2.17	--	--
K2O (POTASSIUM OXIDE)	.36	.25	.50	.50	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.13	--	--	--	--	--
DOLOMITE	.16	--	--	--	--	--
HYDROGEN/CARBON	.80	.80	8 1/2	8	59	54
OXYGEN/CARBON	.06	.07	--	--	--	--
R250	.92	.95	--	--	--	--
SILICA	.87	.91	--	--	--	--
SILICA/ALUMINA	1.97	1.85	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	8	8	8	8	8	8
HARDGROVE GRINDABILITY	59	54	59	54	59	54

BED CODE: 799
SAMPLE NO. 359

BED: UNCORRELATED
RANK: LOW VOLATILE BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: TIOGA

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
WEIGHT	20.0	2.4	.03	.54	15160	.7
FLOAT 1.30	27.9	6.6	.01	.56	14450	.8
FLOAT 1.40	82.8	85.4	.02	.58	14128	.8
FLOAT 1.60	97.9	98.7	.03	.58	14010	.8
CUM(1-1/2" X 100M)	100.0	100.0			14331	1.0
100M X 0	1.3	7.3	.26	.75	14014	.8
TOTAL(1-1/2" X 0)	100.0	9.2	.03	.58		

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
WEIGHT	27.9	2.1	.01	.56	15211	.7
FLOAT 1.30	80.8	5.8	.01	.58	14585	.8
FLOAT 1.40	96.6	7.7	.01	.58	14264	.8
FLOAT 1.60	100.0	9.0	.03	.59	14044	.8
CUM(3/8" X 100M)					14264	1.1
100M X 0	2.7	7.7	.23	.81	14050	.8
TOTAL(3/8" X 0)	100.0	9.0	.04	.60		

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
WEIGHT	22.7	1.6	.01	.60	15296	.8
FLOAT 1.30	70.7	4.7	.01	.61	14771	.8
FLOAT 1.40	94.7	7.1	.01	.61	14365	.8
FLOAT 1.60	100.0	9.3	.03	.62	13993	.9
CUM(14M X 0)						

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	46.7
3/8" X 14M	35.1
14M X 100M	16.9
100M X 0	1.3

MOISTURE, %

TOTAL AS RECEIVED	5.4
	1.0

STATE: PENNSYLVANIA
COUNTY: TIOGA

BED: UNCORRELATED
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 799
SAMPLE NO. 359

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.00	1.10	--	--	--	--
ASH	9.01	6.82	9.10	6.90	--	--
VOLATILE MATTER	17.58	18.44	17.75	18.65	19.53	20.03
FIXED CARBON	72.42	73.63	73.15	74.45	80.47	79.97
BTU/LB	13959	14172	14100	14330	15512	15392

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.55	.59	.56	.60	.61	.64
OXYGEN	--	--	--	--	--	--
ASH	9.01	6.82	9.10	6.90	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.03	.01	.03	.01	.03	.01
SULFATIC	.00	.00	.01	.00	.01	.00
ORGANIC	.52	.58	.52	.59	.57	.63
TOTAL	.55	.59	.56	.60	.61	.64

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--
MISCELLANEOUS DATA, %	--	--	--	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--
PHYSICAL PARAMETERS, INDEX	--	--	--	--	--	--
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

BED CODE: 799
SAMPLE NO. 360

BED: UNCORRELATED
RANK: LOW VOLATILE BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: TIOGA

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	12.3	3.0	.04	15044	.9
FLOAT 1.40	55.4	7.4	.06	14271	.9
FLOAT 1.60	83.5	12.6	.12	13356	1.0
CUM(1-1/2" X 100M)	100.0	19.2	.27	12195	1.4
100M X 0	2.6	13.1	.47	13268	2.1
TOTAL(1-1/2" X 0)	100.0	19.0	.28	12223	1.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	18.9	2.8	.05	15080	1.0
FLOAT 1.40	62.9	6.3	.08	14464	1.0
FLOAT 1.60	81.8	9.7	.13	13866	1.0
CUM(3/8" X 100M)	100.0	18.4	.27	12336	1.5
100M X 0	2.2	13.5	.41	13198	1.6
TOTAL(3/8" X 0)	100.0	18.3	.27	12355	1.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	17.9	2.6	.03	15115	.9
FLOAT 1.40	59.8	5.6	.03	14587	1.0
FLOAT 1.60	84.5	9.2	.04	13954	1.0
CUM(14M X 0)	100.0	17.5	.29	12494	1.4

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	37.2
3/8" X 14M	38.5
14M X 100M	21.7
100M X 0	2.6

--- MOISTURE, % ---
TOTAL AS RECEIVED 5.2 .8

STATE: PENNSYLVANIA BED: UNCORRELATED BED CODE: 799
COUNTY: TIOGA RANK: LOW VOLATILE BITUMINOUS SAMPLE NO. 360

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.80	1.10	1.10	--	--	--	--	--	--
ASH	17.96	8.73	59.14	18.10	8.83	59.80	--	--	--
VOLATILE MATTER	17.48	18.32	13.55	17.63	18.53	13.70	21.52	20.32	34.08
FIXED CARBON	63.76	71.84	26.21	64.27	72.64	26.50	78.48	79.68	65.92
BTU/LB	12211	13929	5014	12309	14084	5070	15029	15449	12612

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	.90	.66	2.14	.90	.67	2.16	1.10	.73	5.38
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	17.96	8.73	59.14	18.10	8.83	59.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.29	.04	1.63	.29	.04	1.65	.36	.05	4.11
SULFATIC	.02	.00	.02	.02	.00	.02	.02	.00	.05
ORGANIC	.59	.62	.49	.59	.62	.49	.72	.68	1.22
TOTAL	.90	.66	2.14	.90	.67	2.16	1.10	.73	5.38

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE	
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60
OXIDES	--	--	SK 1.60	--	--	SK 1.60	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	RAW	FL 1.60
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	2910+	2910+
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	2910+	2910+
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	2910+	2910+
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	RAW	FL 1.60
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE	
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60
BASE/ACID	--	--	SK 1.60	--	--	SK 1.60	--	--
DOLOMITE	--	--	--	--	--	--	RAW	FL 1.60
HYDROGEN/CARBON	--	--	--	--	--	--	9	9
OXYGEN/CARBON	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE	
	RAW	FL 1.60		RAW	FL 1.60		RAW	FL 1.60
FREE SWELLING	--	--	(FSL)	--	--	(FSL)	--	--
HARDGROVE GRINDABILITY	--	--	(HGI)	--	--	(HGI)	--	--

STATE: PENNSYLVANIA
 COUNTY: TIOGA
 BED: UNCORRELATED
 RANK: LOW VOLATILE BITUMINOUS
 BED CODE: 799
 SAMPLE NO. 361

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	10.9	3.1	.07	14997	.9
FLOAT 1.40	73.5	8.5	.33	14068	1.4
FLOAT 1.60	83.1	9.7	.43	13861	1.5
CUM(1-1/2" X 100M)	100.0	16.9	.71	12621	2.0
100M X 0	1.4	13.2	1.65	13258	3.3
TOTAL(1-1/2" X 0)	100.0	16.8	.72	12630	2.0

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	13.8	3.0	.07	15014	.9
FLOAT 1.40	71.0	7.8	.22	14188	1.1
FLOAT 1.60	83.3	9.4	.33	13913	1.2
CUM(3/8" X 100M)	100.0	16.7	.69	12656	1.8
100M X 0	3.0	14.4	1.40	13052	2.9
TOTAL(3/8" X 0)	100.0	16.6	.71	12668	1.9

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	12.6	2.7	.07	15066	1.1
FLOAT 1.40	60.5	6.6	.11	14395	.9
FLOAT 1.60	84.4	9.2	.22	13947	1.0
CUM(14M X 0)	100.0	16.3	.79	12725	1.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	51.9
3/8" X 14M	33.9
14M X 100M	12.8
100M X 0	1.4

MOISTURE, %

TOTAL AS RECEIVED	5.2
	.8

STATE: PENNSYLVANIA BED: UNCORRELATED BED CODE: 799
COUNTY: TIOGA RANK: LOW VOLATILE BITUMINOUS SAMPLE NO. 361

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.80	1.20	1.20	---	---	---
ASH	16.47	8.73	54.14	16.60	8.83	54.80
VOLATILE MATTER	17.30	18.21	12.75	17.44	18.43	12.90
FIXED CARBON	65.43	71.86	31.91	65.96	72.74	32.30
BTU/LB	12668	13763	6007	12770	13930	6080

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	---	---	---	---	---	---
HYDROGEN	---	---	---	---	---	---
NITROGEN	---	---	---	---	---	---
SULFUR	1.29	.77	3.94	1.30	.78	3.99
OXYGEN	---	---	---	---	---	---
ASH	16.47	8.73	54.14	16.60	8.83	54.80

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.75	.20	3.83	.76	.20	3.87
SULFATIC	.00	.00	.00	.00	.00	.00
ORGANIC	.54	.58	.11	.54	.58	.12
TOTAL	1.29	.77	3.94	1.30	.78	3.99

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	---	---	---
SiO2 (SILICON OXIDE)	---	---	---
Al2O3 (ALUMINUM OXIDE)	---	---	---
Fe2O3 (IRON OXIDE)	---	---	---
TiO2 (TITANIUM OXIDE)	---	---	---
CaO (CALCIUM OXIDE)	---	---	---
MgO (MAGNESIUM OXIDE)	---	---	---
Na2O (SODIUM OXIDE)	---	---	---
K2O (POTASSIUM OXIDE)	---	---	---
SO3 (SULFITES)	---	---	---

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	---	---
DOLOMITE	---	---
HYDROGEN/CARBON	---	---
OXYGEN/CARBON	---	---
R250	---	---
SILICA	---	---
SILICA/ALUMINA	---	---

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2910+
SOFTENING TEMPERATURE (ST)	2910+	2910+	2910+
FLUID TEMPERATURE (FT)	2910+	2910+	2910+
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	---	---	---
NA (SODIUM) (CALCULATED)	---	---	---
MINERAL MATTER (PARR)	18.64	9.97	61.38

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	1
HARDGROVE GRINDABILITY (HGI)	---	---	---

BED CODE: 86
SAMPLE NO. 362

BED: UPPER CLARION
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: BUTLER

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	70.0	2.3	.23	14687	2.2
FLOAT 1.40	81.3	3.2	.31	14524	2.3
FLOAT 1.60	87.9	4.7	.49	14269	2.6
CUM(1-1/2" X 100M)	100.0	9.8	2.16	13315	5.4
100M X 0	1.3	19.4	2.73	11531	7.6
TOTAL(1-1/2" X 0)	100.0	9.9	2.17	13292	5.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	72.8	1.8	.17	14674	2.2
FLOAT 1.40	81.5	2.6	.23	14563	2.3
FLOAT 1.60	87.4	3.9	.34	14356	2.4
CUM(3/8" X 100M)	100.0	9.8	2.13	13240	5.3
100M X 0	6.7	11.1	1.93	13075	5.2
TOTAL(3/8" X 0)	100.0	9.9	2.12	13229	5.3

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	72.1	1.6	.38	14900	2.3
FLOAT 1.40	82.2	2.3	.40	14768	2.3
FLOAT 1.60	87.6	3.4	.45	14580	2.4
CUM(14M X 0)	100.0	9.7	2.48	13396	5.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	75.2
3/8" X 14M	18.5
14M X 100M	5.0
100M X 0	1.3

--- MOISTURE, % ---

TOTAL	3.1
AS RECEIVED	1.6

STATE: PENNSYLVANIA
COUNTY: BUTLER
BED: UPPER CLARION
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 86
SAMPLE NO.: 362

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	1.60	1.80	10.09	3.50	44.31	48.03
ASH	9.93	3.44	39.84	21.90	55.68	51.97
VOLATILE MATTER	39.21	41.72	50.07	54.01	14835	15093
FIXED CARBON	49.27	53.04	13339	14565		
BTU/LB	13125	14303	4923	5014		

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	72.63	78.73	73.81	80.17	82.09	83.08
HYDROGEN	5.20	5.65	5.11	5.55	5.68	5.75
NITROGEN	1.33	1.46	1.35	1.48	1.51	1.54
SULFUR	3.80	1.55	3.86	1.58	4.29	1.63
OXYGEN	7.11	9.19	5.78	7.72	6.43	8.00
ASH	9.93	3.44	10.09	3.50		

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	2.33	.40	2.37	.41	2.63	.42
SULFATIC	.06	.01	.06	.01	.07	.01
ORGANIC	1.41	1.14	1.43	1.16	1.59	1.20
TOTAL	3.80	1.55	3.86	1.58	4.29	1.63

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
OXIDES	33.67	42.19	34.09			
SiO2 (SILICON OXIDE)	17.72	29.60	18.10			
Al2O3 (ALUMINUM OXIDE)	42.89	14.18	43.47			
Fe2O3 (IRON OXIDE)	1.00	2.06	.67			
TiO2 (TITANIUM OXIDE)	1.12	4.06	.39			
CaO (CALCIUM OXIDE)	.56	.96	.56			
MgO (MAGNESIUM OXIDE)	.39	1.99	1.93			
Na2O (SODIUM OXIDE)	1.44	4.30	.24			
K2O (POTASSIUM OXIDE)	1.18					
SO3 (SULFITES)						

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CL (CHLORINE) (ANALYZED)	.16		.16			
NA (SODIUM) (CALCULATED)	.03		.03			
MINERAL MATTER (PARR)	13.02		13.02		4.60	68.48

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
BASE/ACID	.89					
DOLOMITE	.04					
HYDROGEN/CARBON	.83					
OXYGEN/CARBON	.06					
R250	.54					
SILICA	.43					
SILICA/ALUMINA	1.90					

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
FREE SWELLING (FSI)	7	1/2				
HARDGROVE GRINDABILITY (HGI)	59					

STATE: PENNSYLVANIA
COUNTY: ALLEGHENY
BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 71
SAMPLE NO. 363

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.1	3.8	.34	14534	1.2
FLOAT 1.40	63.4	6.8	.77	13987	2.0
FLOAT 1.60	78.7	10.0	.93	13405	2.3
FLOAT 1.90	86.4	13.0	1.01	12858	2.5
CUM(1-1/2" X 100M)	100.0	22.5	1.34	11128	3.4
100M X 0	.2	21.7	2.36	11274	5.3
TOTAL(1-1/2" X 0)	100.0	22.5	1.34	11128	3.4

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.8	3.6	.10	14570	.8
FLOAT 1.40	61.9	5.3	.27	14261	1.1
FLOAT 1.60	76.3	8.6	.46	13660	1.5
FLOAT 1.90	86.4	13.0	1.01	12858	2.5
CUM(3/8" X 100M)	100.0	22.7	1.49	11091	3.6
100M X 0	.6	24.1	2.30	10836	5.1
TOTAL(3/8" X 0)	100.0	22.7	1.49	11090	3.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.7	3.0	.16	14680	.8
FLOAT 1.40	58.4	5.2	.24	14279	1.0
FLOAT 1.60	75.5	8.9	.35	13605	1.2
FLOAT 1.90	86.4	13.0	1.01	12858	2.5
CUM(14M X 0)	100.0	22.4	1.41	11146	3.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %		MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"		
1-1/2" X 3/8"	--	2.4
3/8" X 14M	--	1.5
14M X 100M	--	
100M X 0	.2	

TOTAL
AS RECEIVED

STATE: PENNSYLVANIA		BED: UPPER FREEPORT		BED CODE: 71						
COUNTY: ALLEGHENY		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 363						
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M										
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----										
MOISTURE	AS RECEIVED	RAW	FL 1.60	SK 1.60	MOISTURE FREE	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE	
		1.50	--	--	--	--	--	--	--	
		21.67	--	--	--	22.00	--	--	--	
	ASH	31.91	--	--	--	32.40	--	--	41.54	
	FIXED CARBON	44.92	--	--	--	45.60	--	--	58.46	
BTU/LB		11635	--	--	--	11812	--	--	15144	
----- ULTIMATE ANALYSIS, % -----										
CARBON	AS RECEIVED	RAW	FL 1.60	SK 1.60	MOISTURE FREE	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE	
		--	--	--	--	--	--	--	--	
		--	--	--	--	--	--	--	--	
	NITROGEN	--	--	--	--	--	--	--	--	
	SULFUR	1.86	--	--	--	1.89	--	--	2.42	
OXYGEN	--	--	--	--	--	--	--	--		
ASH	21.67	--	--	--	22.00	--	--	--		
----- SULFUR FORMS ANALYSIS, % -----										
PYRITIC	AS RECEIVED	RAW	FL 1.60	SK 1.60	MOISTURE FREE	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE	
		1.46	--	--	--	1.49	--	--	1.91	
		.05	--	--	--	.05	--	--	.06	
	SULFATIC	.34	--	--	--	.35	--	--	.45	
	ORGANIC	1.86	--	--	--	1.89	--	--	2.42	
TOTAL										
----- MINERAL ANALYSIS OF ASH, % -----										
OXIDES	RAW	FL 1.60	SK 1.60			RAW	FL 1.60	SK 1.60		
	SiO2 (SILICON OXIDE)	--	--	--			--	--	--	
	Al2O3 (ALUMINUM OXIDE)	--	--	--						
	Fe2O3 (IRON OXIDE)	--	--	--						
	TiO2 (TITANIUM OXIDE)	--	--	--						
	CaO (CALCIUM OXIDE)	--	--	--						
	MgO (MAGNESIUM OXIDE)	--	--	--						
	Na2O (SODIUM OXIDE)	--	--	--						
	K2O (POTASSIUM OXIDE)	--	--	--						
	SO3 (SULFITES)	--	--	--						
	----- COAL UTILIZATION RATIOS -----						----- MISCELLANEOUS DATA, % -----			
	RAW	FL 1.60				RAW	FL 1.60	SK 1.60		
	CL (CHLORINE) (ANALYZED)									
NA (SODIUM) (CALCULATED)										
MINERAL MATTER (PARR)										
----- PHYSICAL PARAMETERS, INDEX -----						----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----				
RAW	FL 1.60				RAW	FL 1.60	SK 1.60			
FREE SWELLING (FSI)										
HARDGROVE GRINDABILITY (HGI)										
----- BASE/ACID -----						----- INITIAL DEFORMATION (ID) -----				
DOLOMITE										
HYDROGEN/CARBON										
OXYGEN/CARBON										
R250										
SILICA										
SILICA/ALUMINA										

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 364

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.4	2.5	.26	14867	.9
FLOAT 1.40	90.7	5.0	.41	14420	1.2
FLOAT 1.60	96.0	5.9	.50	14259	1.3
CUM(1-1/2" X 100M)	100.0	7.8	.88	13918	1.9
100M X 0	1.6	13.7	.79	12862	2.5
TOTAL(1-1/2" X 0)	100.0	7.9	.88	13902	1.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.1	2.1	.12	14939	.8
FLOAT 1.40	88.1	4.1	.20	14581	.9
FLOAT 1.60	94.4	5.2	.28	14384	1.0
CUM(3/8" X 100M)	100.0	8.0	.88	13883	1.9
100M X 0	5.7	9.2	1.09	13668	2.2
TOTAL(3/8" X 0)	100.0	8.1	.89	13870	1.9

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.5	2.0	.09	14957	.7
FLOAT 1.40	86.2	3.6	.12	14671	.8
FLOAT 1.60	94.0	4.9	.16	14438	.8
CUM(14M X 0)	100.0	8.1	.92	13865	1.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	72.5
3/8" X 14M	20.6
14M X 100M	5.3
100M X 0	1.6

MOISTURE, %	5.0
TOTAL AS RECEIVED	3.6

STATE: PENNSYLVANIA

COUNTY: ARMSTRONG

BED: UPPER FREEPORT

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71

SAMPLE NO. 364

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW FL 1.60 SK 1.60

3.60 1.10 1.10

8.00 5.04 58.55

32.68 34.46 18.30

55.72 59.40 22.05

13400 14178 4658

MOISTURE FREE

RAW FL 1.60 SK 1.60

-- --

8.30 5.10 59.20

33.90 34.84 18.50

57.80 60.06 22.30

13900 14336 4710

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

-- --

36.97 36.71 45.34

63.03 63.29 54.66

15158 15105 11544

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

74.79 79.75 25.07

5.27 5.32 2.00

1.46 1.57 .49

1.18 .54 12.77

9.30 7.78 1.11

8.00 5.04 58.55

MOISTURE FREE

RAW FL 1.60 SK 1.60

80.64 25.35

5.25 1.90

1.58 .50

1.55 12.91

6.88 .14

5.10 59.20

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

84.60 84.97 62.13

5.51 5.54 4.66

1.66 1.67 1.23

1.33 .58 31.65

6.90 7.25 .33

-- --

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

.88 .14 12.69

.02 .02 .02

.28 .38 .07

1.18 .54 12.77

MOISTURE FREE

RAW FL 1.60 SK 1.60

.91 .14 12.83

.02 .02 .02

.29 .39 .07

1.22 .55 12.91

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

.99 .15 31.44

.02 .02 .05

.32 .41 .16

1.33 .58 31.65

-- --

MINERAL ANALYSIS OF ASH, %

RAW FL 1.60 SK 1.60

-- --

-- --

-- --

-- --

-- --

-- --

-- --

-- --

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

RAW FL 1.60 SK 1.60

2420 2910+

2470 2910+

2520 2910+

MISCELLANEOUS DATA, %

RAW FL 1.60 SK 1.60

.17 --

-- --

9.64 5.81

71.04

COAL UTILIZATION RATIOS

RAW FL 1.60

-- --

-- --

.78 .78

.06 .06

-- --

-- --

BASE/ACID

RAW FL 1.60 SK 1.60

-- --

-- --

-- --

-- --

DOLOMITE

RAW FL 1.60 SK 1.60

-- --

-- --

-- --

-- --

OXYGEN/CARBON

RAW FL 1.60 SK 1.60

-- --

-- --

-- --

-- --

R250

RAW FL 1.60 SK 1.60

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SILICA

RAW FL 1.60 SK 1.60

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SILICA/ALUMINA

RAW FL 1.60 SK 1.60

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PHYSICAL PARAMETERS, INDEX

RAW FL 1.60 SK 1.60

8 1/2 8 1/2

55

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STATE: PENNSYLVANIA
 COUNTY: ARMSTRONG
 BED: UPPER FREEPORT
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 71
 SAMPLE NO. 365

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

PRODUCT	RECOVERY, %	ASH, %	BTU	RECOVERY, %	BTU	HEATING VALUE	SO2 EMISSION
	WEIGHT			WEIGHT		BTU/LB	LB/MM BTU
FLOAT 1.30	45.4	3.8	53.1	45.4	53.1	14781	1.3
FLOAT 1.40	73.4	6.0	83.7	73.4	83.7	14400	1.7
FLOAT 1.60	84.3	8.4	93.3	84.3	93.3	13983	1.9
CUM(1-1/2" X 100M)	100.0	16.2	100.0	100.0	100.0	12630	2.7
100M X 0	1.7	17.6	1.7	1.7	1.7	12388	3.6
TOTAL(1-1/2" X 0)	100.0	16.2	100.0	100.0	100.0	12626	2.7

SAMPLE CRUSHED TO PASS 3/8"

PRODUCT	RECOVERY, %	ASH, %	BTU	RECOVERY, %	BTU	HEATING VALUE	SO2 EMISSION
	WEIGHT			WEIGHT		BTU/LB	LB/MM BTU
FLOAT 1.30	51.2	3.2	60.2	51.2	60.2	14886	1.1
FLOAT 1.40	73.5	5.1	84.5	73.5	84.5	14556	1.3
FLOAT 1.60	83.4	7.4	93.2	83.4	93.2	14157	1.5
CUM(3/8" X 100M)	100.0	16.0	100.0	100.0	100.0	12665	2.6
100M X 0	3.8	15.9	3.8	3.8	3.8	12682	3.0
TOTAL(3/8" X 0)	100.0	16.0	100.0	100.0	100.0	12666	2.6

SAMPLE CRUSHED TO PASS 14M

PRODUCT	RECOVERY, %	ASH, %	BTU	RECOVERY, %	BTU	HEATING VALUE	SO2 EMISSION
	WEIGHT			WEIGHT		BTU/LB	LB/MM BTU
FLOAT 1.30	48.3	2.6	57.1	48.3	57.1	14990	1.1
FLOAT 1.40	70.2	4.4	81.2	70.2	81.2	14677	1.2
FLOAT 1.60	83.3	7.4	93.0	83.3	93.0	14157	1.3
CUM(14M X 0)	100.0	15.9	100.0	100.0	100.0	12682	2.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"	1-1/2" X 3/8"	3/8" X 14M	14M X 100M	100M X 0
	65.1	25.8	7.4	1.7

MOISTURE, %

TOTAL AS RECEIVED	2.6	1.0
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STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 365

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.00	1.00	16.20	7.30	38.01	37.37
ASH	16.04	7.23	31.86	34.64	61.99	62.63
VOLATILE MATTER	31.54	34.30	51.94	58.06	151.07	152.64
FIXED CARBON	51.42	57.48				
BTU/LB	12533	14008	12660	14150	15107	12890

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.60	.87	1.62	.88	1.93	.95
OXYGEN	--	--	--	--	--	--
ASH	16.04	7.23	16.20	7.30	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.97	.17	.98	.17	1.17	.18
SULFATIC	.00	.00	.00	.00	.00	.00
ORGANIC	.63	.70	.64	.71	.76	.76
TOTAL	1.60	.87	1.62	.88	1.93	.95

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES (SILICON OXIDE)	--	--	--	--	--	--
SiO2 (ALUMINUM OXIDE)	--	--	--	--	--	--
Al2O3 (IRON OXIDE)	--	--	--	--	--	--
Fe2O3 (TITANIUM OXIDE)	--	--	--	--	--	--
TiO2 (CALCIUM OXIDE)	--	--	--	--	--	--
CaO (MAGNESIUM OXIDE)	--	--	--	--	--	--
MgO (SODIUM OXIDE)	--	--	--	--	--	--
Na2O (POTASSIUM OXIDE)	--	--	--	--	--	--
K2O (SULFITES)	--	--	--	--	--	--
SO3	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: PENNSYLVANIA
 COUNTY: ARMSTRONG

BED: UPPER FREEPORT
 RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
 SAMPLE NO. 366

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.6	3.0	.48	14801	1.4
FLOAT 1.40	91.5	5.5	.62	14354	1.6
FLOAT 1.60	96.5	6.4	.66	14193	1.7
CUM(1-1/2" X 100M)	100.0	7.9	.86	13925	2.0
100M X 0	2.1	10.9	1.37	13388	2.9
TOTAL(1-1/2" X 0)	100.0	8.0	.87	13913	2.0

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.8	2.8	.27	14837	1.1
FLOAT 1.40	89.1	5.0	.42	14443	1.2
FLOAT 1.60	95.0	6.1	.49	14247	1.3
CUM(3/8" X 100M)	100.0	8.3	.87	13853	1.9
100M X 0	6.5	7.7	.95	13960	2.1
TOTAL(3/8" X 0)	100.0	8.3	.88	13860	1.9

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.8	2.2	.12	14944	.8
FLOAT 1.40	87.0	4.0	.17	14622	.9
FLOAT 1.60	93.9	5.2	.27	14408	1.0
CUM(14M X 0)	100.0	7.9	.95	13925	2.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	74.8
3/8" X 14M	17.9
14M X 100M	5.2
100M X 0	2.1

MOISTURE, %

TOTAL AS RECEIVED	6.7
	4.6

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 366

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.60	1.20	--	--	--	--
ASH	7.84	5.14	8.22	5.20	--	--
VOLATILE MATTER	32.73	35.00	34.31	35.42	37.38	37.37
FIXED CARBON	54.83	58.66	57.47	59.37	62.62	62.63
BTU/LB	13289	14178	13930	14350	15177	15137

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	73.91	79.48	77.48	80.45	84.41	84.86
HYDROGEN	5.36	5.36	5.08	5.29	5.54	5.58
NITROGEN	1.36	1.47	1.43	1.49	1.55	1.57
SULFUR	1.44	.63	1.51	.64	1.65	.68
OXYGEN	10.09	7.92	6.29	6.93	6.85	7.31
ASH	7.84	5.14	8.22	5.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.86	.25	.90	.25	.98	.26
SULFATIC	.17	.00	.18	.00	.20	.00
ORGANIC	.41	.39	.43	.39	.47	.41
TOTAL	1.44	.63	1.51	.64	1.65	.68

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	.30	.40
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.79	.79
OXYGEN/CARBON	.06	.06
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2300	2450
SOFTENING TEMPERATURE (ST)	2400	2520
FLUID TEMPERATURE (FT)	2520	2730

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.13	--
NA (SODIUM) (CALCULATED)	.02	.02
MINERAL MATTER (PARR)	9.76	5.97

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	8 1/2	9
HARDGROVE GRINDABILITY (HGI)	59	--

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 367

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.1	4.2	.25	14581	1.4
FLOAT 1.40	54.1	6.0	.41	14260	1.7
FLOAT 1.60	66.1	8.9	.57	13743	2.0
FLOAT 1.90	76.6	13.2	.76	12975	2.3
CUM(1-1/2" X 100M)	100.0	28.0	1.15	10334	3.5
100M X 0	.2	22.8	1.12	11262	2.9
TOTAL(1-1/2" X 0)	100.0	28.0	1.15	10336	3.5

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.3	3.9	.24	14635	1.3
FLOAT 1.40	56.5	5.6	.29	14332	1.4
FLOAT 1.60	66.4	8.2	.37	13868	1.6
FLOAT 1.90	76.6	13.2	.76	12975	2.3
CUM(3/8" X 100M)	100.0	28.2	1.25	10298	3.6
100M X 0	1.1	25.0	1.40	10870	3.6
TOTAL(3/8" X 0)	100.0	28.2	1.25	10305	3.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.7	2.9	.09	14813	1.1
FLOAT 1.40	55.3	5.4	.12	14367	1.2
FLOAT 1.60	66.5	8.4	.18	13832	1.3
FLOAT 1.90	76.6	13.2	.76	12975	2.3
CUM(14M X 0)	100.0	27.9	1.17	10352	3.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	.2

MOISTURE, %

TOTAL	1.8
AS RECEIVED	1.0

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 367

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	1.00	--	--	--	--	--
ASH	26.93	--	27.20	--	38.46	--
VOLATILE MATTER	27.72	--	28.00	--	61.54	--
FIXED CARBON	44.35	--	44.80	--	--	--
BTU/lb	10794	--	10903	--	14977	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.67	--	1.69	--	2.32	--
OXYGEN	--	--	--	--	--	--
ASH	26.93	--	27.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	1.10	--	1.11	--	1.52	--
SULFATIC	.12	--	.12	--	.16	--
ORGANIC	.46	--	.46	--	.63	--
TOTAL	1.67	--	1.69	--	2.32	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	MINERAL ANALYSIS OF ASH, %		FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
	RAW	FL 1.60	RAW	SK 1.60
OXIDES	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--
SO3 (SULFITES)	--	--	--	--

COAL UTILIZATION RATIOS

	COAL UTILIZATION RATIOS		PHYSICAL PARAMETERS, INDEX	
	RAW	FL 1.60	RAW	SK 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	--	--	--	--
OXYGEN/CARBON	--	--	--	--
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 368

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.3	3.7	.84	14670	2.2
FLOAT 1.40	73.3	6.3	.94	14214	2.5
FLOAT 1.60	84.2	8.4	1.08	13847	2.7
CUM(1-1/2" X 100M)	100.0	15.5	1.99	12603	4.3
100M X 0	1.7	15.1	2.20	12673	3.7
TOTAL(1-1/2" X 0)	100.0	15.5	1.99	12604	4.3

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.5	3.0	.37	14792	1.5
FLOAT 1.40	70.0	5.6	.58	14337	1.9
FLOAT 1.60	81.7	7.8	.73	13952	2.2
CUM(3/8" X 100M)	100.0	16.3	2.03	12463	4.3
100M X 0	6.1	12.5	1.85	13128	4.1
TOTAL(3/8" X 0)	100.0	16.1	2.02	12503	4.3

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.5	2.9	.30	14810	1.3
FLOAT 1.40	70.5	5.3	.37	14390	1.6
FLOAT 1.60	83.3	7.4	.47	14022	1.7
CUM(14M X 0)	100.0	15.9	1.83	12533	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	69.6
3/8" X 14M	22.0
14M X 100M	6.7
100M X 0	1.7

--- MOISTURE, % ---

TOTAL	5.4
AS RECEIVED	3.2

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 368

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.20	1.10	1.10	--	--	--
ASH	16.07	7.61	57.96	16.60	7.70	58.60
VOLATILE MATTER	32.40	36.10	18.69	33.47	36.50	18.90
FIXED CARBON	48.33	55.19	22.25	49.93	55.80	22.50
BTU/LB	12030	13802	4994	12427	13956	5050

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	68.40	77.28	26.36	70.66	78.14	26.65
HYDROGEN	4.89	5.27	2.20	4.68	5.21	2.10
NITROGEN	.99	1.13	.40	1.02	1.14	.40
SULFUR	2.27	1.22	7.85	2.35	1.23	7.93
OXYGEN	7.39	7.49	5.25	4.69	4.32	5.63
ASH	16.07	7.61	57.96	16.60	7.70	58.60

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.70	.42	7.67	1.75	.42	7.75
SULFATIC	.01	.01	.04	.02	.01	.04
ORGANIC	.56	.79	.14	.58	.80	.14
TOTAL	2.27	1.22	7.85	2.35	1.23	7.93

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLomite	--	--
HYDROGEN/CARBON	.79	.80
OXYGEN/CARBON	.06	.06
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2250	2560	2080
SOFTENING TEMPERATURE (ST)	2350	2610	2130
FLUID TEMPERATURE (FT)	2500	2850	2300

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.15	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	18.91	8.99	65.73

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7	1/2	9
HARDGROVE GRINDABILITY (HGI)	55	--	--

BED CODE: 71
SAMPLE NO. 369

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.5	47.6	4.1	.25	.95	14599	1.3
FLOAT 1.40	67.6	82.9	6.9	.45	1.11	14100	1.6
FLOAT 1.60	78.5	93.7	9.0	.60	1.25	13725	1.8
FLOAT 1.90	84.4	97.9	11.2	.78	1.42	13332	2.1
CUM(1-1/2" X 100M)	100.0	100.0	21.5	1.52	2.23	11494	3.9
100M X 0	.4	.4	16.5	1.48	2.17	12386	3.5
TOTAL(1-1/2" X 0)	100.0	100.0	21.5	1.62	2.23	11498	3.9

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.3	60.2	4.0	.17	.84	14617	1.1
FLOAT 1.40	67.5	84.5	5.9	.24	.89	14278	1.2
FLOAT 1.60	77.6	94.1	7.9	.35	.99	13921	1.4
FLOAT 1.90	84.4	97.9	11.2	.78	1.42	13332	2.1
CUM(3/8" X 100M)	100.0	100.0	21.6	1.59	2.22	11476	3.9
100M X 0	.8	.8	19.3	1.82	2.36	11887	4.0
TOTAL(3/8" X 0)	100.0	100.0	21.6	1.59	2.22	11480	3.9

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.1	48.7	3.2	.08	.80	14760	1.1
FLOAT 1.40	63.1	78.2	5.7	.15	.84	14314	1.2
FLOAT 1.60	78.5	93.5	8.8	.24	.90	13761	1.3
FLOAT 1.90	84.4	97.9	11.2	.78	1.42	13332	2.1
CUM(14M X 0)	100.0	100.0	21.2	1.60	2.27	11548	3.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	1.9
3/8" X 14M	1.1
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 369

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.10	--	--	--	--	--
ASH	21.81	--	22.05	--	--	--
VOLATILE MATTER	29.98	--	30.31	--	38.89	--
FIXED CARBON	47.11	--	47.64	--	61.11	--
BTU/LB	11757	--	11888	--	15251	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.16	--	2.18	--	2.80	--
OXYGEN	--	--	--	--	--	--
ASH	21.81	--	22.05	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.67	--	1.68	--	2.16	--
SULFATIC	.00	--	.00	--	.00	--
ORGANIC	.49	--	.50	--	.64	--
TOTAL	2.16	--	2.18	--	2.80	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSL)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGL)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	25.01	--

STATE: PENNSYLVANIA		BED: UPPER FREEPORT		BED CODE: 71	
COUNTY: ARMSTRONG		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 370	
CUMULATIVE WASHABILITY DATA (DRY BASIS)					

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BEC: UPPER FREEPORT
RAK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 370

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.50	1.30 1.30	--	--	--	--
ASH	12.35	7.80 54.19	12.80	7.90 54.90	38.61	38.36 43.46
VOLATILE MATTER	32.49	34.87 19.35	33.67	35.33 19.60	61.39	61.64 56.54
FIXED CARBON	51.66	56.03 25.17	53.53	56.77 25.50	15011	15081 12284
BTU/LB	12632	13709 5468	13090	13890 5540		

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	70.69	76.83 30.92	73.25	77.84 31.33	84.00	84.52 69.47
HYDROGEN	4.97	5.13 2.32	4.75	5.05 2.20	5.45	5.43 4.88
NITROGEN	1.25	1.38 .49	1.30	1.40 .50	1.49	1.52 1.11
SULFUR	2.16	1.14 10.08	2.24	1.16 10.21	2.57	1.26 22.64
OXYGEN	8.57	7.72 2.00	5.66	6.65 .86	6.49	7.22 1.90
ASH	12.35	7.80 54.19	12.80	7.90 54.90	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.45	.52 9.00	1.50	.52 9.11	1.72	.57 20.21
SULFATIC	.02	.01 .03	.02	.01 .03	.02	.01 .07
ORGANIC	.69	.62 1.05	.72	.63 1.07	.83	.68 2.37
TOTAL	2.16	1.14 10.08	2.24	1.16 10.21	2.57	1.26 22.64

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	2180	2460 2090
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	2290	2520 2140
Fe2O3 (IRON OXIDE)	--	--	--	--	2510	2720 2300
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	.30	.40 .30	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.78	.78	--	--	--	--
OXYGEN/CARBON	.06	.06	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	9	9	9	9	9	9
HARDGROVE GRINDABILITY (HGI)	57	57	57	57	57	57

BED CODE: 71
SAMPLE NO. 371

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"									
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)									
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU				
WEIGHT	BTU		PYRITIC						
FLOAT 1.30	56.9	3.9	.44	14635	1.7				
FLOAT 1.40	81.3	5.8	.53	14296	1.8				
FLOAT 1.60	88.3	7.1	.65	14064	2.0				
FLOAT 1.90	92.9	8.6	.80	13796	2.3				
CUM(1-1/2" X 100M)	100.0	12.7	1.54	13065	3.7				
100M X 0	.3	12.8	2.00	13047	4.2				
TOTAL(1-1/2" X 0)	100.0	12.7	1.54	13065	3.7				

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

SAMPLE CRUSHED TO PASS 3/8"									
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)									
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU				
WEIGHT	BTU		PYRITIC						
FLOAT 1.30	59.8	3.0	.17	14796	1.2				
FLOAT 1.40	80.2	4.8	.24	14474	1.3				
FLOAT 1.60	86.9	6.1	.34	14242	1.4				
FLOAT 1.90	92.9	8.6	.80	13796	2.3				
CUM(3/8" X 100M)	100.0	13.0	1.64	13011	3.9				
100M X 0	.7	12.2	2.08	13154	4.4				
TOTAL(3/8" X 0)	100.0	13.0	1.64	13012	3.9				

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

SAMPLE CRUSHED TO PASS 14M									
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)									
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU				
WEIGHT	BTU		PYRITIC						
FLOAT 1.30	55.9	2.9	.12	14813	1.1				
FLOAT 1.40	79.8	4.9	.20	14457	1.2				
FLOAT 1.60	87.6	6.2	.27	14225	1.3				
FLOAT 1.90	92.9	8.6	.80	13796	2.3				
CUM(14M X 0)	100.0	12.8	1.60	13047	3.8				

RAW COAL SIZE AND MOISTURE ANALYSES

MOISTURE, %

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"		TOTAL AS RECEIVED
1-1/2" X 3/8"	---	1.4
3/8" X 14M	---	.8
14M X 100M	---	
100M X 0	.3	

STATE: PENNSYLVANIA		BED: UPPER FREEPORT		BED CODE: 71	
COUNTY: ARMSTRONG		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 371	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
MOISTURE ASH VOLATILE MATTER FIXED CARBON BTU/LB	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	.80	--	--	--	--
	12.19	--	12.29	--	--
	33.46	--	33.73	--	38.46
BTU/LB	53.54	--	53.98	--	61.54
	13321	--	13429	--	15310
----- ULTIMATE ANALYSIS, % -----					
CARBON HYDROGEN NITROGEN SULFUR OXYGEN ASH	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	--	--	--	--	--
	--	--	--	--	--
	2.23	--	2.25	--	2.57
ASH	12.19	--	12.29	--	--
	--	--	--	--	--
----- SULFUR FORMS ANALYSIS, % -----					
PYRITIC SULFATIC ORGANIC TOTAL	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	1.63	--	1.64	--	1.87
	.12	--	.12	--	.14
	.49	--	.49	--	.56
TOTAL	2.23	--	2.25	--	2.57
----- MINERAL ANALYSIS OF ASH, % -----					
OXIDES (SILICON OXIDE) AL2O3 (ALUMINUM OXIDE) FE2O3 (IRON OXIDE) TiO2 (TITANIUM OXIDE) CaO (CALCIUM OXIDE) MgO (MAGNESIUM OXIDE) Na2O (SODIUM OXIDE) K2O (POTASSIUM OXIDE) SO3 (SULFITES)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----					
INITIAL DEFORMATION (ID) SOFTENING TEMPERATURE (ST) FLUID TEMPERATURE (FT)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	--	--	--	--	--
----- MISCELLANEOUS DATA, % -----					
CL (CHLORINE) (ANALYZED) NA (SODIUM) (CALCULATED) MINERAL MATTER (PARR)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	--	--	--	--	--
FREE SWELLING (FSI) HARDGROVE GRINDABILITY (HGI)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	--	--	--	--	--
	--	--	--	--	--
----- COAL UTILIZATION RATIOS -----					
BASE/ACID DOLOMITE HYDROGEN/CARBON OXYGEN/CARBON R250 SILICA SILICA/ALUMINA	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
----- PHYSICAL PARAMETERS, INDEX -----					
FREE SWELLING (FSI) HARDGROVE GRINDABILITY (HGI)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	--	--	--	--	--
	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG
BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS
BED CODE: 71
SAMPLE NO. 372

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.8	54.4	3.6	.27	14689	1.4
FLOAT 1.40	72.3	83.1	6.2	.54	14225	1.9
FLOAT 1.60	83.4	93.4	8.3	.81	13850	2.5
FLOAT 1.90	89.6	97.4	10.6	1.01	13439	2.8
CUM(1-1/2" X 100M)	100.0	100.0	16.6	2.24	12369	5.4
100M X 0	.3	.3	18.6	3.61	12012	8.5
TOTAL(1-1/2" X 0)	100.0	100.0	16.6	2.24	12367	5.4

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.7	63.7	3.3	.16	14742	1.2
FLOAT 1.40	74.2	85.9	5.3	.35	14385	1.6
FLOAT 1.60	82.6	93.9	6.8	.57	14117	2.0
FLOAT 1.90	89.6	97.4	10.6	1.01	13439	2.8
CUM(3/8" X 100M)	100.0	100.0	16.3	2.18	12422	5.3
100M X 0	.8	.8	17.5	3.37	12208	7.7
TOTAL(3/8" X 0)	100.0	100.0	16.3	2.19	12420	5.3

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.1	62.0	3.3	.13	14742	1.2
FLOAT 1.40	71.1	82.7	5.2	.28	14403	1.6
FLOAT 1.60	82.1	93.5	6.9	.46	14100	1.9
FLOAT 1.90	89.6	97.4	10.6	1.01	13439	2.8
CUM(14M X 0)	100.0	100.0	16.5	2.18	12386	5.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	1.4
3/8" X 14M	.8
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	

STATE: PENNSYLVANIA

COUNTY: ARMSTRONG

BED: UPPER FREEPORT

RANK: MED VOLATILE BITUMINOUS

BED CODE: 71

SAMPLE NO. 372

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

MOISTURE

ASH

VOLATILE MATTER

FIXED CARBON

BTU/lb

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

.80

15.97

23.61

59.62

12546

--

16.10

23.80

60.10

12647

--

--

28.37

71.63

15074

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

CARBON

HYDROGEN

NITROGEN

SULFUR

OXYGEN

ASH

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

--

--

--

3.13

--

15.97

--

--

3.15

--

16.10

--

--

3.76

--

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

PYRITIC

SULFATIC

ORGANIC

TOTAL

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

2.35

.06

.72

3.13

--

2.37

.06

.72

3.15

--

2.82

.07

.86

3.76

--

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

OXIDES

SiO2 (SILICON OXIDE)

Al2O3 (ALUMINUM OXIDE)

Fe2O3 (IRON OXIDE)

TiO2 (TITANIUM OXIDE)

CaO (CALCIUM OXIDE)

MgO (MAGNESIUM OXIDE)

Na2O (SODIUM OXIDE)

K2O (POTASSIUM OXIDE)

SO3 (SULFITES)

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

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MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

--

--

--

--

--

19.12

--

--

--

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

--

--

--

--

--

--

--

--

--

BED CODE: 71
SAMPLE NO. 373

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.0	3.3	.48	14747	1.9
FLOAT 1.40	78.1	6.1	.92	14244	2.7
FLOAT 1.60	91.5	8.4	1.33	13830	3.4
CUM(1-1/2" X 100M)	100.0	11.7	2.44	13238	5.3
100M X 0	1.3	14.6	5.46	12717	10.4
TOTAL(1-1/2" X 0)	100.0	11.7	2.48	13231	5.3

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.5	2.7	.17	14854	1.8
FLOAT 1.40	79.1	5.2	.52	14405	2.4
FLOAT 1.60	89.7	7.2	.89	14046	2.9
CUM(3/8" X 100M)	100.0	11.8	2.52	13220	5.4
100M X 0	3.4	13.4	4.15	12932	7.8
TOTAL(3/8" X 0)	100.0	11.9	2.58	13210	5.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.7	2.4	.17	14908	1.3
FLOAT 1.40	77.0	4.5	.37	14531	1.7
FLOAT 1.60	88.8	6.9	.76	14100	2.5
CUM(14M X 0)	100.0	12.0	2.50	13184	5.2

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	70.4
3/8" X 14M	22.4
14M X 100M	5.9
100M X 0	1.3

--- MOISTURE, % ---

TOTAL	2.7
AS RECEIVED	1.1

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

RED CODE: 71
SAMPLE NO. 373

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.10	1.20 1.20	--	--	--	--
ASH	11.57	6.72 51.67	11.70	6.80 52.30	39.58	39.21 45.91
VOLATILE MATTER	34.57	36.11 21.64	34.95	36.55 21.90	60.42	60.79 54.09
FIXED CARBON	52.76	55.97 25.49	53.35	56.65 25.80	--	--
BTU/LB	13134	13911 5869	13280	14080 5940	15040	15107 12453

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.34	1.55 16.46	3.38	1.57 16.66	3.82	1.68 34.92
OXYGEN	--	--	--	--	--	--
ASH	11.57	6.72 51.67	11.70	6.80 52.30	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.51	.68 16.10	2.54	.68 16.30	2.88	.73 34.16
SULFATIC	.00	.00 .01	.01	.00 .01	.01	.00 .02
ORGANIC	.82	.87 .35	.83	.88 .35	.94	.95 .73
TOTAL	3.34	1.55 16.46	3.38	1.57 16.66	3.82	1.68 34.92

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	MINERAL ANALYSIS OF ASH, %		FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)		MISCELLANEOUS DATA, %	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--
COAL UTILIZATION RATIOS	--	--	--	--	--	--
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	RAW		FL 1.60		SK 1.60	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--	8 1/2	8 1/2	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

BED CODE: 71
SAMPLE NO. 374

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.9	3.5	.75	14538	2.6
FLOAT 1.40	84.5	5.5	2.14	14218	4.4
FLOAT 1.60	95.3	6.7	2.63	13996	5.1
CUM(1-1/2" X 100M)	100.0	8.6	3.30	13645	6.2
100M X 0	1.0	17.8	4.32	11945	8.6
TOTAL(1-1/2" X 0)	100.0	8.7	3.31	13628	6.3

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.1	3.0	.58	14680	2.3
FLOAT 1.40	85.6	4.2	1.18	14458	3.1
FLOAT 1.60	92.5	5.2	1.66	14273	3.8
CUM(3/8" X 100M)	100.0	8.4	3.25	13682	6.2
100M X 0	3.8	11.5	4.52	13109	8.5
TOTAL(3/8" X 0)	100.0	8.5	3.30	13660	6.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.9	2.3	.24	14809	1.7
FLOAT 1.40	82.3	3.4	.61	14606	2.2
FLOAT 1.60	90.2	4.3	.93	14440	2.7
CUM(14M X 0)	100.0	8.6	3.32	13645	6.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"	MOISTURE, %
1-1/2" X 3/8"	74.2
3/8" X 14M	19.5
14M X 100M	5.3
100M X 0	1.0

TOTAL
AS RECEIVED

2.8
1.2

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 374

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	1.20	1.40	--	--	--	--
ASH	8.69	4.24	8.80	48.60	41.53	46.30
VOLATILE MATTER	37.42	38.88	37.87	23.80	58.47	53.70
FIXED CARBON	52.69	55.49	53.33	27.60	14945	12160
BTU/LB	13466	14218	13630	6250		

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.21	1.96	4.26	25.72	4.67	50.03
OXYGEN	--	--	--	--	--	--
ASH	8.69	4.24	8.80	48.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	3.23	.93	3.27	25.32	3.59	49.26
SULFATIC	.01	.01	.01	.01	.01	.02
ORGANIC	.97	1.03	.98	.39	1.07	.75
TOTAL	4.21	1.96	4.26	25.72	4.67	50.03

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2000	2080	2080
SOFTENING TEMPERATURE (ST)	2060	2180	2130
FLUID TEMPERATURE (FT)	2120	2270	2180
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	11.85	5.74	66.63

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7	7 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

BED CODE: 71
SAMPLE NO. 375

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: BUTLER

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.4	3.4	.30	14569	1.2
FLOAT 1.40	66.3	7.4	.49	13855	1.5
FLOAT 1.60	81.0	10.6	.64	13284	1.8
CUM(1-1/2" X 100M)	100.0	20.4	.80	11536	2.2
100M X 0	.7	15.9	1.60	12339	4.0
TOTAL(1-1/2" X 0)	100.0	20.4	.81	11541	2.2

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.9	3.1	.08	14623	.9
FLOAT 1.40	66.6	5.5	.26	14195	1.2
FLOAT 1.60	79.9	8.7	.40	13623	1.4
CUM(3/8" X 100M)	100.0	19.4	.75	11714	2.3
100M X 0	1.3	17.3	1.57	12089	3.8
TOTAL(3/8" X 0)	100.0	19.4	.76	11719	2.3

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.2	2.6	.04	14712	1.1
FLOAT 1.40	66.3	5.1	.09	14266	1.0
FLOAT 1.60	77.6	8.3	.18	13695	1.1
CUM(14M X 0)	100.0	20.2	.82	11571	2.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
3/8" X 14M ---
14M X 100M ---
100M X 0 ---

--- MOISTURE, % ---

TOTAL 3.3
AS RECEIVED 1.7

STATE: PENNSYLVANIA
COUNTY: BUTLER

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 375

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.70	1.70 1.00	--	--	--	--
ASH	19.06	7.83 60.98	19.39	7.97 61.60	--	--
VOLATILE MATTER	30.72	34.99 --	31.25	35.60 --	38.77	38.68
FIXED CARBON	48.52	55.48 --	49.36	56.44 --	61.24	61.32
BTU/LB	11768	13624 --	11972	13860 --	14852	15060

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.30	.72 3.24	1.33	.73 3.28	1.64	.79 8.53
OXYGEN	--	--	--	--	--	--
ASH	19.06	7.83 60.98	19.39	7.97 61.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.79	.16 3.01	.80	.16 3.04	.99	.18 7.91
SULFATIC	.01	.01 .02	.02	.01 .02	.02	.01 .05
ORGANIC	.50	.55 .22	.51	.56 .22	.63	.61 .57
TOTAL	1.30	.72 3.24	1.33	.73 3.28	1.64	.79 8.53

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
--	-----	---------

BASE/ACID
DOLOMITE
HYDROGEN/CARBON
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING	8	8 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2730	2910+	--
SOFTENING TEMPERATURE (ST)	2780	2910+	--
FLUID TEMPERATURE (FT)	2840	2910+	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	21.67	9.01	68.33

BED CODE: 71
SAMPLE NO. 376

STATE: PENNSYLVANIA
COUNTY: BUTLER
BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.4	24.7	3.2	.12	1.17	14420	1.6
FLOAT 1.40	81.7	86.9	6.1	.46	1.63	13910	2.3
FLOAT 1.60	92.2	96.1	7.6	.62	1.82	13642	2.7
CUM(1-1/2" X 100M)	100.0	100.0	10.6	1.36	2.56	13085	3.9
100M X 0	2.3	2.4	5.4	2.31	4.40	13919	6.3
TOTAL(1-1/2" X 0)	100.0	100.0	10.5	1.38	2.60	13104	4.0

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	36.8	40.8	2.6	.12	1.14	14150	1.5
FLOAT 1.40	79.2	84.9	5.2	.28	1.33	13683	1.9
FLOAT 1.60	90.0	94.8	6.9	.43	1.48	13444	2.2
CUM(3/8" X 100M)	100.0	100.0	11.2	1.39	2.42	12764	3.8
100M X 0	6.7	6.4	15.4	2.42	4.15	12192	6.8
TOTAL(3/8" X 0)	100.0	100.0	11.5	1.46	2.54	12726	4.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.2	45.8	2.6	.12	1.20	14514	1.7
FLOAT 1.40	77.0	83.5	4.6	.20	1.29	14155	1.8
FLOAT 1.60	90.1	95.4	6.4	.35	1.44	13823	2.1
CUM(14M X 0)	100.0	100.0	10.8	1.28	2.38	13055	3.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	79.8
3/8" X 14M	11.3
14M X 100M	6.6
100M X 0	2.3

TOTAL AS RECEIVED
4.8
3.0

STATE: PENNSYLVANIA
COUNTY: BUTLER
BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 71
SAMPLE NO. 376

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.00	3.00	2.40	--	--	--	--	--	--
ASH	10.57	6.46	49.58	10.90	6.66	50.80	37.74	37.53	40.24
VOLATILE MATTER	32.61	33.98	19.32	33.62	35.03	19.80	62.26	62.47	59.76
FIXED CARBON	53.81	56.56	28.69	55.48	58.31	29.40	14635	14768	12330
BTU/LB	12649	13372	5921	13040	13785	6066			

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	71.57	75.36	32.07	73.78	77.69	32.86	82.81	83.23	66.79
HYDROGEN	4.87	5.11	2.51	4.68	4.93	2.30	5.25	5.28	4.67
NITROGEN	1.27	1.35	.49	1.31	1.39	.50	1.47	1.49	1.02
SULFUR	2.37	1.48	10.65	2.44	2.44	10.91	2.74	1.64	22.18
OXYGEN	9.35	10.23	4.70	6.89	7.80	2.63	7.74	8.35	5.34
ASH	10.57	6.46	49.58	10.90	6.66	50.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.21	.31	9.51	1.25	.32	9.74	1.40	.34	19.80
SULFATIC	.03	.03	.03	.03	.03	.03	.03	.03	.06
ORGANIC	1.13	1.14	1.11	1.16	1.18	1.14	1.30	1.26	2.32
TOTAL	2.37	1.48	10.65	2.44	1.53	10.91	2.74	1.64	22.18

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	42.19	45.17	36.65
SiO2 (SILICON OXIDE)	30.17	33.94	24.51
Al2O3 (ALUMINUM OXIDE)	21.73	13.44	33.74
Fe2O3 (IRON OXIDE)	1.00	1.33	.67
TiO2 (TITANIUM OXIDE)	.78	1.60	.70
CaO (CALCIUM OXIDE)	.80	.73	.70
MgO (MAGNESIUM OXIDE)	.50	.50	.40
Na2O (SODIUM OXIDE)	2.31	2.22	2.26
K2O (POTASSIUM OXIDE)	.39	.76	.36
SO3 (SULFITES)			

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.36	.23
DOLOMITE	.06	.13
HYDROGEN/CARBON	.07	.08
OXYGEN/CARBON	.76	.84
R250	.64	.74
SILICA	1.40	1.33

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2270	2450	--
SOFTENING TEMPERATURE (ST)	2390	2570	--
FLUID TEMPERATURE (FT)	2590	2800	--
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.12	--	--
MINERAL MATTER (PARR)	.04	.02	.15
	13.11	8.03	60.87

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7	7 1/2	--
HARDGROVE GRINDABILITY (HGI)	57	53	--

STATE: PENNSYLVANIA
COUNTY: CAMBRIA

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 377

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.4	3.9	.71	14109	2.1
FLOAT 1.40	69.4	6.4	1.07	13687	2.8
FLOAT 1.60	81.4	8.6	1.41	13316	3.5
FLOAT 1.90	85.4	9.9	1.71	13096	4.1
CUM(1-1/2" X 100M)	100.0	18.6	3.23	11628	7.7
100M X 0	1.0	12.3	2.62	12691	6.2
TOTAL(1-1/2" X 0)	100.0	18.5	3.22	11639	7.7

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.5	3.4	.38	14193	1.6
FLOAT 1.40	69.2	5.5	.53	13839	1.9
FLOAT 1.60	79.2	7.4	.71	13518	2.3
FLOAT 1.90	85.4	9.9	1.71	13096	4.1
CUM(3/8" X 100M)	100.0	19.0	3.30	11561	7.9
100M X 0	1.2	13.0	3.01	12573	6.9
TOTAL(3/8" X 0)	100.0	18.9	3.30	11573	7.9

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	36.2	3.3	.36	14210	1.6
FLOAT 1.40	69.6	5.2	.52	13890	1.9
FLOAT 1.60	80.0	7.0	.67	13586	2.1
FLOAT 1.90	85.4	9.9	1.71	13096	4.1
CUM(14M X 0)	100.0	18.2	3.18	11696	7.5

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	1.0

----- MOISTURE, % -----
TOTAL
AS RECEIVED

.9
.5

STATE: PENNSYLVANIA
COUNTY: CAMBERIA
BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS
BED CODE: 71
SAMPLE NO. 377

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.50	--	--	--	--	--
ASH	17.51	--	--	17.60	--	--
VOLATILE MATTER	26.16	--	--	26.29	--	31.90
FIXED CARBON	55.83	--	--	56.11	--	68.10
BTU/LB	12582	--	--	12645	--	15346

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.24	--	--	4.26	--	5.17
OXYGEN	--	--	--	--	--	--
ASH	17.51	--	--	17.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.44	--	--	3.46	--	4.20
SULFATIC	.14	--	--	.14	--	.17
ORGANIC	.66	--	--	.66	--	.80
TOTAL	4.24	--	--	4.26	--	5.17

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES (SILICON OXIDE)	--	--	--	--	--	--
SiO2 (ALUMINUM OXIDE)	--	--	--	--	--	--
AL2O3 (IRON OXIDE)	--	--	--	--	--	--
Fe2O3 (TITANIUM OXIDE)	--	--	--	--	--	--
TiO2 (CALCIUM OXIDE)	--	--	--	--	--	--
CaO (MAGNESIUM OXIDE)	--	--	--	--	--	--
MgO (SODIUM OXIDE)	--	--	--	--	--	--
Na2O (POTASSIUM OXIDE)	--	--	--	--	--	--
K2O (SULFITES)	--	--	--	--	--	--
SO3	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

BED CODE: 71
SAMPLE NO. 378

BED: UPPER FREEPORT
RANK: HIGH VOLATILE B BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: CLARION

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	21.0	22.9	3.0	.23	14330	1.2
FLOAT 1.40	86.4	89.3	5.3	.15	13596	.9
FLOAT 1.60	97.1	98.5	7.0	.17	13343	1.0
CUM(1-1/2" X 100M)	100.0	100.0	8.2	.19	13159	1.0
100M X 0	1.6	1.4	21.0	1.02	11120	3.5
TOTAL(1-1/2" X 0)	100.0	100.0	8.4	.20	13126	1.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.3	22.5	2.6	.19	14580	.9
FLOAT 1.40	85.4	88.9	4.9	.15	13711	.9
FLOAT 1.60	95.4	97.5	6.4	.17	13469	.9
CUM(3/8" X 100M)	100.0	100.0	8.3	.21	13173	1.0
100M X 0	4.8	4.3	16.3	.91	11895	2.0
TOTAL(3/8" X 0)	100.0	100.0	8.7	.24	13112	1.0

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.1	27.9	2.2	.13	14570	.9
FLOAT 1.40	82.6	86.9	4.0	.11	13790	.9
FLOAT 1.60	93.8	96.5	5.5	.14	13536	.9
CUM(14M X 0)	100.0	100.0	8.2	.23	13102	1.1

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	92.6
3/8" X 14M	.6
14M X 100M	5.2
100M X 0	1.6

--- MOISTURE, % ---
TOTAL AS RECEIVED
4.9
4.6

STATE: PENNSYLVANIA
COUNTY: CLARION

BED: UPPER FREEPORT
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 71
SAMPLE NO. 378

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.60	4.60 2.90	--	--	--	--
ASH	7.44	5.46 49.04	7.80	5.72 50.50	38.22	38.11 43.84
VOLATILE MATTER	33.62	34.28 21.07	35.24	35.93 21.70	61.78	61.89 56.16
FIXED CARBON	54.34	55.67 26.99	56.96	58.35 27.80	--	--
BTU/LB	12553	12883 6160	13159	13504 6344	14272	14324 12816

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	72.42	73.69 27.30	75.91	77.24 28.12	82.33	81.92 56.81
HYDROGEN	5.14	5.24 2.16	4.85	4.96 1.89	5.26	5.26 3.83
NITROGEN	1.23	1.25 .51	1.29	1.32 .53	1.40	1.39 1.07
SULFUR	.71	.52 2.36	.75	.54 2.43	.81	.57 4.92
OXYGEN	13.06	13.84 18.62	9.41	10.23 16.52	10.20	10.85 33.38
ASH	7.44	5.46 49.04	7.80	5.72 50.50	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.24	.12 1.70	.25	.13 1.75	.27	.13 3.54
SULFATIC	.01	.01 .11	.02	.01 .12	.02	.01 .24
ORGANIC	.46	.39 .55	.48	.40 .57	.53	.43 1.14
TOTAL	.71	.52 2.36	.75	.54 2.43	.81	.57 4.92

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES (SILICON OXIDE)	--	--	--	--	--	--
SiO2	--	--	--	--	--	--
AL2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.77	.77	--	--	--	--
OXYGEN/CARBON	.08	.10	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

BED CODE: 71
SAMPLE NO. 379

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	TOTAL SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.5	54.1	2.6	.04	.66	15062	.9
FLOAT 1.40	78.1	87.7	5.5	.22	.83	14531	1.1
FLOAT 1.60	89.4	97.6	7.7	.25	.84	14128	1.2
CUM(1-1/2" X 100M)	100.0	100.0	14.2	.25	.81	12938	1.3
100M X 0	.3	.3	11.8	1.63	2.34	13378	3.5
TOTAL(1-1/2" X 0)	100.0	100.0	14.2	.25	.81	12939	1.3

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	TOTAL SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.9	55.4	2.4	.04	.59	15099	.8
FLOAT 1.40	77.4	88.3	5.2	.17	.79	14586	1.1
FLOAT 1.60	87.0	97.0	7.0	.24	.86	14257	1.2
CUM(3/8" X 100M)	100.0	100.0	15.0	.26	.84	12791	1.3
100M X 0	4.0	4.2	11.7	.46	1.25	13396	1.9
TOTAL(3/8" X 0)	100.0	100.0	14.9	.27	.86	12816	1.3

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	TOTAL SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.1	53.7	2.6	.04	.57	15062	.8
FLOAT 1.40	73.0	82.9	4.6	.14	.76	14696	1.0
FLOAT 1.60	89.2	97.9	7.3	.26	.83	14202	1.2
CUM(14M X 0)	100.0	100.0	14.2	.27	.84	12938	1.3

RAW COAL SIZE AND MOISTURE ANALYSES

MOISTURE, %

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	63.5
3/8" X 14M	28.3
14M X 100M	7.9
100M X 0	.3

TOTAL
AS RECEIVED

2.8
1.2

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE:
SAMPLE NO. 379

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	RAW	AS RECEIVED	RAW	MOISTURE FREE	MOISTURE AND ASH FREE
	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	1.20	1.10	--	--	--
ASH	13.73	6.93	13.90	68.34	--
VOLATILE MATTER	23.21	25.27	23.49	25.55	27.29 27.47 19.77
FIXED CARBON	61.86	66.70	62.61	67.45	72.71 72.53 80.23
BTU/LB	12878	14062	13035	14218 3018	15139 15290 9531

ULTIMATE ANALYSIS, %

	RAW	AS RECEIVED	RAW	MOISTURE FREE	MOISTURE AND ASH FREE
	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW FL 1.60 SK 1.60
CARBON	--	--	--	--	--
HYDROGEN	--	--	--	--	--
NITROGEN	--	--	--	--	--
SULFUR	.83	.77	.84	.78	.98 .84 2.76
OXYGEN	--	--	--	--	--
ASH	13.73	6.93	13.90	7.01 68.34	--

SULFUR FORMS ANALYSIS, %

	RAW	AS RECEIVED	RAW	MOISTURE FREE	MOISTURE AND ASH FREE
	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	.27	.23	.27	.23 .35	.31 .25 1.11
SULFATIC	.01	.01	.01	.01	.01 .01 .03
ORGANIC	.55	.53	.56	.54 .51	.65 .58 1.61
TOTAL	.83	.77	.84	.78 .87	.98 .84 2.76

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60	FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
OXIDES	--	--	--	RAW	FL 1.60 SK 1.60
SiO2 (SILICON OXIDE)	--	--	--	2910+	2910+ 2910+
Al2O3 (ALUMINUM OXIDE)	--	--	--	(ID)	2910+ 2910+
Fe2O3 (IRON OXIDE)	--	--	--	SOFTENING TEMPERATURE (ST)	2910+ 2910+
TiO2 (TITANIUM OXIDE)	--	--	--	FLUID TEMPERATURE (FT)	2910+ 2910+
CaO (CALCIUM OXIDE)	--	--	--	MISCELLANEOUS DATA, %	
MgO (MAGNESIUM OXIDE)	--	--	--	CL (CHLORINE) (ANALYZED)	RAW FL 1.60 SK 1.60
Na2O (SODIUM OXIDE)	--	--	--	NA (SODIUM) (CALCULATED)	--
K2O (POTASSIUM OXIDE)	--	--	--	MINERAL MATTER (PARR)	15.47 8.00 74.29
SO3 (SULFITES)	--	--	--	PHYSICAL PARAMETERS, INDEX	
COAL UTILIZATION RATIOS					RAW FL 1.60 SK 1.60
BASE/ACID	RAW	FL 1.60	FREE SWELLING (FSI)		
DOLOMITE	--	--	9 --		
HYDROGEN/CARBON	--	--	HARDGROVE GRINDABILITY (HGI)		
OXYGEN/CARBON	--	--	-- --		
R250	--	--	-- --		
SILICA	--	--	-- --		
SILICA/ALUMINA	--	--	-- --		

BED CODE: 71
SAMPLE NO. 380

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
	WEIGHT		PYRITIC		
	BTU		TOTAL		
FLOAT 1.30	33.4	3.8	.11	14996	.9
FLOAT 1.40	83.7	8.4	.24	14163	1.0
FLOAT 1.60	95.9	10.0	.40	13873	1.3
CUM(1-1/2" X 100M)	100.0	11.5	.96	13602	2.1
100M X 0	.4	12.7	1.63	13384	3.4
TOTAL(1-1/2" X 0)	100.0	11.5	.96	13601	2.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
	WEIGHT		PYRITIC		
	BTU		TOTAL		
FLOAT 1.30	43.2	3.5	.07	15050	.7
FLOAT 1.40	82.7	7.2	.07	14380	.8
FLOAT 1.60	93.6	9.2	.11	14018	.8
CUM(3/8" X 100M)	100.0	11.8	1.01	13547	2.2
100M X 0	2.5	10.6	1.00	13765	2.2
TOTAL(3/8" X 0)	100.0	11.8	1.01	13553	2.2

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
	WEIGHT		PYRITIC		
	BTU		TOTAL		
FLOAT 1.30	44.2	3.0	.08	15140	.7
FLOAT 1.40	78.3	5.8	.09	14634	.7
FLOAT 1.60	92.3	8.1	.14	14217	.7
CUM(14M X 0)	100.0	11.3	.99	13638	2.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	58.0
3/8" X 14M	32.7
14M X 100M	8.9
100M X 0	.4

MOISTURE, %

TOTAL
AS RECEIVED

2.5
.9

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 380

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.90	.90	.80	--	--	--	--	--	--
ASH	11.40	8.42	47.29	11.50	8.50	47.67	27.58	27.31	32.73
VOLATILE MATTER	24.19	24.77	16.99	24.41	24.99	17.13	72.42	72.69	67.27
FIXED CARBON	63.51	65.91	34.92	64.09	66.51	35.20			
BTU/LB	13527	13973	6993	13650	14100	7049	15424	15410	13471

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.44	.49	12.25	1.45	.49	12.35	1.64	.54	23.60
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	11.40	8.42	47.29	11.50	8.50	47.67	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.96	.12	11.09	.97	.13	11.18	1.10	.14	21.36
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.47	.35	1.15	.47	.35	1.16	.53	.39	2.22
TOTAL	1.44	.49	12.25	1.45	.49	12.35	1.64	.54	23.60

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
--	-----	---------

BASE/ACID
DOLOMITE
HYDROGEN/CARBON
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2580	2910+	2080
SOFTENING TEMPERATURE (ST)	2630	2910+	2130
FLUID TEMPERATURE (FT)	2680	2910+	2190
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	13.22	9.45	58.28

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	1 1/2
HARDGROVE GRINDABILITY (HGI)	83	83	--

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD
BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS
BED CODE: 71
SAMPLE NO. 381

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	BTU	RECOVERY, %	ASH, %	BTU	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	32.2	5.3	36.4	1.67	1.08	14644	14644	2.3
FLOAT 1.40	68.7	8.0	75.0	1.96	1.37	14152	14152	2.8
FLOAT 1.60	90.3	10.9	94.9	2.29	1.61	13623	13623	3.4
FLOAT 1.90	94.8	12.0	98.1	2.60	2.25	13423	13423	3.9
CUM(1-1/2" X 100M)	100.0	14.5	100.0	3.38	2.98	12967	12967	5.2
100M X 0	.2	11.0	.2	4.21	2.06	13605	13605	6.2
TOTAL(1-1/2" X 0)	100.0	14.5	100.0	3.38	2.25	12968	12968	5.2

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	BTU	RECOVERY, %	ASH, %	BTU	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	38.2	4.0	43.8	1.29	1.04	14882	14882	1.7
FLOAT 1.40	71.5	7.3	78.6	1.57	1.61	14280	14280	2.2
FLOAT 1.60	89.5	10.1	94.9	1.90	2.06	13769	13769	2.8
FLOAT 1.90	94.8	12.0	98.1	2.60	4.43	13423	13423	3.9
CUM(3/8" X 100M)	100.0	14.4	100.0	3.21	2.06	12985	12985	4.9
100M X 0	.2	12.0	.2	5.94	2.06	13423	13423	8.9
TOTAL(3/8" X 0)	100.0	14.4	100.0	3.22	2.06	12986	12986	5.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	BTU	RECOVERY, %	ASH, %	BTU	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	46.9	4.0	53.7	1.04	1.32	14882	14882	1.4
FLOAT 1.40	79.0	7.5	86.5	1.32	1.47	14243	14243	1.9
FLOAT 1.60	89.1	9.4	95.2	1.47	1.61	13897	13897	2.1
FLOAT 1.90	94.8	12.0	98.1	2.60	2.29	13423	13423	3.9
CUM(14M X 0)	100.0	14.3	100.0	3.36	2.29	13003	13003	5.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	.2

MOISTURE, %

TOTAL AS RECEIVED	.8
	.5

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 381

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
MOISTURE	.50	--	--	--	--	--
ASH	13.63	--	--	--	--	--
VOLATILE MATTER	26.59	--	--	--	--	30.96
FIXED CARBON	59.28	--	--	--	--	69.04
BTU/LB	12792	--	--	--	--	14897

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.13	--	--	--	--	3.65
OXYGEN	--	--	--	--	--	--
ASH	13.63	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
PYRITIC	2.41	--	--	--	--	2.81
SULFATIC	.10	--	--	--	--	.12
ORGANIC	.63	--	--	--	--	.73
TOTAL	3.13	--	--	--	--	3.65

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	FL 1.60	SK 1.60	RAW
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: PENNSYLVANIA
 COUNTY: ELK
 BED: UPPER FREEPORT
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 71
 SAMPLE NO. 382

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.7	4.7	.29	14612	2.0
FLOAT 1.40	55.8	10.5	.67	13605	2.7
FLOAT 1.60	81.0	14.1	1.07	12991	3.4
CUM(1-1/2" X 100M)	100.0	20.8	3.06	11752	6.9
100M X 0	1.5	19.9	3.89	11875	11.6
TOTAL(1-1/2" X 0)	100.0	20.8	3.07	11754	7.0

SAMPLE CRUSHED TO PASS 3/8"
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	21.3	4.3	.35	14688	2.1
FLOAT 1.40	56.0	9.1	.49	13864	2.5
FLOAT 1.60	79.5	13.2	.72	13165	2.8
CUM(3/8" X 100M)	100.0	21.1	3.17	11677	7.2
100M X 0	7.1	17.3	3.33	12353	8.3
TOTAL(3/8" X 0)	100.0	20.8	3.18	11725	7.2

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.3	4.4	.17	14660	2.1
FLOAT 1.40	54.6	7.9	.29	14069	2.3
FLOAT 1.60	77.6	12.1	.48	13332	2.6
CUM(14M X 0)	100.0	21.1	3.09	11641	7.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"	MOISTURE, %
1-1/2" X 7/8"	75.4
3/8" X 14M	18.1
14M X 100M	5.0
100M X 0	1.5

TOTAL
 AS RECEIVED

2.2
 .9

STATE: PENNSYLVANIA
COUNTY: ELK
BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 71
SAMPLE NO.: 382

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.90	1.30	1.20	--	--	--
ASH	21.80	11.84	53.15	22.00	12.00	53.80
VOLATILE MATTER	35.83	41.07	21.44	36.16	41.61	21.70
FIXED CARBON	41.47	45.79	24.21	41.84	46.39	24.50
BTU/LB	11404	13174	5530	11508	13347	5598
				14754	15167	12116

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	63.28	72.78	29.44	63.86	73.74	29.80
HYDROGEN	4.55	5.26	2.31	4.49	5.18	2.20
NITROGEN	1.11	1.30	.49	1.13	1.32	.50
SULFUR	3.83	1.64	12.51	3.86	1.66	12.66
OXYGEN	5.43	7.18	2.09	4.67	6.11	1.04
ASH	21.80	11.84	53.15	22.00	12.00	53.80

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.24	.52	11.99	3.27	.53	12.13
SULFATIC	.07	.06	.08	.07	.06	.08
ORGANIC	.52	1.06	.45	.52	1.07	.45
TOTAL	3.83	1.64	12.51	3.86	1.66	12.66

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	46.02	23.86	24.72	4.19	.60	26.26
SiO2 (SILICON OXIDE)	27.15	11.31	9.43	.09	.07	.17
Al2O3 (ALUMINUM OXIDE)	21.16	61.48	62.91	.67	1.22	.98
Fe2O3 (IRON OXIDE)	2.33	.67	.56	4.95	1.89	27.41
TiO2 (TITANIUM OXIDE)	.84	1.12	.17			
CaO (CALCIUM OXIDE)	.43	.23	.11			
MgO (MAGNESIUM OXIDE)	.08	--	--			
Na2O (SODIUM OXIDE)	1.69	.72	.72			
K2O (POTASSIUM OXIDE)	.07	.07	.30			
SO3 (SULFITES)						

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	.32	--	.11	--
DOLOMITE	.05	--	.01	--
HYDROGEN/CARBON	.84	--	25.88	13.87
OXYGEN/CARBON	.05	--		
R250	.77	.36		
SILICA	.67	.27		
SILICA/ALUMINA	1.70	2.11		

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	5	7 1/2		
HARDGROVE GRINDABILITY (HGI)	49	44		

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 383

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.5	3.8	.24	14939	1.2
FLOAT 1.40	60.6	7.5	.49	14261	1.5
FLOAT 1.60	69.7	8.9	.59	14004	1.6
FLOAT 1.90	76.7	11.6	.67	13509	1.8
CUM(1-1/2" X 100M)	100.0	26.6	1.10	10761	2.8
100M X 0	.4	20.5	.83	11878	2.5
TOTAL(1-1/2" X 0)	100.0	26.6	1.10	10765	2.8

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.8	3.2	.21	15049	1.1
FLOAT 1.40	61.2	6.8	.33	14389	1.3
FLOAT 1.60	69.0	8.3	.44	14114	1.5
FLOAT 1.90	76.7	11.6	.67	13509	1.8
CUM(3/8" X 100M)	100.0	26.1	1.01	10852	2.8
100M X 0	.5	25.1	.84	11035	2.8
TOTAL(3/8" X 0)	100.0	26.1	1.01	10853	2.8

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.8	3.7	.19	14957	1.2
FLOAT 1.40	58.1	5.8	.34	14572	1.3
FLOAT 1.60	70.7	8.0	.50	14169	1.6
FLOAT 1.90	76.7	11.6	.67	13509	1.8
CUM(14M X 0)	100.0	25.9	1.04	10889	2.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %

SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	2.7
3/8" X 14M	1.8
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	

STATE: PENNSYLVANIA
COUNTY: INDIANA

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 383

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.80	--	--	--	--	--
ASH	25.92	--	--	26.40	--	--
VOLATILE MATTER	23.96	--	--	24.40	--	--
FIXED CARBON	48.31	--	--	49.20	--	--
BTU/LB	11046	--	--	11248	--	15283

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.44	--	--	1.47	--	1.99
OXYGEN	--	--	--	--	--	--
ASH	25.92	--	--	26.40	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.98	--	--	1.00	--	1.35
SULFATIC	.02	--	--	.02	--	.03
ORGANIC	.44	--	--	.45	--	.61
TOTAL	1.44	--	--	1.47	--	1.99

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	29.32	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES (SILICON OXIDE)	--	--	--
SiO2 (ALUMINUM OXIDE)	--	--	--
Al2O3 (IRON OXIDE)	--	--	--
Fe2O3 (TITANIUM OXIDE)	--	--	--
TiO2 (CALCIUM OXIDE)	--	--	--
CaO (MAGNESIUM OXIDE)	--	--	--
MgO (SODIUM OXIDE)	--	--	--
Na2O (POTASSIUM OXIDE)	--	--	--
K2O (SULFITES)	--	--	--
SO3	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

STATE: PENNSYLVANIA
COUNTY: INDIANA
BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS
BED CODE: 71
SAMPLE NO. 384

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.9	3.7	.21	14957	1.0
FLOAT 1.40	78.0	6.0	.51	14536	1.5
FLOAT 1.60	85.0	7.3	.65	14297	1.7
FLOAT 1.90	88.6	8.6	.75	14059	1.8
CUM(1-1/2" X 100M)	100.0	15.6	1.22	12776	2.7
100M X 0	.7	10.2	1.39	13766	2.8
TOTAL(1-1/2" X 0)	100.0	15.6	1.22	12783	2.7

--- SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.7	3.6	.20	14975	1.0
FLOAT 1.40	78.4	5.0	.34	14719	1.2
FLOAT 1.60	83.9	6.1	.42	14517	1.3
FLOAT 1.90	88.6	8.5	.75	14059	1.8
CUM(3/8" X 100M)	100.0	15.4	1.13	12813	2.6
100M X 0	1.1	11.8	1.64	13473	3.3
TOTAL(3/8" X 0)	100.0	15.4	1.14	12820	2.6

--- SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.7	3.1	.13	15067	.9
FLOAT 1.40	77.3	5.0	.27	14719	1.1
FLOAT 1.60	84.4	6.2	.34	14499	1.2
FLOAT 1.90	88.6	8.6	.75	14059	1.8
CUM(14M X 0)	100.0	15.2	1.20	12850	2.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	.7

--- MOISTURE, % ---

TOTAL	.7
AS RECEIVED	.5

STATE: PENNSYLVANIA		BED: UPPER FREEPORT		BED CODE: 71	
COUNTY: INDIANA		RANK: MED VOLATILE BITUMINOUS		SAMPLE NO. 384	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	.50	--	--	--	--
ASH	14.52	--	14.59	--	--
VOLATILE MATTER	22.04	--	22.15	--	25.94
FIXED CARBON	62.94	--	63.26	--	74.07
BTU/LB	13291	--	13358	--	15640
----- ULTIMATE ANALYSIS, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	--	--	--	--	--
HYDROGEN	--	--	--	--	--
NITROGEN	--	--	--	--	--
SULFUR	1.77	--	1.77	--	2.08
OXYGEN	--	--	--	--	--
ASH	14.52	--	14.59	--	--
----- SULFUR FORMS ANALYSIS, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	1.24	--	1.24	--	1.46
SULFATIC	.01	--	.01	--	.01
ORGANIC	.52	--	.52	--	.61
TOTAL	1.77	--	1.77	--	2.08
----- MINERAL ANALYSIS OF ASH, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--
----- COAL UTILIZATIO RATIOS -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--
DOLOMITE	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--
R250	--	--	--	--	--
SILICA	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--
----- FUSIBILITY OF ASH, DEGREES F -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--
----- MISCELLANEOUS DATA, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--
----- PHYSICAL PARAMETERS, INDEX -----					

STATE: PENNSYLVANIA
COUNTY: INDIANA
BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS
BED CODE: 71
SAMPLE NO. 385

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	35.6	3.1	.64	15173	1.7
FLOAT 1.40	75.2	6.9	1.04	14478	2.2
FLOAT 1.60	86.4	8.8	1.28	14131	2.6
CUM(1-1/2" X 100M)	100.0	14.6	2.13	13070	4.1
100M X 0	1.5	12.3	1.88	13491	3.6
TOTAL(1-1/2" X 0)	100.0	14.6	2.13	13077	4.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	45.4	3.2	.51	15155	1.5
FLOAT 1.40	74.9	6.2	.71	14606	1.8
FLOAT 1.60	84.4	7.9	.89	14295	2.1
CUM(3/8" X 100M)	100.0	15.3	2.14	12942	4.1
100M X 0	3.1	12.2	1.67	13509	3.1
TOTAL(3/8" X 0)	100.0	15.2	2.13	12960	4.1

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	46.3	2.6	.29	15264	1.2
FLOAT 1.40	74.0	5.1	.42	14807	1.4
FLOAT 1.60	85.1	7.5	.56	14368	1.6
CUM(14M X 0)	100.0	14.9	2.18	13016	4.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	48.7
3/8" X 14M	34.7
14M X 100M	15.1
100M X 0	1.5

MOISTURE, %
TOTAL AS RECEIVED
2.1
.5

STATE: PENNSYLVANIA
COUNTY: INDIANA
BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS
BED CODE: 71
SAMPLE NO. 385

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	RAW	AS RECEIVED FL 1.60	SK 1.60	RAW	MOISTURE FREE FL 1.60	SK 1.60	RAW	MOISTURE AND ASH FREE FL 1.60	SK 1.60
MOISTURE	.50	.50	.50	--	--	--	--	--	--
ASH	14.93	7.16	55.52	15.00	7.20	55.80	29.38	28.20	41.86
VOLATILE MATTER	24.85	26.04	18.41	24.97	26.17	18.50	70.62	71.80	58.14
FIXED CARBON	59.73	66.30	25.57	60.03	66.63	25.70	15353	15495	12511
BTU/LB	12985	14307	5502	13050	14379	5530			

ULTIMATE ANALYSIS, %

	RAW	AS RECEIVED FL 1.60	SK 1.60	RAW	MOISTURE FREE FL 1.60	SK 1.60	RAW	MOISTURE AND ASH FREE FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.68	1.12	11.66	2.70	1.13	11.71	3.17	1.22	26.50
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	14.93	7.16	55.52	15.00	7.20	55.80	--	--	--

SULFUR FORMS ANALYSIS, %

	RAW	AS RECEIVED FL 1.60	SK 1.60	RAW	MOISTURE FREE FL 1.60	SK 1.60	RAW	MOISTURE AND ASH FREE FL 1.60	SK 1.60
PYRITIC	2.18	.55	11.38	2.19	.55	11.43	2.58	.59	25.87
SULFATIC	.06	.00	.13	.07	.00	.13	.08	.00	.29
ORGANIC	.44	.58	.15	.44	.58	.15	.52	.63	.34
TOTAL	2.68	1.12	11.66	2.70	1.13	11.71	3.17	1.22	26.50

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--
DOLOMITE	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--
R250	--	--	--	--	--
SILICA	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	1
HARDGROVE GRINDABILITY (HGI)	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2210	2680	2020
SOFTENING TEMPERATURE (ST)	2260	2730	2070
FLUID TEMPERATURE (FT)	2310	2780	2120

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	17.68	8.40	66.71

STATE: PENNSYLVANIA
COUNTY: JEFFERSON
BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 71
SAMPLE NO. 386

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	71.2	3.2	.46	14820	1.6
FLOAT 1.40	89.7	4.3	.69	14591	1.9
FLOAT 1.60	96.1	5.5	.81	14383	2.2
CUM(1-1/2" X 100M)	100.0	6.8	1.31	14147	2.9
100M X 0	1.3	14.3	2.50	12727	5.8
TOTAL(1-1/2" X 0)	100.0	6.9	1.33	14128	3.0

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	75.6	2.7	.29	14880	1.3
FLOAT 1.40	89.8	3.7	.42	14706	1.6
FLOAT 1.60	94.9	4.6	.51	14541	1.7
CUM(3/8" X 100M)	100.0	6.6	1.21	14182	2.9
100M X 0	5.9	9.7	1.98	13591	4.6
TOTAL(3/8" X 0)	100.0	6.8	1.26	14146	3.0

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	73.7	2.1	.18	15010	1.3
FLOAT 1.40	86.8	3.0	.20	14850	1.4
FLOAT 1.60	92.6	4.0	.28	14667	1.5
CUM(14M X 0)	100.0	7.4	1.30	14038	3.1

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	70.2
3/8" X 14M	22.8
14M X 100M	5.7
100M X 0	1.3

----- MOISTURE, % -----

TOTAL	4.7
AS RECEIVED	1.2

STATE: PENNSYLVANIA
COUNTY: JEFFERSON
BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 71
SAMPLE NO. 386

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.20	1.10	7.40	4.16	38.03	39.35
ASH	7.31	4.11	35.26	36.45	61.92	60.65
VOLATILE MATTER	34.84	36.05	57.34	59.39		
FIXED CARBON	56.65	58.74				
BTU/LB	13869	14482	14038	14643	15159	15278

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	77.21	80.39	78.15	81.28	84.39	84.81
HYDROGEN	5.26	5.49	5.19	5.42	5.60	5.66
NITROGEN	1.40	1.47	1.41	1.49	1.53	1.55
SULFUR	1.98	.99	2.01	1.00	2.17	1.04
OXYGEN	6.84	7.56	5.84	6.65	6.31	6.94
ASH	7.31	4.11	7.40	4.16		

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.34	.30	1.36	.31	1.47	.32
SULFATIC	.02	.00	.02	.00	.02	.00
ORGANIC	.62	.68	.63	.69	.68	.72
TOTAL	1.98	.99	2.01	1.00	2.17	1.04

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES						
SiO2 (SILICON OXIDE)						
Al2O3 (ALUMINUM OXIDE)						
Fe2O3 (IRON OXIDE)						
TiO2 (TITANIUM OXIDE)						
CaO (CALCIUM OXIDE)						
MgO (MAGNESIUM OXIDE)						
Na2O (SODIUM OXIDE)						
K2O (POTASSIUM OXIDE)						
SO3 (SULFITES)						

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID						
DOLOMITE						
HYDROGEN/CARBON	.80	.80				
OXYGEN/CARBON	.06	.06				
R250						
SILICA						
SILICA/ALUMINA						

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	8	1/2				
HARDGROVE GRINDABILITY (HGI)	61	57				

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)						
SOFTENING TEMPERATURE (ST)						
FLUID TEMPERATURE (FT)						

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)						
NA (SODIUM) (CALCULATED)						
MINERAL MATTER (PARR)						

BED CODE: 71
SAMPLE NO. 387

BED: UPPER FREEPORT
RANK: LOW VOLATILE BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: SOMERSET

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.3	18.9	2.6	.20	.77	15330	1.0
FLOAT 1.40	74.8	81.9	7.7	.36	.90	14446	1.2
FLOAT 1.60	88.8	95.4	9.2	.61	1.15	14173	1.6
CUM(1-1/2" X 100M)	100.0	100.0	14.6	1.52	2.07	13192	3.1
100M X 0	1.5	1.5	12.6	1.87	2.82	13522	4.2
TOTAL(1-1/2" X 0)	100.0	100.0	14.6	1.53	2.08	13197	3.2

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	19.8	23.2	2.4	.13	.73	15390	.9
FLOAT 1.40	73.7	81.9	6.9	.20	.82	14586	1.1
FLOAT 1.60	88.1	95.7	8.7	.29	.89	14269	1.2
CUM(3/8" X 100M)	100.0	100.0	14.8	1.57	2.20	13130	3.4
100M X 0	8.3	8.9	9.5	1.10	1.89	14096	2.7
TOTAL(3/8" X 0)	100.0	100.0	14.4	1.53	2.17	13211	3.3

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.7	28.4	3.0	.17	.72	15280	.9
FLOAT 1.40	70.7	78.5	6.0	.18	.76	14733	1.0
FLOAT 1.60	89.0	95.8	8.4	.22	.81	14297	1.1
CUM(14M X 0)	100.0	100.0	13.9	1.62	2.16	13275	3.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	47.1
3/8" X 14M	39.4
14M X 100M	12.0
100M X 0	1.5

--- MOISTURE, % ---
TOTAL
AS RECEIVED

2.3
1.2

STATE: PENNSYLVANIA
COUNTY: SOMERSET
BED: UPPER FREEPORT
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 71
SAMPLE NO. 387

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.20	1.10	1.10	--	--	--
ASH	14.28	7.98	57.86	8.06	58.50	--
VOLATILE MATTER	18.32	18.95	14.64	19.16	14.80	35.56
FIXED CARBON	66.20	71.97	26.41	72.77	26.70	64.34
BTU/LB	13051	14191	4943	13190	4998	12043

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	74.42	81.07	26.54	75.32	81.97	26.84
HYDROGEN	4.14	4.45	1.83	4.05	4.38	1.73
NITROGEN	1.11	1.22	.38	1.12	1.24	.38
SULFUR	1.99	.78	12.42	2.02	.79	12.56
OXYGEN	4.06	4.50	--	3.03	3.56	--
ASH	14.28	7.98	57.86	14.46	8.06	58.50

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.60	.23	12.27	1.62	.24	12.41
SULFATIC	.03	.02	.05	.04	.02	.05
ORGANIC	.36	.52	.10	.36	.10	.23
TOTAL	1.99	.78	12.42	2.02	.79	12.56

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.65	.64	--	--	--	--
OXYGEN/CARBON	.03	.03	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	--	9	9	--
HARDGROVE GRINDABILITY (HGI)	92	92	--	92	92	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2460	2460	2910+	2460	2910+	--
SOFTENING TEMPERATURE (ST)	2520	2520	2910+	2520	2910+	--
FLUID TEMPERATURE (FT)	2620	2620	2910+	2620	2910+	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.08	.08	--	.08	.08	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	16.72	9.14	70.09	16.72	9.14	70.09

BED CODE: 71
SAMPLE NO. 388

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: SOMERSET

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	3.2	4.1	2.8	.20	14714	1.0
FLOAT 1.40	46.1	55.8	7.2	.39	13954	1.4
FLOAT 1.60	78.3	91.0	10.4	.72	13401	1.9
CUM(1-1/2" X 100M)	100.0	100.0	21.2	1.45	11536	3.4
100M X 0	3.4	3.2	25.2	1.10	10846	3.6
TOTAL(1-1/2" X 0)	100.0	100.0	21.3	1.44	11513	3.4

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	5.1	6.6	2.5	.18	14765	1.0
FLOAT 1.40	44.7	55.4	5.9	.32	14178	1.2
FLOAT 1.60	76.2	90.4	9.3	.56	13591	1.6
CUM(3/8" X 100M)	100.0	100.0	21.7	1.40	11450	3.2
100M X 0	8.0	7.9	22.7	1.11	11277	3.3
TOTAL(3/8" X 0)	100.0	100.0	21.8	1.38	11436	3.2

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.5	10.9	2.9	.12	14696	1.1
FLOAT 1.40	47.7	59.0	5.9	.34	14178	1.1
FLOAT 1.60	73.9	87.6	9.3	.47	13591	1.4
CUM(14M X 0)	100.0	100.0	21.6	1.59	11446	3.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	43.7
3/8" X 14M	37.8
14M X 100M	15.1
100M X 0	3.4

MOISTURE, %

TOTAL	7.3
AS RECEIVED	6.4

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 388

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	6.40	2.50	--	--	--	--
ASH	21.03	9.43	22.46	58.20	--	--
VOLATILE MATTER	19.63	22.20	20.97	15.10	27.05	25.21
FIXED CARBON	52.94	65.87	56.56	26.70	72.95	74.79
BTU/LB	10655	13142	11384	5130	14682	14922

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	62.17	76.06	66.42	30.38	85.67	86.37
HYDROGEN	4.16	4.45	3.69	2.00	4.76	4.74
NITROGEN	1.11	1.40	1.19	.50	1.54	1.58
SULFUR	1.99	1.04	2.13	5.25	2.75	1.18
OXYGEN	9.53	7.62	4.10	3.67	5.29	6.13
ASH	21.03	9.43	22.46	58.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.46	.50	1.56	4.76	2.01	.57
SULFATIC	.09	.07	.10	.13	.13	.08
ORGANIC	.44	.47	.47	.36	.61	.54
TOTAL	1.99	1.04	2.13	5.25	2.75	1.18

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60		RAW	FL 1.60 SK 1.60
OXIDES	--	--	INITIAL DEFORMATION (ID)	2330	2460
SiO2 (SILICON OXIDE)	--	--	SOFTENING TEMPERATURE (ST)	2380	2520
Al2O3 (ALUMINUM OXIDE)	--	--	FLUID TEMPERATURE (FT)	2430	2570
Fe2O3 (IRON OXIDE)	--	--	MISCELLANEOUS DATA, %		
TiO2 (TITANIUM OXIDE)	--	--	CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
CaO (CALCIUM OXIDE)	--	--	NA (SODIUM) (CALCULATED)	.06	--
MgO (MAGNESIUM OXIDE)	--	--	MINERAL MATTER (PARR)	25.43	11.05
Na2O (SODIUM OXIDE)	--	--			
K2O (POTASSIUM OXIDE)	--	--			
SO3 (SULFITES)	--	--			

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.67	.66
OXYGEN/CARBON	.05	.05
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	2	3 1/2
HARDGROVE GRINDABILITY (HGI)	94	--

BED CODE: 71
SAMPLE NO. 389

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: SOMERSET

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	RECOVERY, % PYRITIC	ASH, %	BTU	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	26.7	3.0	31.2	.26	3.0	15296	1.1	1.1
FLOAT 1.40	73.0	7.9	80.2	.87	7.9	14384	1.9	1.9
FLOAT 1.60	87.8	9.9	93.9	1.37	9.9	14012	2.6	2.6
CUM(1-1/2" X 100M)	100.0	14.8	100.0	2.47	14.8	13100	4.4	4.4
100M X 0	2.8	9.9	3.0	2.47	9.9	14012	4.0	4.0
TOTAL(1-1/2" X 0)	100.0	14.7	100.0	2.47	14.7	13126	4.4	4.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	RECOVERY, % PYRITIC	ASH, %	BTU	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	28.7	2.9	33.9	.26	2.9	15314	1.1	1.1
FLOAT 1.40	68.6	7.1	77.0	.72	7.1	14533	1.6	1.6
FLOAT 1.60	85.0	9.4	92.6	1.13	9.4	14105	2.2	2.2
CUM(3/8" X 100M)	100.0	15.6	100.0	2.53	15.6	12951	4.4	4.4
100M X 0	8.9	9.2	9.7	2.04	9.2	14142	3.8	3.8
TOTAL(3/8" X 0)	100.0	15.0	100.0	2.49	15.0	13057	4.4	4.4

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	RECOVERY, % PYRITIC	ASH, %	BTU	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	32.1	2.7	37.8	.27	2.7	15351	1.1	1.1
FLOAT 1.40	64.8	5.5	73.7	.51	5.5	14830	1.3	1.3
FLOAT 1.60	84.4	8.5	92.3	.77	8.5	14272	1.7	1.7
CUM(14M X 0)	100.0	15.1	100.0	2.62	15.1	13044	4.6	4.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	43.6
3/8" X 14M	37.2
14M X 100M	16.4
100M X 0	2.8

--- MOISTURE, % ---

TOTAL	4.9
AS RECEIVED	2.7

STATE: PENNSYLVANIA
COUNTY: SOMERSET
BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS
RED CODE: 71
SAMPLE NO.: 389

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.70	.90	.90	--	--	--	--	--	--
ASH	15.28	8.23	52.36	15.70	8.30	52.84	--	--	--
VOLATILE MATTER	20.14	21.08	18.00	20.70	21.27	18.16	24.55	23.19	38.51
FIXED CARBON	61.89	69.80	28.74	63.60	70.43	29.00	75.45	76.81	61.49
BTU/LB	12595	14171	5967	12944	14300	6021	15355	15594	12768

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	72.03	81.00	30.82	74.03	81.74	31.10	87.81	89.14	65.95
HYDROGEN	4.30	4.61	1.98	4.11	4.55	1.90	4.88	4.96	4.03
NITROGEN	1.05	1.18	.40	1.08	1.19	.40	1.28	1.30	.85
SULFUR	2.83	1.25	12.57	2.91	1.26	12.68	3.45	1.37	26.90
OXYGEN	4.51	3.73	1.87	2.17	2.96	1.08	2.57	3.23	2.28
ASH	15.28	8.23	52.36	15.70	8.30	52.84	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.58	.74	12.52	2.65	.75	12.63	3.15	.82	26.78
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.24	.50	.04	.25	.50	.05	.30	.55	.10
TOTAL	2.83	1.25	12.57	2.91	1.26	12.68	3.45	1.37	26.90

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.67	.67
OXYGEN/CARBON	.02	.03
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	1
HARDGROVE GRINDABILITY (HGI)	91	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2090	2620	2080
SOFTENING TEMPERATURE (ST)	2190	2670	2130
FLUID TEMPERATURE (FT)	2470	2720	2300
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.10	--	--
MINERAL MATTER (PAWR)	18.56	9.66	64.04

BED CODE: 71
SAMPLE NO. 390

BED: UPPER FREEPORT
RANK: LOW VOLATILE BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: SOMERSET

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.0	2.8	.19	15247	1.2
FLOAT 1.40	56.5	7.7	.70	14370	1.9
FLOAT 1.60	82.7	11.2	1.46	13743	3.0
CUM(1-1/2" X 100M)	100.0	16.8	2.62	12741	5.1
100M X 0	1.4	12.1	2.41	13582	4.8
TOTAL(1-1/2" X 0)	100.0	16.7	2.62	12752	5.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	14.1	2.9	.14	15229	1.2
FLOAT 1.40	57.9	7.2	.47	14459	1.6
FLOAT 1.60	80.9	10.8	1.00	13815	2.3
CUM(3/8" X 100M)	100.0	17.4	2.69	12633	5.3
100M X 0	10.1	11.8	2.26	13636	4.3
TOTAL(3/8" X 0)	100.0	16.8	2.65	12735	5.2

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.7	2.6	.18	15283	1.1
FLOAT 1.40	57.1	6.4	.44	14602	1.4
FLOAT 1.60	81.8	10.4	.90	13886	2.0
CUM(14M X 0)	100.0	17.0	2.67	12705	5.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	53.9
3/8" X 14M	34.8
14M X 100M	9.9
100M X 0	1.4

TOTAL AS RECEIVED 2.4 .8

STATE: PENNSYLVANIA		BED: UPPER FREEPORT		BED CODE: 71	
COUNTY: SOMERSET		RANK: LOW VOLATILE BITUMINOUS		SAMPLE NO. 390	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
MOISTURE ASH VOLATILE MATTER FIXED CARBON BTU/LB	RAW	AS RECEIVED FL 1.60 SK 1.60	RAW	MOISTURE FREE FL 1.60 SK 1.60	MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	.80	1.00 1.00	--	--	--
	17.16	9.88 44.35	17.30	9.98 44.80	--
	17.51	19.00 11.09	17.65	19.19 11.20	20.29
	64.53	70.12 43.56	65.05	70.82 44.00	78.66 79.71
12569	13807 7647	12670	13946 7725	15320 15493 13993	
----- ULTIMATE ANALYSIS, % -----					
CARBON HYDROGEN NITROGEN SULFUR OXYGEN ASH	RAW	AS RECEIVED FL 1.60 SK 1.60	RAW	MOISTURE FREE FL 1.60 SK 1.60	MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	--	-- --	--	--	--
	--	-- --	--	--	--
	3.41	1.35 11.63	3.44	1.36 11.75	4.16 1.51 21.28
	17.16	9.88 44.35	17.30	9.98 44.80	--
----- SULFUR FORMS ANALYSIS, % -----					
PYRITIC SULFATIC ORGANIC TOTAL	RAW	AS RECEIVED FL 1.60 SK 1.60	RAW	MOISTURE FREE FL 1.60 SK 1.60	MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	2.82	.80 10.52	2.84	.81 10.63	3.43 .99 19.25
	.00	.00 .00	.00	.00 .00	.00 .00 .00
	.60	.54 1.11	.60	.55 1.12	.73 .61 2.04
	3.41	1.35 11.63	3.44	1.36 11.75	4.16 1.51 21.28
----- MINERAL ANALYSIS OF ASH, % -----					
OXIDES SiO2 (SILICON OXIDE) Al2O3 (ALUMINUM OXIDE) Fe2O3 (IRON OXIDE) TiO2 (TITANIUM OXIDE) CaO (CALCIUM OXIDE) MgO (MAGNESIUM OXIDE) Na2O (SODIUM OXIDE) K2O (POTASSIUM OXIDE) SO3 (SULFITES)	RAW	FL 1.60 SK 1.60	FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)		
	--	-- --	RAW FL 1.60 SK 1.60		
	--	-- --	INITIAL DEFORMATION (ID) 2300 2140		
	--	-- --	SOFTENING TEMPERATURE (ST) 2400 2890		
	--	-- --	FLUID TEMPERATURE (FT) 2520 2910+		
	--	-- --	----- MISCELLANEOUS DATA, % -----		
	--	-- --	CL (CHLORINE) (ANALYZED) RAW FL 1.60 SK 1.60		
	--	-- --	NA (SODIUM) (CALCULATED) -- --		
	--	-- --	MINERAL MATTER (PARR) 20.58 11.53 54.84		
	--	-- --	----- PHYSICAL PARAMETERS, INDEX -----		
BASE/ACID DOLOMITE HYDROGEN/CARBON OXYGEN/CARBON R250 SILICA SILICA/ALUMINA	RAW	FL 1.60	FREE SWELLING (FSI) RAW FL 1.60 SK 1.60		
	--	--	HARDGROVE GRINDABILITY (HGI) 9 89		
	--	--	FREE SWELLING (FSI) 9		
	--	--	HARDGROVE GRINDABILITY (HGI) -- 89		
	--	--	SILICA/ALUMINA		
----- COAL UTILIZATION RATIOS -----					

STATE: PENNSYLVANIA
 COUNTY: TIOGA
 BED: UPPER FREEPORT
 RANK: LOW VOLATILE BITUMINOUS
 BED CODE: 71
 SAMPLE NO.: 391

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.0	3.6	.05	15115	.9
FLOAT 1.40	83.9	6.6	.23	14597	1.1
FLOAT 1.60	96.3	8.3	.37	14304	1.4
CUM(1-1/2" X 100M)	100.0	10.0	.92	14010	2.2
100M X 0	2.3	11.2	1.96	13803	3.6
TOTAL(1-1/2" X 0)	100.0	10.0	.94	14005	2.2

----- SAMPLE CRUSHED TO PASS 3/8" -----
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.8	3.6	.09	15115	.9
FLOAT 1.40	83.4	6.5	.21	14615	1.0
FLOAT 1.60	95.9	8.4	.36	14286	1.2
CUM(3/8" X 100M)	100.0	10.2	.98	13975	2.1
160M X 0	2.3	10.6	2.26	13906	3.7
TOTAL(3/8" X 0)	100.0	10.2	1.01	13974	2.1

----- SAMPLE CRUSHED TO PASS 14M -----
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.8	2.8	.07	15254	.8
FLOAT 1.40	80.9	5.1	.08	14856	.8
FLOAT 1.60	93.9	7.5	.17	14442	1.0
CUM(14M X 0)	100.0	10.4	1.07	13941	2.3

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	---

----- MOISTURE, % -----

TOTAL	2.1
AS RECEIVED	.5

STATE: PENNSYLVANIA BED: UPPER FREEPORT BED CODE: 71
COUNTY: TIOGA RANK: LOW VOLATILE BITUMINOUS SAMPLE NO. 391

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.50	.60	.40	--	--	--
ASH	9.95	7.75	54.48	10.00	7.80	54.70
VOLATILE MATTER	19.62	19.66	--	19.72	19.78	--
FIXED CARBON	69.93	71.99	--	70.28	72.42	--
BTU/LB	13940	14304	--	14010	14390	--
					15567	15607

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.60	.75	15.24	1.61	.76	15.30
OXYGEN	--	--	--	--	--	--
ASH	9.95	7.75	54.48	10.00	7.80	54.70
					1.79	.82
					33.78	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.06	.19	14.86	1.07	.19	14.92
SULFATIC	.00	.00	.00	.00	.00	.00
ORGANIC	.54	.57	.37	.54	.57	.38
TOTAL	1.60	.75	15.24	1.61	.76	15.30
					1.79	.82
					33.78	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (TD)	2680	2910+	--
SOFTENING TEMPERATURE (ST)	2730	2910+	--
FLUID TEMPERATURE (FT)	2780	2910+	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	11.69	8.84	67.49

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: PENNSYLVANIA BED: UPPER FREEPORT BED CODE: 71
COUNTY: WESTMORELAND RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 392

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.2	3.4	.44	14843	1.4
FLOAT 1.40	66.8	5.0	.82	14553	2.1
FLOAT 1.60	73.3	6.4	1.15	14300	2.6
FLOAT 1.90	79.4	9.1	1.47	13812	3.2
CUM(1-1/2" X 100M)	100.0	22.4	2.96	11406	6.3
100M X 0	.7	13.8	1.86	12961	3.8
TOTAL(1-1/2" X 0)	100.0	22.3	2.95	11417	6.3

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.8	3.3	.32	14861	1.2
FLOAT 1.40	69.9	4.6	.57	14626	1.6
FLOAT 1.60	73.9	5.5	.73	14463	1.9
FLOAT 1.90	79.4	9.1	1.47	13812	3.2
CUM(3/8" X 100M)	100.0	22.4	2.85	11406	6.2
100M X 0	1.2	16.4	2.27	12491	4.7
TOTAL(3/8" X 0)	100.0	22.3	2.84	11419	6.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.3	3.0	.29	14915	1.1
FLOAT 1.40	68.0	4.3	.44	14680	1.4
FLOAT 1.60	75.5	6.3	.68	14318	1.7
FLOAT 1.90	79.4	9.1	1.47	13812	3.2
CUM(14M X 0)	100.0	21.5	2.84	11568	6.2

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---	MOISTURE, %	---
3/8" X 14M	---	TOTAL	1.5
14M X 100M	---	AS RECEIVED	.8
100M X 0	.7		

STATE: PENNSYLVANIA BED: UPPER FREEPORT BED CODE: 71
COUNTY: WESTMORELAND RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 392

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.80	--	--	--	--	--
ASH	22.18	--	--	22.36	--	--
VOLATILE MATTER	30.00	--	--	30.24	--	--
FIXED CARBON	47.02	--	--	47.40	--	--
BTU/LB	11878	--	--	11974	--	15422

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.51	--	--	3.54	--	4.56
OXYGEN	--	--	--	--	--	--
ASH	22.18	--	--	22.36	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.00	--	--	3.02	--	3.89
SULFATIC	.03	--	--	.03	--	.04
ORGANIC	.49	--	--	.49	--	.63
TOTAL	3.51	--	--	3.54	--	4.56

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	26.10	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

BED CODE: 71
SAMPLE NO. 393

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: WESTMORELAND

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.6	4.8	.79	14590	1.8
FLOAT 1.40	56.5	7.2	1.51	14155	2.8
FLOAT 1.60	69.6	9.4	2.28	13757	4.0
FLOAT 1.90	74.9	10.7	2.64	13522	4.6
CUM(1-1/2" X 100M)	100.0	27.3	4.10	10519	8.6
100M X 0	.2	16.8	2.14	12419	5.8
TOTAL(1-1/2" X 0)	100.0	27.3	4.10	10523	8.5

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.1	4.2	.62	14698	1.5
FLOAT 1.40	58.6	7.8	1.43	14047	2.7
FLOAT 1.60	70.2	10.2	2.05	13613	3.7
FLOAT 1.90	74.9	10.7	2.64	13522	4.6
CUM(3/8" X 100M)	100.0	26.7	4.31	10628	8.8
100M X 0	.6	21.5	1.95	11568	5.7
TOTAL(3/8" X 0)	100.0	26.7	4.30	10633	8.8

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.4	4.5	.41	14644	1.6
FLOAT 1.40	60.5	6.7	.74	14246	2.1
FLOAT 1.60	68.6	8.7	1.09	13884	2.7
FLOAT 1.90	74.9	10.7	2.64	13522	4.6
CUM(14M X 0)	100.0	27.2	4.00	10537	8.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	1.3
3/8" X 14M	.8
14M X 100M	
100M X 0	

STATE: PENNSYLVANIA BED: UPPER FREEPORT BED CODE: 71
COUNTY: WESTMORELAND RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 393

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.80	--	--	--	--	--
ASH	26.98	--	--	27.20	--	--
VOLATILE MATTER	28.07	--	--	28.30	--	--
FIXED CARBON	44.14	--	--	44.50	--	--
BTU/LB	11011	--	--	11100	--	--
					15247	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.63	--	--	4.67	--	--
OXYGEN	--	--	--	--	6.41	--
ASH	26.98	--	--	27.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.30	--	--	4.34	--	--
SULFATIC	.08	--	--	.08	--	--
ORGANIC	.25	--	--	.25	--	--
TOTAL	4.63	--	--	4.67	--	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60		RAW	FL 1.60	SK 1.60
OXIDES							
SiO2 (SILICON OXIDE)	--	--	--	INITIAL DEFORMATION (ID)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	SOFTENING TEMPERATURE (ST)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	FLUID TEMPERATURE (FT)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--				
CaO (CALCIUM OXIDE)	--	--	--	MISCELLANEOUS DATA, %			
MgO (MAGNESIUM OXIDE)	--	--	--	CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
Na2O (SODIUM OXIDE)	--	--	--	NA (SODIUM) (CALCULATED)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	MINERAL MATTER (PARR)	31.94	--	--
SO3 (SULFITES)	--	--	--				

COAL UTILIZATION RATIOS

	RAW	FL 1.60			RAW	FL 1.60	SK 1.60
BASE/ACID				PHYSICAL PARAMETERS, INDEX			
DOLOMITE	--	--					
HYDROGEN/CARBON	--	--		FREE SWELLING (FSI)	--	--	--
OXYGEN/CARBON	--	--		HARDGROVE GRINDABILITY (HGI)	--	--	--
R250	--	--					
SILICA	--	--					
SILICA/ALUMINA	--	--					

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: UPPER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 76
SAMPLE NO. 394

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.8	3.6	.53	14736	3.0
FLOAT 1.40	70.9	5.7	.99	14362	3.6
FLOAT 1.60	81.0	8.0	1.20	13953	3.8
CUM(1-1/2" X 100M)	100.0	18.0	2.31	12174	5.8
100M X 0	1.0	19.1	3.71	11979	6.9
TOTAL(1-1/2" X 0)	100.0	18.0	2.32	12172	5.8

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.0	3.7	.74	14718	2.9
FLOAT 1.40	69.0	5.4	.96	14416	3.1
FLOAT 1.60	78.8	7.5	1.21	14042	3.5
CUM(3/8" X 100M)	100.0	18.9	2.45	12014	5.8
100M X 0	4.7	17.0	3.14	12352	6.1
TOTAL(3/8" X 0)	100.0	18.8	2.48	12030	5.8

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.9	3.3	.53	14789	2.5
FLOAT 1.40	65.5	5.3	.71	14434	2.8
FLOAT 1.60	76.9	7.4	.94	14060	3.2
CUM(14M X 0)	100.0	18.7	2.45	12050	5.8

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	31.1
3/8" X 14M	49.6
14M X 100M	18.3
100M X 0	1.0

----- MOISTURE, % -----

TOTAL
AS RECEIVED
2.6
1.6

STATE: PENNSYLVANIA
COUNTY: ARMSTRONG

BED: UPPER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 76
SAMPLE NO. 394

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.60	1.60	--	--	--	--
ASH	19.09	7.38	19.40	58.57	--	--
VOLATILE MATTER	35.74	39.89	36.33	22.83	45.07	43.82
FIXED CARBON	43.57	51.13	44.27	18.60	54.93	56.18
BTU/LB	11789	13776	11980	4944	14864	15135

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	66.23	75.80	67.31	25.79	83.51	83.28
HYDROGEN	4.67	5.42	4.56	1.90	5.66	5.76
NITROGEN	1.16	1.38	1.17	.40	1.46	1.51
SULFUR	3.15	2.23	3.20	7.69	3.98	2.45
OXYGEN	5.70	7.79	4.35	5.65	5.40	6.99
ASH	19.09	7.38	19.40	58.57	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.50	.94	2.54	7.48	3.15	1.04
SULFATIC	.05	.00	.06	.02	.07	.00
ORGANIC	.60	1.29	.61	.19	.76	1.42
TOTAL	3.15	2.23	3.20	7.69	3.98	2.45

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2070	2360
SOFTENING TEMPERATURE (ST)	2120	2420
FLUID TEMPERATURE (FT)	2250	2550
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.14	--
MINERAL MATTER (PARR)	22.71	9.35
		67.48

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.81	.83
OXYGEN/CARBON	.05	.06
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	7	8
HARDGROVE GRINDABILITY (HGI)	49	--

STATE: PENNSYLVANIA
 COUNTY: CAMBRIA
 BED: UPPER KITTANNING
 RANK: LOW VOLATILE BITUMINOUS
 BED CODE: 76
 SAMPLE NO. 395

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	11.8	2.8	.07	15105	.8
FLOAT 1.40	48.1	5.7	.12	14582	.9
FLOAT 1.60	60.5	8.9	.22	14006	1.0
FLOAT 1.90	64.6	10.6	.30	13699	1.2
CUM(1-1/2" X 100M)	100.0	34.4	.80	9412	2.5
100M X 0	.3	18.2	.85	12330	2.2
TOTAL(1-1/2" X 0)	100.0	34.4	.80	9421	2.5

--- SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	15.1	2.3	.04	15195	.8
FLOAT 1.40	49.3	5.2	.09	14672	.8
FLOAT 1.60	58.1	7.5	.13	14258	.9
FLOAT 1.90	64.6	10.6	.30	13699	1.2
CUM(3/8" X 100M)	100.0	35.6	.78	9196	2.5
100M X 0	1.0	22.8	.91	11502	2.4
TOTAL(3/8" X 0)	100.0	35.5	.78	9219	2.5

--- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	7.0	2.0	.04	15249	.8
FLOAT 1.40	46.6	5.7	.09	14582	.9
FLOAT 1.60	59.3	8.2	.15	14132	.9
FLOAT 1.90	64.6	10.6	.30	13699	1.2
CUM(14M X 0)	100.0	33.7	.78	9538	2.5

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 --- SAMPLE CRUSHED TO PASS 1-1/2" ---

1-1/2" X 3/8"	---	TOTAL	2.8
3/8" X 14M	---	AS RECEIVED	.5
14M X 100M	---		
100M X 0	.3		

STATE: PENNSYLVANIA	BED: UPPER KITTANNING	BED CODE: 76
COUNTY: CAMBRIA	RANK: LOW VOLATILE BITUMINOUS	SAMPLE NO. 395
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE
RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE .50	-- --	-- --
ASH 32.84	-- --	-- --
VOLATILE MATTER 14.23	33.00	21.34
FIXED CARBON 52.44	14.30	78.66
	52.70	
BTU/LB 10074	10125	15112
----- ULTIMATE ANALYSIS, % -----		
AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE
RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON -- --	-- --	-- --
HYDROGEN -- --	-- --	-- --
NITROGEN -- --	-- --	-- --
SULFUR 1.11	1.12	1.67
OXYGEN -- --	-- --	-- --
ASH 32.84	33.00	-- --
----- SULFUR FORMS ANALYSIS, % -----		
AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE
RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC .86	.87	1.29
SULFATIC .04	.04	.06
ORGANIC .21	.21	.31
TOTAL 1.11	1.12	1.67
----- MINERAL ANALYSIS OF ASH, % -----		
FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)		
AS RECEIVED	MOISTURE FREE	MOISTURE AND ASH FREE
RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	INITIAL DEFORMATION (ID)	-- --
SiO2 (SILICON OXIDE)	SOFTENING TEMPERATURE (ST)	-- --
Al2O3 (ALUMINUM OXIDE)	FLUID TEMPERATURE (FT)	-- --
Fe2O3 (IRON OXIDE)	----- MISCELLANEOUS DATA, % -----	
TiO2 (TITANIUM OXIDE)	CL (CHLORINE) (ANALYZED)	RAW FL 1.60 SK 1.60
CaO (CALCIUM OXIDE)	NA (SODIUM) (CALCULATED)	-- --
MgO (MAGNESIUM OXIDE)	MINERAL MATTER (PARR)	36.25
Na2O (SODIUM OXIDE)	----- PHYSICAL PARAMETERS, INDEX -----	
K2O (POTASSIUM OXIDE)	FREE SWELLING (FSI)	RAW FL 1.60 SK 1.60
SO3 (SULFITES)	HARDGROVE GRINDABILITY (HGI)	-- --
----- COAL UTILIZATION RATIOS -----		
RAW FL 1.60	BASE/ACID	
-- --	DOLOMITE	
-- --	HYDROGEN/CARBON	
-- --	OXYGEN/CARBON	
-- --	R250	
-- --	SILICA	
-- --	SILICA/ALUMINA	

STATE: PENNSYLVANIA
COUNTY: CAMBERIA

BED: UPPER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 76
SAMPLE NO. 396

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.5	3.8	.29	14950	1.5
FLOAT 1.40	70.5	7.4	.32	14350	1.7
FLOAT 1.60	92.6	10.7	.69	13775	2.3
CUM(1-1/2" X 100M)	100.0	13.1	1.65	13347	3.7
100M X 0	1.2	11.6	1.69	13529	4.1
TOTAL(1-1/2" X 0)	100.0	13.1	1.65	13350	3.7

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.1	3.2	.17	15010	1.1
FLOAT 1.40	70.9	6.4	.23	14465	1.2
FLOAT 1.60	89.2	9.5	.26	13949	1.4
CUM(3/8" X 100M)	100.0	13.4	1.74	13218	3.6
100M X 0	6.7	9.3	1.22	13962	2.7
TOTAL(3/8" X 0)	100.0	13.1	1.71	13268	3.5

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.6	2.7	.12	15100	1.0
FLOAT 1.40	64.3	6.5	.18	14461	1.1
FLOAT 1.60	88.0	10.3	.21	13814	1.1
CUM(14M X 0)	100.0	14.8	1.85	12976	3.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	55.3
3/8" X 14M	34.6
14M X 100M	8.9
100M X 0	1.2

MOISTURE, %

TOTAL AS RECEIVED	4.1
	.8

STATE: PENNSYLVANIA
COUNTY: CAMBRIA

BED: UPPER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 76
SAMPLE NO. 396

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.80	1.10	1.10	--	--	--
ASH	14.09	9.78	45.04	14.21	9.89	45.54
VOLATILE MATTER	25.53	26.25	19.68	25.74	26.54	19.90
FIXED CARBON	59.57	62.87	34.18	60.06	63.57	34.56
BTU/LB	12962	13725	6975	13066	13878	7052
					15230	15400
						12950

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	74.02	78.55	35.95	74.62	79.42	36.35
HYDROGEN	4.55	4.86	2.37	4.50	4.79	2.27
NITROGEN	1.18	1.27	.48	1.19	1.28	.49
SULFUR	2.36	.70	14.87	2.38	.71	15.04
OXYGEN	3.80	4.84	1.28	3.11	3.91	.31
ASH	14.09	9.78	45.04	14.21	9.89	45.54

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.86	.22	13.56	1.88	.22	13.71
SULFATIC	.04	.03	.06	.05	.03	.06
ORGANIC	.45	.45	1.26	.45	1.27	.52
TOTAL	2.36	.70	14.87	2.38	.71	15.04

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
AL2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
FE2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.72	.72	--	--	--	--
OXYGEN/CARBON	.03	.04	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING	8	1/2	8	1/2	8	1/2
HARDGROVE GRINDABILITY (HGI)	81	76	81	76	81	76

STATE: PENNSYLVANIA
COUNTY: CAMBRIA

BED: UPPER KITANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 76
SAMPLE NO. 397

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	% PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.2	9.2	1.7	.04	.63	15193	.8
FLOAT 1.40	70.9	76.3	5.6	.30	.80	14523	1.1
FLOAT 1.60	88.4	92.7	7.8	.77	1.32	14145	1.9
CUM(1-1/2" X 100M)	100.0	100.0	11.6	2.16	2.70	13492	4.0
100M X 0	2.9	2.8	13.1	2.03	3.01	13234	4.5
TOTAL(1-1/2" X 0)	100.0	100.0	11.6	2.16	2.71	13484	4.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	% PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	15.4	17.4	1.7	.04	.61	15193	.8
FLOAT 1.40	73.9	80.5	5.0	.17	.65	14626	.9
FLOAT 1.60	86.7	92.5	6.8	.35	.83	14317	1.2
CUM(3/8" X 100M)	100.0	100.0	12.0	2.28	2.80	13423	4.2
100M X 0	9.0	9.1	11.0	2.13	2.87	13595	4.2
TOTAL(3/8" X 0)	100.0	100.0	11.9	2.27	2.81	13439	4.2

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	% PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	11.0	12.4	1.7	.03	.49	15193	.6
FLOAT 1.40	71.3	77.9	4.2	.13	.55	14763	.7
FLOAT 1.60	88.0	94.0	6.1	.21	.70	14437	1.0
CUM(14M X 0)	100.0	100.0	11.5	2.22	2.74	13509	4.1

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	40.4
3/8" X 14M	40.1
14M X 100M	16.6
100M X 0	2.9

--- MOISTURE, % ---

TOTAL
AS RECEIVED
3.1
2.0

STATE: PENNSYLVANIA
COUNTY: CAMBRIA

BED: UPPER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 76
SAMPLE NO. 397

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.00	1.10 2.10	--	--	--	--
ASH	11.37	5.74 48.03	11.60	5.80 49.06	--	--
VOLATILE MATTER	15.73	17.46 5.04	16.05	17.65 5.14	18.16	18.74 10.10
FIXED CARBON	70.90	75.71 44.84	72.35	76.55 45.80	81.84	81.26 89.90
BTU/LB	13220	14331 6909	13490	14490 7058	15260	15382 13854

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.81	.63 17.34	2.87	.64 17.72	3.24	.68 34.77
OXYGEN	--	--	--	--	--	--
ASH	11.37	5.74 48.03	11.60	5.80 49.06	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.15	.22 16.60	2.19	.22 16.96	2.48	.23 33.29
SULFATIC	.03	.02	.04	.02	.04	.02
ORGANIC	.63	.40 .69	.64	.40 .71	.72	.42 1.38
TOTAL	2.81	.62 17.34	2.87	.64 17.72	3.24	.68 34.77

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--
MISCELLANEOUS DATA, %	--	--	--	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM, (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--
PHYSICAL PARAMETERS, INDEX	--	--	--	--	--	--
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: UPPER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 76
SAMPLE NO. 398

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	41.2	2.9	.05	15075	.9
FLOAT 1.40	73.7	6.4	.05	14474	.9
FLOAT 1.60	89.9	9.4	.07	13959	.9
CUM(1-1/2" X 100M)	100.0	14.1	.12	13152	1.0
100M X 0	.5	9.8	.23	13890	1.2
TOTAL(1-1/2" X 0)	100.0	14.1	.12	13155	1.0

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	45.0	2.8	.05	15093	.9
FLOAT 1.40	72.1	5.7	.05	14594	.9
FLOAT 1.60	88.4	8.9	.06	14045	.9
CUM(3/8" X 100M)	100.0	14.3	.12	13117	1.0
100M X 0	3.7	11.0	.27	13684	1.5
TOTAL(3/8" X 0)	100.0	14.2	.13	13138	1.1

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	45.2	2.2	.03	15196	.9
FLOAT 1.40	68.5	4.8	.04	14749	.9
FLOAT 1.60	88.2	8.4	.05	14131	1.0
CUM(14M X 0)	100.0	13.8	.12	13203	1.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	38.6
3/8" X 14M	39.3
14M X 100M	21.6
100M X 0	.5

MOISTURE, %
TOTAL AS RECEIVED
1.8
.7

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: UPPER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 76
SAMPLE NO. 398

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.70	1.00	.80	--	--	--
ASH	13.70	8.02	54.46	13.80	8.10	54.90
VOLATILE MATTER	20.62	21.42	14.09	20.76	21.64	14.20
FIXED CARBON	64.98	69.56	30.65	65.44	70.26	30.90
BTU/LB	13147	14008	6091	13240	14150	6140

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.77	.76	1.11	.77	.77	1.12
OXYGEN	--	--	--	--	--	--
ASH	13.70	8.02	54.46	13.80	8.10	54.90

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.11	.04	.64	.11	.05	.64
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.65	.71	.47	.65	.72	.47
TOTAL	.77	.76	1.11	.77	.77	1.12

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLomite	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)	9	FL 1.60	SK 1.60
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: UPPER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 76
SAMPLE NO. 399

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.1	2.8	9.9	.03	14600	.7
FLOAT 1.40	79.3	6.1	82.8	.06	13994	.7
FLOAT 1.60	95.7	7.7	97.8	.06	13700	.7
CUM(1-1/2" X 100M)	100.0	9.3	100.0	.46	13407	1.3
100M X 0	4.2	13.0	4.0	1.07	12728	2.3
TOTAL(1-1/2" X 0)	100.0	9.5	100.0	.49	13378	1.4

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	11.8	2.7	12.9	.03	14618	.6
FLOAT 1.40	76.7	5.7	80.5	.02	14067	.6
FLOAT 1.60	95.4	7.6	97.6	.04	13719	.7
CUM(3/8" X 100M)	100.0	9.3	100.0	.45	13407	1.3
100M X 0	2.9	13.1	2.7	.98	12709	2.2
TOTAL(3/8" X 0)	100.0	9.4	100.0	.47	13387	1.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.0	3.2	24.9	.03	14526	.6
FLOAT 1.40	71.0	4.4	75.8	.02	14306	.6
FLOAT 1.60	92.1	6.2	96.0	.03	13976	.6
CUM(14M X 0)	100.0	9.3	100.0	.48	13407	1.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	35.9
3/8" X 14M	39.6
14M X 100M	20.3
100M X 0	4.2

MOISTURE, %

TOTAL	4.8
AS RECEIVED	3.7

STATE: PENNSYLVANIA
COUNTY: CLEARFIELD

BED: UPPER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 76
SAMPLE NO. 399

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.70	3.50	3.20	--	--	--	--	--	--
ASH	9.24	6.22	44.04	9.60	6.45	45.50	--	--	--
VOLATILE MATTER	22.54	22.59	22.94	23.40	23.41	23.70	25.89	25.03	43.49
FIXED CARBON	64.52	67.68	29.81	67.00	70.14	30.80	74.11	74.97	56.51
BTU/LB	13020	13293	6534	13520	13775	6750	14956	14725	12385

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	.86	.47	5.82	.89	.48	6.01	.99	.52	11.03
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	9.24	6.22	44.04	9.60	6.45	45.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.44	.03	5.54	.45	.03	5.73	.50	.04	10.51
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.41	.43	.26	.43	.44	.27	.48	.47	.50
TOTAL	.86	.47	5.82	.89	.48	6.01	.99	.52	11.03

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2090	2260	1980
SOFTENING TEMPERATURE (ST)	2140	2320	2030
FLUID TEMPERATURE (FT)	2190	2420	2080
MISCELLANEOUS DATA, %	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	10.86	7.27	52.45

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	1	1	--
HARDGROVE GRINDABILITY (HGI)	107	108	--

STATE: PENNSYLVANIA
COUNTY: JEFFERSON
BED: UPPER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 76
SAMPLE NO. 400

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.9	4.7	.41	14540	1.5
FLOAT 1.40	75.5	6.9	.87	14115	2.0
FLOAT 1.60	93.3	10.0	1.24	13564	2.7
CUM(1-1/2" X 100M)	100.0	12.1	1.85	13163	3.9
100M X 0	1.5	13.3	3.57	12847	7.3
TOTAL(1-1/2" X 0)	100.0	12.1	1.88	13159	4.0

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.2	4.0	.11	14637	1.1
FLOAT 1.40	66.7	4.3	.15	14580	1.4
FLOAT 1.60	86.4	8.4	.65	13837	1.9
CUM(3/8" X 100M)	100.0	13.3	2.19	12923	3.9
100M X 0	7.1	13.0	3.56	12904	6.8
TOTAL(3/8" X 0)	100.0	13.3	2.29	12922	4.1

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.5	2.4	.08	14767	1.0
FLOAT 1.40	73.8	4.5	.21	14387	1.3
FLOAT 1.60	88.8	7.1	.49	13933	1.7
CUM(14M X 0)	100.0	11.5	1.97	13106	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"	MOISTURE, %
1-1/2" X 3/8"	76.1
3/8" X 14M	17.3
14M X 100M	5.1
100M X 0	1.5

TOTAL AS RECEIVED
2.0
1.6

STATE: PENNSYLVANIA
COUNTY: JEFFERSON

BED: UPPER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 76
SAMPLE NO. 400

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.60	1.70 1.60	--	--	--	--
ASH	11.77	7.26 46.44	11.96	7.38 47.20	--	--
VOLATILE MATTER	33.03	34.62 20.66	33.57	35.21 21.00	38.13	38.02 39.77
FIXED CARBON	53.60	56.43 31.29	54.47	57.40 31.80	61.87	61.98 60.23
BTU/LB	12829	13654 6348	13038	13890 6452	14809	14997 12219

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	74.06	78.76 36.22	75.26	80.12 36.81	85.49	86.51 69.72
HYDROGEN	4.91	5.22 2.54	4.81	5.12 2.40	5.47	5.52 4.55
NITROGEN	1.41	1.51 .59	1.43	1.54 .60	1.63	1.66 1.14
SULFUR	2.32	1.13 12.26	2.35	1.15 12.46	2.67	1.24 23.61
OXYGEN	5.53	6.13 1.94	4.18	4.70 .53	4.75	5.07 1.00
ASH	11.77	7.26 46.44	11.96	7.38 47.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.81	.43 12.14	1.84	.44 12.33	2.09	.48 23.36
SULFATIC	.05	.02 .04	.06	.02 .04	.06	.02 .07
ORGANIC	.45	.67 .09	.46	.69 .09	.52	.74 .18
TOTAL	2.32	1.13 12.26	2.35	1.15 12.46	2.67	1.24 23.61

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
--	-----	---------

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2120	2780
SOFTENING TEMPERATURE (ST)	2170	2910+
FLUID TEMPERATURE (FT)	2410	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.19	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	13.83	8.51 54.16

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	7	7 1/2 0
HARDGROVE GRINDABILITY (HGI)	56	51 --

STATE: PENNSYLVANIA
COUNTY: SOMERSET
BED: UPPER KITTANNING
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 76
SAMPLE NO. 401

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.5	3.9	.05	14722	.8
FLOAT 1.40	79.3	5.1	.02	14510	.8
FLOAT 1.60	98.0	7.0	.03	14174	.9
CUM(1-1/2" X 100M)	100.0	7.6	.04	14068	
100M X 0	2.7	13.9	.33	12956	1.6
TOTAL(1-1/2" X 0)	100.0	7.8	.05	14038	.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.9	3.7	.05	14757	.9
FLOAT 1.40	76.2	4.9	.01	14545	.8
FLOAT 1.60	97.3	7.2	.01	14139	.9
CUM(3/8" X 100M)	100.0	8.0	.04	13998	
100M X 0	7.4	9.0	.10	13821	1.1
TOTAL(3/8" X 0)	100.0	8.1	.04	13985	.9

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.0	2.2	.02	15022	.9
FLOAT 1.40	72.9	4.8	.02	14563	.9
FLOAT 1.60	96.9	7.2	.03	14139	.9
CUM(14M X 0)	100.0	8.4	.06	13927	

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	42.5
3/8" X 14M	40.9
14M X 100M	13.9
100M X 0	2.7

MOISTURE, %
TOTAL AS RECEIVED
3.6
1.6

STATE: PENNSYLVANIA
COUNTY: SOMERSET
BED: UPPER KITTANNING
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 76
SAMPLE NO. 401

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	1.60	1.70	8.20	7.10	22.63	22.42
ASH	8.07	6.98	20.77	20.83	77.37	77.58
VOLATILE MATTER	20.44	20.48	71.03	72.07	15251	15199
FIXED CARBON	69.89	70.85	14000	14120	7320	7320
BTU/LB	13776	13880	7203	7203	13506	13506

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	79.80	80.78	81.10	82.18	88.34	88.46
HYDROGEN	4.34	4.39	4.23	4.27	4.60	4.60
NITROGEN	1.47	1.48	1.49	1.51	1.63	1.62
SULFUR	.61	.60	.62	.61	.67	.65
OXYGEN	5.72	5.77	4.37	4.33	4.76	4.66
ASH	8.07	6.98	8.20	7.10	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	.05	.03	.05	.03	.05	.04
SULFATIC	.02	.02	.02	.02	.02	.02
ORGANIC	.54	.55	.55	.56	.60	.60
TOTAL	.61	.60	.62	.61	.67	.65

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.63	.62
OXYGEN/CARBON	.04	.04
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2910+
SOFTENING TEMPERATURE (ST)	2910+	2910+	2910+
FLUID TEMPERATURE (FT)	2910+	2910+	2910+
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.07	--	--
MINERAL MATTER (PARR)	9.20	8.00	5.34

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	2	2	0
HARDGROVE GRINDABILITY (HGI)	100	--	--

BED CODE: 76
SAMPLE NO. 402

BED: UPPER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: SOMERSET

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.8	2.4	.03	15280	.8
FLOAT 1.40	33.7	5.8	.07	14667	1.0
FLOAT 1.60	43.0	8.9	.15	14125	1.1
CUM(1-1/2" X 100M)	100.0	51.4	.63	6872	2.8
100M X 0	4.2	33.0	.76	10052	2.4
TOTAL(1-1/2" X 0)	100.0	50.6	.64	7005	2.7

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.9	2.2	.05	15290	.9
FLOAT 1.40	31.0	5.0	.06	14741	.9
FLOAT 1.60	39.7	8.0	.10	14235	1.0
CUM(3/8" X 100M)	100.0	53.2	.60	6616	2.9
100M X 0	9.7	31.5	.76	10307	2.5
TOTAL(3/8" X 0)	100.0	51.1	.62	6974	2.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.4	3.2	.05	15190	.9
FLOAT 1.40	26.1	5.6	.05	14736	.9
FLOAT 1.60	37.5	8.9	.08	14135	1.0
CUM(14M X 0)	100.0	51.1	.68	6994	2.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	45.3
3/8" X 14M	33.2
14M X 100M	17.3
100M X 0	4.2

MOISTURE, %
TOTAL AS RECEIVED 3.1
.9

STATE: PENNSYLVANIA
COUNTY: SOMERSET
BED: UPPER KITTANNING
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 76
SAMPLE NO.: 402

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.90	.70	--	--	--	--
ASH	50.14	9.00	50.60	9.06	28.49	20.20
VOLATILE MATTER	13.95	18.24	14.07	18.37	71.51	79.80
FIXED CARBON	35.01	72.07	35.33	72.57	14303	15516
BTU/LB	7002	14011	7066	14110	2678	11493

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	41.86	80.52	42.24	81.08	85.51	89.16
HYDROGEN	2.54	4.37	2.46	4.32	4.99	4.75
NITROGEN	.84	1.50	.85	1.51	1.73	1.66
SULFUR	1.00	.69	1.01	.69	2.03	.76
OXYGEN	3.61	3.94	2.83	3.34	5.74	3.67
ASH	50.14	9.00	50.60	9.06	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.64	.07	.65	.07	1.32	.98
SULFATIC	.01	.01	.02	.02	.03	.01
ORGANIC	.34	.60	.34	.61	.69	.17
TOTAL	1.00	.69	1.01	.69	2.03	.76

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	2570	2570
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	2620	2620
Fe2O3 (IRON OXIDE)	--	--	--	--	2720	2740
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.70	.64	--	--	10.16	83.44
OXYGEN/CARBON	.05	.03	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	--	--	--	--	1	9
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	77	--

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: UPPER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 76
SAMPLE NO. 403

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.0	1.8	.07	15321	1.1
FLOAT 1.40	69.8	5.5	.22	14676	1.3
FLOAT 1.60	84.3	8.1	.31	14223	1.5
CUM(1-1/2" X 100M)	100.0	15.1	1.19	13004	2.9
100M X 0	2.7	12.1	1.10	13527	2.7
TOTAL(1-1/2" X 0)	100.0	15.0	1.19	13018	2.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.3	2.0	.09	15286	1.3
FLOAT 1.40	72.2	4.7	.20	14816	1.3
FLOAT 1.60	84.2	7.1	.26	14398	1.3
CUM(3/8" X 100M)	100.0	14.7	1.16	13074	2.8
100M X 0	8.8	11.2	.93	13683	2.7
TOTAL(3/8" X 0)	100.0	14.4	1.14	13127	2.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	19.7	1.9	.07	15304	1.3
FLOAT 1.40	69.5	4.8	.17	14798	1.3
FLOAT 1.60	85.3	7.6	.27	14311	1.4
CUM(14M X 0)	100.0	14.7	1.13	13074	2.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	49.8
3/8" X 14M	32.8
14M X 100M	14.7
100M X 0	2.7

TOTAL AS RECEIVED
2.1
1.0

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: UPPER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 76
SAMPLE NO. 403

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.00	1.10	1.20	--	--	--
ASH	14.55	7.22	53.02	14.70	7.30	53.66
VOLATILE MATTER	18.05	19.41	10.41	18.23	19.63	10.54
FIXED CARBON	66.40	72.27	35.37	67.07	73.08	35.80
BTU/LB	12959	14192	6207	13090	14350	6283

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.72	.89	6.24	1.74	.90	6.31
OXYGEN	--	--	--	--	--	--
ASH	14.55	7.22	53.02	14.70	7.30	53.66

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.11	.25	6.05	1.12	.25	6.12
SULFATIC	.01	.01	.02	.02	.01	.02
ORGANIC	.59	.63	.17	.60	.17	.70
TOTAL	1.72	.89	6.24	1.74	.90	6.31

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES (SILICON OXIDE)	--	--	--	--	--	--
AL2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
FE2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CAO (CALCIUM OXIDE)	--	--	--	--	--	--
MGO (MAGNESIUM OXIDE)	--	--	--	--	--	--
NA2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLOID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

BED CODE: 76
SAMPLE NO. 404

BED: UPPER KITTANNING
RANK: LOW VOLATILE BITUMINOUS

STATE: PENNSYLVANIA
COUNTY: SOMERSET

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.2	3.0	30.8	.15	15045	.8
FLOAT 1.40	73.0	6.3	82.5	.37	14473	1.1
FLOAT 1.50	85.4	8.2	94.3	.59	14143	1.5
FLOAT 1.90	88.5	9.1	96.7	.75	13987	1.7
CUM(1-1/2" X 100M)	100.0	15.9	100.0	2.05	12807	4.0
100M X 0	.7	10.9	.7	2.01	13674	3.8
TOTAL(1-1/2" X 0)	100.0	15.9	100.0	2.05	12813	4.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.9	2.8	44.7	.09	15080	.8
FLOAT 1.40	73.6	5.3	84.3	.16	14646	.9
FLOAT 1.60	84.0	7.1	94.1	.25	14334	1.0
FLOAT 1.90	88.5	9.1	96.7	.75	13987	1.7
CUM(3/8" X 100M)	100.0	16.0	100.0	2.07	12789	4.0
100M X 0	1.3	12.8	1.4	2.32	13345	4.5
TOTAL(3/8" X 0)	100.0	16.0	100.0	2.07	12797	4.0

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.2	2.7	44.7	.09	15097	.7
FLOAT 1.40	71.8	4.0	81.9	.12	14716	.8
FLOAT 1.60	84.6	6.8	94.4	.18	14386	.9
FLOAT 1.90	88.5	9.1	96.7	.75	13987	1.7
CUM(14M X 0)	100.0	15.4	100.0	2.10	12893	4.1

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
3/8" X 14M ---
14M X 100M ---
100M X 0 .7

--- MOISTURE, % ---
TOTAL .9
AS RECEIVED .6

BED CODE:	76
SAMPLE NO.	404

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

ULTIMATE ANALYSIS, &

SULFUR FORMS ANALYSIS, %

MINERAL ANALYSIS OF ASH, &

COAL UTILIZATION RATIOS

	RAW	FL 1.60	----- PHYSICAL PARAMETERS, INDEX -----		
BASE/ACID	--	--			
COLOMITE	--	--			
HYDROGEN/CARBON	--	--			
OXYGEN/CARBON	--	--			
R250	--	--			
SILICA	--	--			
SILICA/ALUMINA	--	--			
			FREE SWELLING	(FSI)	
			HARDGROVE GRINDABILITY	(HGI)	
			RAW	FL 1.60	SK 1.60

STATE: PENNSYLVANIA
COUNTY: TIOGA
BED: UPPER KITTANNING
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 76
SAMPLE NO. 405

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.1	2.6	.50	15146	1.9
FLOAT 1.40	59.7	4.2	.86	14852	2.6
FLOAT 1.60	74.5	7.5	1.33	14244	3.4
CUM(1-1/2" X 100M)	100.0	21.6	3.07	11649	6.8
100M X 0	2.0	18.1	1.75	12293	5.2
TOTAL(1-1/2" X 0)	100.0	21.5	3.04	11661	6.8

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.0	2.5	.29	15164	1.8
FLOAT 1.40	62.5	4.1	.71	14870	2.5
FLOAT 1.60	74.3	6.5	.98	14428	2.9
CUM(3/8" X 100M)	100.0	21.9	2.92	11593	6.6
100M X 0	3.8	21.0	2.76	11759	6.8
TOTAL(3/8" X 0)	100.0	21.9	2.91	11600	6.6

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.6	2.1	.22	15238	1.6
FLOAT 1.40	58.4	3.5	.47	14980	2.1
FLOAT 1.60	73.5	6.2	.80	14483	2.5
CUM(14M X 0)	100.0	21.3	3.07	11704	6.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	43.3
3/8" X 14M	38.1
14M X 100M	16.6
100M X 0	2.0

MOISTURE, %

TOTAL AS RECEIVED	1.8 .7
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STATE: PENNSYLVANIA
COUNTY: TIOGA
BED: UPPER KITTANNING
RANK: LOW VOLATILE BITUMINOUS
BED CODE: 76
SAMPLE NO.: 405

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	7.70	1.00	--	--	--	--
ASH	20.85	6.38	21.00	60.30	--	--
VOLATILE MATTER	17.74	19.82	17.86	20.02	22.61	21.40
FIXED CARBON	60.71	72.80	61.14	73.54	77.39	78.60
BTU/LB	11723	14260	11806	14404	14944	15396

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.56	1.70	3.58	1.72	4.54	1.84
OXYGEN	--	--	--	--	--	--
ASH	20.85	6.38	21.00	60.30	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	2.84	.87	2.86	.88	3.62	.94
SULFATIC	.06	.06	.07	.07	.08	.06
ORGANIC	.66	.77	.66	.78	.84	.83
TOTAL	3.56	1.70	3.58	1.72	4.54	1.84

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

RAW FL 1.60

BASE/ACID
DOLOMITE
HYDROGEN/CARBON
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2100	2520	2070
SOFTENING TEMPERATURE (ST)	2150	2570	2130
FLUID TEMPERATURE (FT)	2200	2620	2190
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (BARR)	24.65	7.91	70.53

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: PENNSYLVANIA
COUNTY: TIOGA
BED: UPPER KITTANNING
RANK: MED VOLATILE BITUMINOUS
BED CODE: 76
SAMPLE NO. 406

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.3	3.0	.15	15149	1.3
FLOAT 1.40	69.9	5.7	.66	14653	1.8
FLOAT 1.60	82.2	7.5	1.16	14322	2.5
CUM(1-1/2" X 100M)	100.0	13.7	3.36	13183	6.1
100M X 0	.9	11.2	3.20	13643	5.8
TOTAL(1-1/2" X 0)	100.0	13.7	3.36	13188	6.1

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.5	2.8	.18	15186	.9
FLOAT 1.40	70.4	5.3	.62	14726	1.4
FLOAT 1.60	82.2	7.0	1.03	14414	2.1
CUM(3/8" X 100M)	100.0	13.8	3.49	13165	6.1
100M X 0	4.7	12.2	3.51	13459	6.2
TOTAL(3/8" X 0)	100.0	13.7	3.49	13179	6.1

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.8	2.6	.26	15222	1.0
FLOAT 1.40	67.8	4.7	.50	14837	1.3
FLOAT 1.60	87.5	8.0	1.41	14230	2.7
CUM(14M X 0)	100.0	13.5	3.37	13220	5.9

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	48.9
3/8" X 14M	36.6
14M X 100M	13.6
100M X 0	.9

----- MOISTURE, % -----

TOTAL AS RECEIVED	1.9
	.8

STATE: PENNSYLVANIA		BED: UPPER KITTANNING		BED CODE: 76	
COUNTY: TIOGA		RANK: MED VOLATILE BITUMINOUS		SAMPLE NO. 406	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
		2.5 RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.80	.90	.85	--	--
ASH	13.39	7.61	49.50	13.50	49.92
VOLATILE MATTER	21.40	22.62	13.07	21.57	22.82
FIXED CARBON	64.41	68.87	36.59	64.93	69.50
BTU/LB	13134	14144	6471	13240	14272
----- ULTIMATE ANALYSIS, % -----					
		AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--
HYDROGEN	--	--	--	--	--
NITROGEN	--	--	--	--	--
SULFUR	3.92	1.75	16.89	3.96	17.04
OXYGEN	--	--	--	--	--
ASH	13.39	7.61	49.50	13.50	7.68
----- SULFUR FORMS ANALYSIS, % -----					
		AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.31	1.31	15.25	3.34	15.38
SULFATIC	.01	.01	.05	.02	.05
ORGANIC	.60	.44	1.60	.60	1.61
TOTAL	3.92	1.75	16.89	3.96	17.04
----- MINERAL ANALYSIS OF ASH, % -----					
		AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	RAW	FL 1.60 SK 1.60
SiO2 (SILICON OXIDE)	--	--	--	2000	2670
Al2O3 (ALUMINUM OXIDE)	--	--	--	2050	2720
Fe2O3 (IRON OXIDE)	--	--	--	2100	2770
TiO2 (TITANIUM OXIDE)	--	--	--		
CaO (CALCIUM OXIDE)	--	--	--		
MgO (MAGNESIUM OXIDE)	--	--	--		
Na2O (SODIUM OXIDE)	--	--	--	RAW	FL 1.60 SK 1.60
K2O (POTASSIUM OXIDE)	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--
----- COAL UTILIZATION RATIOS -----					
		AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--
DOLOMITE	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--
R250	--	--	--	16.76	9.27
SILICA	--	--	--	--	63.28
SILICA/ALUMINA	--	--	--		
----- MISCELLANEOUS DATA, % -----					
		CL (CHLORINE) (ANALYZED)		RAW	
		NA (SODIUM) (CALCULATED)		FL 1.60	
		MINERAL MATTER (PARR)		SK 1.60	
				16.76	
				9.27	
				63.28	
----- PHYSICAL PARAMETERS, INDEX -----					
		FREE SWELLING (FSI)		RAW	
		HARDGROVE GRINDABILITY (HGI)		FL 1.60	
				SK 1.60	
				9	
				1	

STATE: PENNSYLVANIA
COUNTY: WASHINGTON
BED: WASHINGTON
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 17
SAMPLE NO. 407

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	18.7	3.3	.4	.50	14534	2.7
FLOAT 1.40	50.2	12.7	30.4	1.54	13063	4.4
FLOAT 1.60	100.0	18.1	75.9	2.74	12157	6.4
CUM(1-1/2" X 100M)		42.7	100.0	2.84	8045	9.2
100M X 0	1.0	38.4	1.1	3.23	8772	10.8
TOTAL(1-1/2" X 0)	100.0	42.7	100.0	2.84	8052	9.2

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	17.4	4.0	2.4	.67	14466	2.8
FLOAT 1.40	47.0	10.6	29.3	1.27	13400	3.8
FLOAT 1.60	100.0	16.4	73.5	2.39	12436	5.8
CUM(3/8" X 100M)		43.2	100.0	3.03	7955	9.5
100M X 0	5.9	43.7	5.9	3.36	7891	12.6
TOTAL(3/8" X 0)	100.0	43.2	100.0	3.05	7951	9.7

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	3.0	4.7	5.5	.58	14350	2.8
FLOAT 1.40	16.6	9.4	29.1	.86	13618	3.2
FLOAT 1.60	45.8	17.1	72.9	1.80	12344	4.6
CUM(14M X 0)	100.0	44.6	100.0	3.03	7760	9.6

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.4
3/8" X 14M	17.8
14M X 100M	4.8
100M X 0	1.0

----- MOISTURE, % -----

TOTAL	3.1
AS RECEIVED	2.1

STATE: PENNSYLVANIA		BED: WASHINGTON		BED CODE: 17	
COUNTY: WASHINGTON		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 407	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	2.10	1.20 1.35	--	--	--
ASH	43.08	17.39 66.19	44.00	17.60 67.10	--
VOLATILE MATTER	26.41	36.60 17.26	26.98	37.04 17.50	48.18 44.96 53.19
FIXED CARBON	28.41	44.81 15.19	29.02	45.36 15.40	51.82 55.04 46.81
BTU/LB	7691	12122 3923	7856	12269 3976	14029 14890 12086
----- ULTIMATE ANALYSIS, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	42.06	66.20 22.20	42.96	67.00 22.50	76.71 81.31 68.39
HYDROGEN	3.33	4.81 2.02	3.17	4.73 1.90	5.65 5.74 5.78
NITROGEN	.88	1.48 .49	.90	1.50 .50	1.61 1.82 1.52
SULFUR	3.41	2.87 4.49	3.49	2.90 4.55	6.22 3.52 13.82
OXYGEN	7.24	7.26 4.61	5.49	6.27 3.45	9.80 7.61 10.50
ASH	43.08	17.39 66.19	44.00	17.60 67.10	--
----- SULFUR FORMS ANALYSIS, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	2.91	1.88 4.01	2.97	1.90 4.07	5.30 2.31 12.37
SULFATIC	.10	.05 .16	.11	.05 .16	.19 .06 .49
ORGANIC	.40	.94 .31	.41	.95 .32	.73 1.15 .97
TOTAL	3.41	2.87 4.49	3.49	2.90 4.55	6.22 3.52 13.82
----- MINERAL ANALYSIS OF ASH, % -----					
	RAW	FL 1.60 SK 1.60	FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)		
OXIDES					
SiO2 (SILICON OXIDE)	--	--	INITIAL DEFORMATION (ID)	RAW FL 1.60 SK 1.60	2265 2345 2305
Al2O3 (ALUMINUM OXIDE)	--	--	SOFTENING TEMPERATURE (ST)	2360 2455 2390	
Fe2O3 (IRON OXIDE)	--	--	FLUID TEMPERATURE (FT)	2445 2560 2495	
TiO2 (TITANIUM OXIDE)	--	--	----- MISCELLANEOUS DATA, % -----		
CaO (CALCIUM OXIDE)	--	--	CL (CHLORINE) (ANALYZED)	RAW FL 1.60 SK 1.60	--
MgO (MAGNESIUM OXIDE)	--	--	NA (SODIUM) (CALCULATED)	.04 -- --	
Na2O (SODIUM OXIDE)	--	--	MINERAL MATTER (PARR)	49.44 20.60 74.97	
K2O (POTASSIUM OXIDE)	--	--	----- PHYSICAL PARAMETERS, INDEX -----		
SO3 (SULFITES)	--	--			
----- COAL UTILIZATION RATIOS -----					
	RAW	FL 1.60			
BASE/ACID	--	--	FREE SWELLING (FSI)	RAW FL 1.60 SK 1.60	3 8 1
DOLOMITE	--	--	HARDGROVE GRINDABILITY (HGI)	56 53 --	
HYDROGEN/CARBON	.88	.85			
OXYGEN/CARBON	.10	.07			
R250	--	--			
SILICA	--	--			
SILICA/ALUMINA	--	--			

STATE: PENNSYLVANIA
COUNTY: FAYETTE
BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 23
SAMPLE NO. 408

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	6.3	7.2	3.5	.23	14542	1.3
FLOAT 1.40	80.0	83.5	12.1	.44	13222	1.8
FLOAT 1.60	95.4	97.4	14.0	.49	12930	1.9
CUM(1-1/2" X 100M)	100.0	100.0	15.5	.54	12670	2.0
100M X 0	1.0	1.1	11.8	.70	13317	2.4
TOTAL(1-1/2" X 0)	100.0	100.0	15.5	.54	12677	2.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	17.0	19.6	3.7	.17	14677	1.3
FLOAT 1.40	72.8	77.8	10.5	.35	13586	1.6
FLOAT 1.60	93.3	96.3	13.4	.44	13109	1.7
CUM(3/8" X 100M)	100.0	100.0	15.8	.53	12707	1.9
100M X 0	10.7	11.2	11.6	.64	13351	2.1
TOTAL(3/8" X 0)	100.0	100.0	15.4	.54	12776	1.9

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.8	27.6	3.4	.12	14746	1.2
FLOAT 1.40	66.4	72.5	8.6	.27	13894	1.4
FLOAT 1.60	91.2	95.0	12.5	.35	13247	1.6
CUM(14M X 0)	100.0	100.0	15.5	.53	12718	1.9

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	74.8
3/8" X 14M	18.8
14M X 100M	5.4
100M X 0	1.0

--- MOISTURE, % ---

TOTAL	3.0
AS RECEIVED	1.3

STATE: PENNSYLVANIA
COUNTY: FAYETTE

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 408

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.30	1.40	1.30	--	--	--
ASH	15.10	12.23	46.59	15.30	12.40	47.20
VOLATILE MATTER	33.48	34.49	21.62	33.92	21.90	41.48
FIXED CARBON	50.12	51.88	30.50	50.78	52.62	30.90
BTU/LB	12582	13077	7056	12748	13262	7149
					15051	15140
						13539

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	69.98	72.72	40.07	70.90	73.76	40.60
HYDROGEN	4.85	5.02	2.91	4.76	4.94	2.80
NITROGEN	1.54	1.61	.69	1.56	1.64	.70
SULFUR	1.19	1.01	3.15	1.21	1.02	3.19
OXYGEN	7.34	7.40	6.59	6.26	5.51	7.40
ASH	15.10	12.23	46.59	15.30	12.40	47.20

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.55	.37	2.36	.56	.38	2.40
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.63	.62	.77	.64	.63	.78
TOTAL	1.19	1.01	3.15	1.21	1.02	3.19

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	56.68	57.97	55.40
Al2O3 (ALUMINUM OXIDE)	27.52	27.96	22.63
Fe2O3 (IRON OXIDE)	6.86	5.72	12.01
TiO2 (TITANIUM OXIDE)	1.67	1.67	1.33
CaO (CALCIUM OXIDE)	1.82	1.20	3.47
MgO (MAGNESIUM OXIDE)	.66	.66	.99
Na2O (SODIUM OXIDE)	.51	--	--
K2O (POTASSIUM OXIDE)	3.13	3.37	2.81
SO3 (SULFITES)	.94	.67	.45

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.15	--
DOLOMITE	.19	--
HYDROGEN/CARBON	.81	.80
OXYGEN/CARBON	.07	.06
R250	.91	.93
SILICA	.86	.88
SILICA/ALUMINA	2.06	2.07

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2590	2860	--
SOFTENING TEMPERATURE (ST)	2690	2910+	--
FLUID TEMPERATURE (FT)	2910+	2910+	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.01	--	--
NA (SODIUM) (CALCULATED)	.06	--	--
MINERAL MATTER (PARR)	17.19	13.95	52.73

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7	1/2	8
HARDGROVE GRINDABILITY (HGI)	60	53	--

STATE: PENNSYLVANIA
COUNTY: FAYETTE

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 409

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.2	4.2	.17	14490	1.3
FLOAT 1.40	51.3	11.0	.38	13349	1.6
FLOAT 1.60	82.5	15.4	.55	12610	1.8
CUM(1-1/2" X 100M)	100.0	23.3	.64	11284	2.1
100M X 0	.7	28.8	.69	10361	4.0
TOTAL(1-1/2" X 0)	100.0	23.3	.64	11278	2.2

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.4	4.1	.19	14507	1.3
FLOAT 1.40	49.2	9.7	.37	13567	1.6
FLOAT 1.60	78.7	14.8	.49	12711	1.8
CUM(3/8" X 100M)	100.0	24.4	.64	11100	2.2
100M X 0	2.6	29.0	.73	10327	3.7
TOTAL(3/8" X 0)	100.0	24.5	.64	11079	2.2

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	11.5	4.0	.13	14524	1.2
FLOAT 1.40	45.2	8.5	.41	13769	1.5
FLOAT 1.60	76.4	14.0	.48	12845	1.7
CUM(14M X 0)	100.0	24.1	.67	11150	2.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.9
3/8" X 14M	18.2
14M X 100M	4.2
100M X 0	.7

MOISTURE, %

TOTAL AS RECEIVED	5.4
	4.4

STATE: PENNSYLVANIA
COUNTY: FAYETTE

BED: WAYNEBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 409

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.40	1.90 2.10	--	--	--	--
ASH	23.04	13.73 55.12	24.10	14.00 56.30	--	--
VOLATILE MATTER	28.94	32.69 20.17	30.27	33.33 20.60	39.88	38.75
FIXED CARBON	43.62	51.67 22.61	45.63	52.67 23.10	60.12	61.25
BTU/LB	10679	12586 5619	11170	12830 5740	14717	14919

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	60.84	70.53 32.31	63.64	71.90 33.00	83.85	83.60
HYDROGEN	4.54	4.88 2.68	4.24	4.76 2.50	5.58	5.54
NITROGEN	1.43	1.67 .78	1.50	1.70 .80	1.98	1.98
SULFUR	1.16	1.08 1.80	1.22	1.10 1.84	1.60	1.28
OXYGEN	8.99	8.10 7.31	5.31	6.54 5.56	6.99	7.60
ASH	23.04	13.73 55.12	24.10	14.00 56.30	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.65	.42 1.26	.68	.43 1.29	.90	.50
SULFATIC	.05	.01 .10	.06	.01 .10	.07	.01
ORGANIC	.46	.65 .44	.48	.66 .45	.63	.77
TOTAL	1.16	1.08 1.80	1.22	1.10 1.84	1.60	1.28

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--
SO3 (SULFITES)	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	.80	.79	--	--
OXYGEN/CARBON	.06	.07	--	--
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--
MINERAL MATTER (PARR)	26.70	15.73	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	7	8	--	--
HARDGROVE GRINDABILITY (HGI)	54	--	--	--

STATE: PENNSYLVANIA
COUNTY: GREENE

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 410

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	3.5	4.0	.21	14614	1.4
FLOAT 1.40	71.0	10.7	.54	13483	1.8
FLOAT 1.60	92.4	13.8	.57	12959	1.8
CUM(1-1/2" X 100M)	100.0	16.7	.65	12470	2.0
100M X 0	.8	16.5	.77	12503	2.9
TOTAL(1-1/2" X 0)	100.0	16.7	.65	12470	2.0

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.6	3.9	.17	14631	1.2
FLOAT 1.40	56.1	9.7	.44	13651	1.7
FLOAT 1.60	89.3	13.2	.52	13060	1.8
CUM(3/8" X 100M)	100.0	17.2	.65	12385	2.0
100M X 0	4.3	17.0	.88	12419	2.8
TOTAL(3/8" X 0)	100.0	17.2	.66	12387	2.0

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	18.6	3.1	.17	14766	1.2
FLOAT 1.40	61.7	7.6	.27	14006	1.3
FLOAT 1.60	87.0	11.7	.34	13314	1.4
CUM(14M X 0)	100.0	16.8	.69	12453	2.0

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	78.2
3/8" X 14M	16.8
14M X 100M	4.2
100M X 0	.8

----- MOISTURE, % -----
TOTAL
AS RECEIVED
5.7
4.8

STATE: PENNSYLVANIA
COUNTY: GREENE

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 410

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	4.80	1.80	--	--	--	--
ASH	16.37	11.98	17.20	12.20	--	--
VOLATILE MATTER	32.02	34.73	33.64	35.36	40.63	40.28
FIXED CARBON	46.80	51.49	49.16	52.44	59.38	59.72
BTU/LB	11833	12953	12430	13190	15012	15023

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	66.15	72.39	69.49	73.72	83.93	83.96
HYDROGEN	5.02	5.10	4.71	4.99	5.69	5.68
NITROGEN	1.43	1.57	1.50	1.60	1.81	1.82
SULFUR	1.15	.96	1.21	.98	1.46	1.12
OXYGEN	9.87	8.00	5.89	6.51	7.11	7.42
ASH	16.37	11.98	17.20	12.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	.60	.30	.63	.31	.76	.35
SULFATIC	.01	.01	.01	.01	.01	.02
ORGANIC	.54	.65	.57	.66	.69	.75
TOTAL	1.15	.96	1.21	.98	1.46	1.12

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.81	.81
OXYGEN/CARBON	.06	.07
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2520
SOFTENING TEMPERATURE (ST)	2910+	2910+	2570
FLUID TEMPERATURE (FT)	2910+	2910+	2910+

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.02	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	19.24	13.72	58.20

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	8 1/2	1 1/2
HARDGROVE GRINDABILITY (HGI)	49	--	--

STATE: PENNSYLVANIA
COUNTY: GREENE

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 411

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.1	2.5	3.9	.52	1.20	14436	1.7
FLOAT 1.40	55.7	61.5	11.7	1.36	2.14	13171	3.2
FLOAT 1.60	90.6	94.9	16.0	1.60	2.79	12502	3.7
CUM(1-1/2" X 100M)	100.0	100.0	19.2	2.08	2.76	11935	4.6
100M X 0	.9	.9	20.6	2.48	4.16	11668	7.1
TOTAL(1-1/2" X 0)	100.0	100.0	19.2	2.08	2.77	11932	4.6

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	5.8	7.0	4.0	.35	1.20	14458	1.7
FLOAT 1.40	50.5	57.1	10.0	1.02	1.89	13464	2.8
FLOAT 1.60	86.0	91.6	14.7	1.39	2.20	12699	3.5
CUM(3/8" X 100M)	100.0	100.0	19.2	2.10	2.83	11917	4.7
100M X 0	5.9	5.9	19.2	2.88	3.96	11906	6.7
TOTAL(3/8" X 0)	100.0	100.0	19.2	2.15	2.90	11917	4.9

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	15.5	18.8	3.5	.29	1.16	14548	1.6
FLOAT 1.40	54.2	62.3	8.4	.70	1.54	13770	2.2
FLOAT 1.60	83.8	90.9	13.0	1.09	1.88	12994	2.9
CUM(14M X 0)	100.0	100.0	18.8	2.17	2.88	11979	4.8

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	79.1
3/8" X 14M	16.0
14M X 100M	4.0
100M X 0	.9

----- MOISTURE, % -----

TOTAL
AS RECEIVED
3.1
2.0

STATE: PENNSYLVANIA
COUNTY: GREENE
BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 23
SAMPLE NO. 411

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.00	1.80	--	--	--	--
ASH	18.33	13.28	18.70	13.52	41.39	41.08
VOLATILE MATTER	32.98	34.89	33.65	35.52	58.61	58.92
FIXED CARBON	46.70	50.04	47.65	50.96	55.51	55.51
BTU/LB	11754	12684	11994	12916	14753	14936

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	65.58	70.38	66.92	71.67	82.31	82.88
HYDROGEN	4.62	4.94	4.49	4.82	5.52	5.58
NITROGEN	1.23	1.33	1.25	1.35	1.54	1.56
SULFUR	2.71	1.92	2.77	1.96	3.40	2.27
OXYGEN	7.53	8.15	5.87	6.67	7.22	7.72
ASH	18.33	13.28	18.70	13.52	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.97	1.12	2.01	1.14	2.47	1.32
SULFATIC	.04	.02	.05	.02	.06	.02
ORGANIC	.70	.79	.71	.80	.87	.93
TOTAL	2.71	1.92	2.77	1.96	3.40	2.27

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	50.29	51.14	2410	2680
SiO2 (SILICON OXIDE)	27.15	29.04	2460	2750
Al2O3 (ALUMINUM OXIDE)	16.59	13.44	2660	2880
Fe2O3 (IRON OXIDE)	1.33	1.33	--	--
TiO2 (TITANIUM OXIDE)	.26	.28	--	--
CaO (CALCIUM OXIDE)	.83	.83	--	--
MgO (MAGNESIUM OXIDE)	.49	.38	--	--
Na2O (SODIUM OXIDE)	2.67	2.67	--	--
K2O (POTASSIUM OXIDE)	.34	.34	--	--
SO3 (SULFITES)	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.26	.22	.03	.04
DOLOMITE	.05	.06	.07	.04
HYDROGEN/CARBON	.81	.81	21.72	15.68
OXYGEN/CARBON	.07	.07	--	--
R250	.82	.85	--	--
SILICA	.74	.78	--	--
SILICA/ALUMINA	1.85	1.76	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	8	8 1/2	8	52
HARDGROVE GRINDABILITY (HGI)	58	52	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2410	2680	--	--
SOFTENING TEMPERATURE (ST)	2460	2750	--	--
FLUID TEMPERATURE (FT)	2660	2880	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.03	.04	--	--
NA (SODIUM) (CALCULATED)	.07	.04	--	--
MINERAL MATTER (PARR)	21.72	15.68	59.52	59.52

STATE: PENNSYLVANIA
COUNTY: SOMERSET
BED: WAYNESBURG
RANK: MED VOLATILE BITUMINOUS
BED CODE: 23
SAMPLE NO. 412

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.4	3.5	.34	15025	1.8
FLOAT 1.40	62.3	8.7	.69	14115	2.2
FLOAT 1.60	93.8	13.4	.88	13293	2.6
CUM(1-1/2" X 100M)	100.0	15.6	.94	12908	2.7
100M X 0	1.3	21.6	.77	11859	2.9
TOTAL(1-1/2" X 0)	100.0	15.7	.94	12895	2.7

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.2	3.2	.33	15077	1.8
FLOAT 1.40	56.7	7.6	.54	14308	2.2
FLOAT 1.60	88.4	12.3	.78	13485	2.5
CUM(3/8" X 100M)	100.0	16.3	.93	12786	2.8
100M X 0	8.7	14.0	.67	13188	2.9
TOTAL(3/8" X 0)	100.0	16.1	.91	12821	2.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.5	3.8	.43	14972	1.8
FLOAT 1.40	58.0	7.1	.44	14395	2.1
FLOAT 1.60	85.8	11.1	.58	13695	2.3
CUM(14M X 0)	100.0	16.4	.89	12768	2.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	58.8
3/8" X 14M	31.9
14M X 100M	8.0
100M X 0	1.3

MOISTURE, %

TOTAL	4.7
AS RECEIVED	3.1

STATE: PENNSYLVANIA
COUNTY: SOMERSET

BED: WAYNESBURG
RANK: MED VOLATILE BITUMINOUS

BED CODE: 23
SAMPLE NO. 412

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW
3.10
15.79
22.12
58.99
12432

FL 1.60
1.70
10.62
23.57
64.12

SK 1.60
1.70
48.17
15.53
34.60

MOISTURE FREE

RAW
16.30
22.82
60.88

FL 1.60
10.80
23.98
65.22

SK 1.60
49.00
15.80
35.20

MOISTURE AND ASH FREE

RAW
27.27
72.73

FL 1.60
26.88
73.12

SK 1.60
30.98
69.02

BTU/LB
15329
15370
13843

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW
70.44
4.42
1.55
1.74
6.06
15.79

FL 1.60
76.44
4.61
1.67
1.51
5.15
10.62

SK 1.60
40.26
2.65
.88
3.14
4.90
48.17

MOISTURE FREE

RAW
72.69
4.21
1.60
1.80
3.41
16.30

FL 1.60
77.76
4.49
1.70
1.54
3.71
10.80

SK 1.60
40.96
2.50
.90
3.19
3.45
49.00

MOISTURE AND ASH FREE

RAW
86.85
5.03
1.91
2.14
4.07

FL 1.60
87.17
5.04
1.91
1.73
4.15

SK 1.60
80.31
4.90
1.76
6.26
6.76

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW
.84
.04
.85
1.74

FL 1.60
.57
.03
.91
1.51

SK 1.60
2.72
.06
.37
3.14

MOISTURE FREE

RAW
.87
.05
.88
1.80

FL 1.60
.58
.03
.93
1.54

SK 1.60
2.76
.06
.37
3.19

MOISTURE AND ASH FREE

RAW
1.04
.05
1.05
2.14

FL 1.60
.65
.12
1.04
2.14

SK 1.60
5.42
.03
1.04
1.73

MINERAL ANALYSIS OF ASH, %

RAW

FL 1.60
SK 1.60

OXIDES

(SILICON OXIDE)
(ALUMINUM OXIDE)
(IRON OXIDE)
(TITANIUM OXIDE)
(CALCIUM OXIDE)
(MAGNESIUM OXIDE)
(SODIUM OXIDE)
(POTASSIUM OXIDE)
(SULFITES)

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

RAW
2380
2430
2530

FL 1.60
2380
2430
2530

SK 1.60
2220
2330
2430

MISCELLANEOUS DATA, %

RAW
.01
18.59

FL 1.60
--
12.51

SK 1.60
--
54.68

COAL UTILIZATION RATIOS

RAW
--
.69
.04
--
--

FL 1.60
--
.69
.04
--
--

PHYSICAL PARAMETERS, INDEX

RAW
9
79

FL 1.60
9
--

SK 1.60
1 1/2
--

BASE/ACID

DOLOMITE
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

RAW
--
--
--
--
--

FL 1.60
--
--
--
--
--

SK 1.60
--
--
--
--
--

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 413

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	4.4	5.2	5.3	.39	1.20	14270	1.7
FLOAT 1.40	61.4	67.2	12.7	.89	1.69	13163	2.6
FLOAT 1.60	90.6	94.1	16.6	1.16	1.91	12487	3.1
CUM(1-1/2" X 100M)	100.0	100.0	19.2	1.79	2.51	12023	4.2
100M X 0	1.3	1.1	27.5	2.51	3.36	10495	6.4
TOTAL(1-1/2" X 0)	100.0	100.0	19.3	1.80	2.52	12003	4.2

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.8	12.0	4.3	.26	1.06	14451	1.5
FLOAT 1.40	57.7	65.0	11.1	.67	1.40	13323	2.1
FLOAT 1.60	85.8	91.3	15.3	.98	1.66	12587	2.6
CUM(3/8" X 100M)	100.0	100.0	19.6	1.88	2.52	11828	4.3
100M X 0	5.7	5.8	18.0	2.55	3.39	12121	5.6
TOTAL(3/8" X 0)	100.0	100.0	19.5	1.92	2.57	11845	4.3

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	14.4	17.7	3.4	.20	.91	14536	1.3
FLOAT 1.40	51.2	59.5	8.2	.37	1.10	13747	1.6
FLOAT 1.60	78.9	86.8	12.6	.52	1.24	13012	1.9
CUM(14M X 0)	100.0	100.0	19.4	1.93	2.60	11831	4.4

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.7
3/8" X 14M	16.0
14M X 100M	5.0
100M X 0	1.3

----- MOISTURE, % -----

TOTAL	2.9
AS RECEIVED	1.4

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 413

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.40	1.20	--	--	--	--
ASH	19.33	12.95	19.60	13.10	42.63	46.80
VOLATILE MATTER	33.79	36.08	34.27	36.52	57.37	53.20
FIXED CARBON	45.48	49.77	46.13	50.37	--	--
BTU/LB	11636	12781	11801	12937	14678	14888

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	64.41	69.93	65.32	70.78	81.24	81.46
HYDROGEN	4.33	4.78	4.23	4.71	5.27	5.42
NITROGEN	1.42	1.56	1.44	1.58	1.79	1.81
SULFUR	2.42	1.29	2.46	1.31	3.05	1.51
OXYGEN	8.10	9.49	6.95	8.52	8.65	9.81
ASH	19.33	12.95	19.60	13.10	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.74	.57	1.76	.57	2.19	.66
SULFATIC	.00	.00	.01	.00	.01	.00
ORGANIC	.68	.73	.69	.74	.86	.85
TOTAL	2.42	1.29	2.46	1.31	3.05	1.51

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	51.56	54.97
SiO2 (SILICON OXIDE)	27.53	30.55
Al2O3 (ALUMINUM OXIDE)	14.58	8.01
Fe2O3 (IRON OXIDE)	1.67	2.00
TiO2 (TITANIUM OXIDE)	.34	.42
CaO (CALCIUM OXIDE)	.93	.86
MgO (MAGNESIUM OXIDE)	.40	.35
Na2O (SODIUM OXIDE)	2.36	2.17
K2O (POTASSIUM OXIDE)	.27	.26
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.23	.14
DOLomite	.07	.11
OXYGEN/CARBON	.78	.80
R250	.84	.91
SILICA	.76	.85
SILICA/ALUMINA	1.87	1.80

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2550	2910+
SOFTENING TEMPERATURE (ST)	2600	2910+
FLUID TEMPERATURE (FT)	2910+	2910+
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.00	--
MINERAL MATTER (FARR)	.05	.05
	22.52	14.87
	--	54.58

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	6	7
HARDGROVE GRINDABILITY (HGI)	48	44

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 414

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.1	2.6	4.3	.41	1.53	14208	2.2
FLOAT 1.40	45.8	52.0	12.8	1.13	2.11	13014	3.2
FLOAT 1.60	85.7	91.5	17.5	1.46	2.31	12236	3.8
CUM(1-1/2" X 100M)	100.0	100.0	22.0	1.79	2.62	11464	4.6
100M X 0	1.2	1.2	22.4	3.80	5.99	11337	10.6
TOTAL(1-1/2" X 0)	100.0	100.0	22.0	1.81	2.66	11462	4.6

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	7.8	9.9	4.4	.29	1.32	14417	1.8
FLOAT 1.40	47.4	55.5	11.1	.67	1.55	13311	2.3
FLOAT 1.60	81.6	89.5	16.1	1.04	1.87	12474	3.0
CUM(3/8" X 100M)	100.0	100.0	22.5	1.75	2.59	11371	4.6
100M X 0	1.8	1.8	22.3	2.74	4.08	11354	7.2
TOTAL(3/8" X 0)	100.0	100.0	22.5	1.77	2.62	11371	4.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.2	16.8	3.6	.16	1.15	14528	1.6
FLOAT 1.40	47.3	56.9	8.5	.55	1.23	13728	1.8
FLOAT 1.60	78.0	87.9	13.7	.61	1.33	12858	2.1
CUM(14M X 0)	100.0	100.0	21.9	1.78	2.57	11412	4.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	78.1
3/8" X 14M	16.1
14M X 100M	4.6
100M X 0	1.2

MOISTURE, %
TOTAL
AS RECEIVED
2.7
1.7

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 414

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.70	1.60 1.30	--	--	--	--
ASH	21.43	13.97 51.82	21.80	14.20 52.50	44.04	43.54 47.58
VOLATILE MATTER	33.86	36.76 22.31	34.44	37.36 22.60	55.96	56.46 52.42
FIXED CARBON	43.01	47.67 24.58	43.76	48.44 24.90	--	--
BTU/LB	11233	12579 6011	11427	12784 6090	14612	14899 12821

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	62.50	70.08 33.06	63.58	71.22 33.49	81.30	83.01 70.51
HYDROGEN	4.49	4.91 2.71	4.38	4.81 2.60	5.60	5.61 5.47
NITROGEN	1.30	1.45 .69	1.32	1.48 .70	1.69	1.72 1.47
SULFUR	2.69	1.44 6.77	2.74	1.46 6.86	3.50	1.71 14.44
OXYGEN	7.60	8.14 4.96	6.19	6.83 3.85	7.92	7.96 8.11
ASH	21.43	13.97 51.82	21.80	14.20 52.50	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.67	.54 5.85	1.70	.55 5.93	2.17	.64 12.48
SULFATIC	.06	.04 .08	.06	.04 .08	.08	.05 .17
ORGANIC	.96	.86 .84	.98	.87 .85	1.25	1.02 1.79
TOTAL	2.69	1.44 6.77	2.74	1.46 6.86	3.50	1.71 14.44

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO ₂ (SILICON OXIDE)	--	--	--	--	--	--
Al ₂ O ₃ (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe ₂ O ₃ (IRON OXIDE)	--	--	--	--	--	--
TiO ₂ (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na ₂ O (SODIUM OXIDE)	--	--	--	--	--	--
K ₂ O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO ₃ (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.83	.81	--	--	--	--
OXYGEN/CARBON	.07	.07	--	--	--	--
R ₂ SO	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 415

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	BTU		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	3.3	4.5	.64	14384	2.2
FLOAT 1.40	72.2	11.4	1.15	13305	3.2
FLOAT 1.60	90.8	13.2	1.41	12990	3.7
CUM(1-1/2" X 100M)	100.0	16.2	1.99	12447	4.8
100M X 0	1.1	19.4	2.07	11816	7.9
TOTAL(1-1/2" X 0)	100.0	16.2	1.99	12440	4.9

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	BTU		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	9.9	4.1	.29	14409	2.0
FLOAT 1.40	64.9	10.0	.74	13567	2.7
FLOAT 1.60	88.1	12.8	1.07	13094	3.2
CUM(3/8" X 100M)	100.0	16.7	2.10	12368	5.1
100M X 0	4.8	18.2	2.72	12031	8.0
TOTAL(3/8" X 0)	100.0	16.8	2.13	12352	5.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	BTU		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	21.7	3.9	.23	14471	2.0
FLOAT 1.40	65.9	8.6	.46	13743	2.3
FLOAT 1.60	88.0	12.0	.71	13182	2.7
CUM(14M X 0)	100.0	16.3	1.97	12385	5.0

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	75.9
3/8" X 14M	18.0
14M X 100M	5.0
100M X 0	1.1

----- MOISTURE, % -----
TOTAL
AS RECEIVED

3.0
1.9

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: WAYNEBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 415

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.90	1.60	1.80	--	--	--
ASH	15.70	12.00	48.22	16.00	12.20	49.10
VOLATILE MATTER	35.36	36.85	23.18	36.05	37.45	23.60
FIXED CARBON	47.04	49.54	26.81	47.95	50.35	27.30
BTU/LB	12194	12942	6269	12430	13152	6384

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	67.68	71.53	33.55	68.99	72.69	34.16
HYDROGEN	4.89	5.13	2.56	4.77	5.04	2.40
NITROGEN	1.14	1.22	.69	1.16	1.24	.70
SULFUR	2.97	1.65	12.20	3.03	1.68	12.43
OXYGEN	7.63	8.46	2.79	6.06	7.15	1.21
ASH	15.70	12.00	48.22	16.00	12.20	49.10

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.96	.75	11.01	2.00	.76	11.21
SULFATIC	.12	.08	.17	.13	.08	.17
ORGANIC	.88	.83	1.03	.90	1.05	.96
TOTAL	2.97	1.65	12.20	3.03	1.68	12.43

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	49.01	52.41	41.34
Al2O3 (ALUMINUM OXIDE)	27.15	30.92	19.61
Fe2O3 (IRON OXIDE)	17.30	9.72	32.74
TiO2 (TITANIUM OXIDE)	1.33	1.67	1.00
CaO (CALCIUM OXIDE)	.78	.92	.36
MgO (MAGNESIUM OXIDE)	.90	.80	.70
Na2O (SODIUM OXIDE)	.57	.75	.46
K2O (POTASSIUM OXIDE)	2.19	2.36	1.98
SO3 (SULFITES)	.33	.34	.33

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.28	.17
DOLOMITE	.08	.12
HYDROGEN/CARBON	.83	.83
OXYGEN/CARBON	.07	.07
R250	.81	.89
SILICA	.72	.82
SILICA/ALUMINA	1.81	1.70

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2440	2910+	--
SOFTENING TEMPERATURE (ST)	2560	2910+	--
FLUID TEMPERATURE (FT)	2760	2910+	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.02	--	--
NA (SODIUM) (CALCULATED)	.07	.07	.17
MINERAL MATTER (PARR)	18.94	14.10	59.86

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7	1/2	8
HARDGROVE GRINDABILITY (HGI)	56	49	--

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 416

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	3.7	3.7	.41	14432	2.3
FLOAT 1.40	72.1	10.9	1.62	13301	4.2
FLOAT 1.60	95.1	13.1	2.12	12926	5.2
CUM(1-1/2" X 100M)	100.0	14.6	2.58	12655	6.1
100M X 0	1.4	17.2	3.13	12077	9.3
TOTAL(1-1/2" X 0)	100.0	14.6	2.59	12647	6.1

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.1	3.5	.35	14496	2.1
FLOAT 1.40	67.5	9.2	.82	13550	3.0
FLOAT 1.60	91.2	11.9	1.39	13107	4.0
CUM(3/8" X 100M)	100.0	14.6	2.53	12593	5.9
100M X 0	6.3	15.7	3.75	12352	8.8
TOTAL(3/8" X 0)	100.0	14.7	2.61	12578	6.1

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.3	3.4	.29	14441	2.1
FLOAT 1.40	63.7	7.1	.42	13902	2.4
FLOAT 1.60	89.8	10.6	.77	13313	2.9
CUM(14M X 0)	100.0	14.3	2.65	12630	5.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.6	TOTAL AS RECEIVED
3/8" X 14M	19.9	
14M X 100M	5.1	
100M X 0	1.4	

MOISTURE, %

	4.1
	1.9

STATE: PENNSYLVANIA
COUNTY: WASHINGTON

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 416

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.90	1.80	--	--	--	--
ASH	14.22	10.70	14.50	10.90	43.27	43.10
VOLATILE MATTER	36.29	37.71	37.00	38.40	56.73	56.90
FIXED CARBON	47.58	49.79	48.50	50.70	56.73	56.90
BTU/LB	12362	13030	12601	13269	14738	14892

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	68.87	72.63	70.20	73.96	82.11	83.01
HYDROGEN	4.92	5.21	4.80	5.10	5.61	5.72
NITROGEN	1.37	1.47	1.40	1.50	1.64	1.68
SULFUR	3.70	2.00	3.77	2.04	4.41	2.29
OXYGEN	6.92	7.98	5.33	6.50	6.23	7.29
ASH	14.22	10.70	14.50	10.90	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.69	.80	2.74	.81	3.20	.91
SULFATIC	.08	.05	.08	.05	.09	.06
ORGANIC	.93	1.16	.95	1.18	1.11	1.32
TOTAL	3.70	2.00	3.77	2.04	4.41	2.29

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	43.46	50.29
Al2O3 (ALUMINUM OXIDE)	24.89	31.30
Fe2O3 (IRON OXIDE)	26.02	11.43
TiO2 (TITANIUM OXIDE)	1.00	1.67
CaO (CALCIUM OXIDE)	.78	.84
MgO (MAGNESIUM OXIDE)	.86	1.03
Na2O (SODIUM OXIDE)	.51	--
K2O (POTASSIUM OXIDE)	2.10	2.41
SO3 (SULFITES)	.30	.43

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.44	--
DOLOMITE	.05	--
HYDROGEN/CARBON	.82	.83
OXYGEN/CARBON	.06	.07
R250	.72	.87
SILICA	.61	.79
SILICA/ALUMINA	1.75	1.61

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2130	2800
SOFTENING TEMPERATURE (ST)	2180	2910+
FLUID TEMPERATURE (FT)	2290	2910+
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.00	--
MINERAL MATTER (PARR)	.05	--
	17.73	12.89
		59.88

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	7 1/2	7 1/2
HARDGROVE GRINDABILITY (HGI)	58	51

STATE: PENNSYLVANIA
COUNTY: WESTMORELAND
BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 23
SAMPLE NO. 417

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.1	3.6	.08	14688	1.4
FLOAT 1.40	55.0	11.9	.19	13247	1.4
FLOAT 1.60	88.8	15.9	.32	12552	1.6
CUM(1-1/2" X 100M)	100.0	20.1	.52	11822	2.0
100M X 0	1.4	27.3	1.43	10572	4.2
TOTAL(1-1/2" X 0)	100.0	20.2	.53	11805	2.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	6.5	3.9	.05	14636	1.4
FLOAT 1.40	54.0	10.5	.12	13490	1.5
FLOAT 1.60	84.4	15.1	.15	12691	1.5
CUM(3/8" X 100M)	100.0	21.0	.51	11666	2.1
100M X 0	3.9	27.7	1.50	10503	4.1
TOTAL(3/8" X 0)	100.0	21.3	.55	11621	2.2

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	17.1	4.3	.01	14567	1.4
FLOAT 1.40	50.5	8.0	.16	13924	1.4
FLOAT 1.60	79.3	13.1	.17	13038	1.4
CUM(14M X 0)	100.0	20.5	.55	11753	2.1

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	68.3
3/8" X 14M	25.3
14M X 100M	5.0
100M X 0	1.4

--- MOISTURE, % ---

TOTAL	5.9
AS RECEIVED	5.1

STATE: PENNSYLVANIA

COUNTY: WESTMORELAND

BED: WAYNESBURG

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23

SAMPLE NO.: 417

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

FL 1.60 SK 1.60

RAW 5.10 2.10 2.30

MOISTURE 20.02 13.34 49.63

ASH 27.49 30.24 20.71

VOLATILE MATTER 47.38 54.32 27.36

FIXED CARBON

11103 12635 6331

BTU/LB

MOISTURE FREE

FL 1.60 SK 1.60

RAW 21.10 13.62 50.80

MOISTURE 30.89 21.20

ASH 49.93 55.48 28.00

MOISTURE AND ASH FREE

FL 1.60 SK 1.60

RAW 36.72 35.77 43.09

ASH 63.28 64.23 56.91

ULTIMATE ANALYSIS, %

AS RECEIVED

FL 1.60 SK 1.60

RAW 62.47 70.90 35.20

CARBON 4.63 4.86 2.70

HYDROGEN 1.52 1.77 .78

NITROGEN 1.11 .81 2.58

SULFUR 10.24 8.32 9.11

OXYGEN 20.02 13.34 49.63

ASH

MOISTURE FREE

FL 1.60 SK 1.60

RAW 72.42 36.03

MOISTURE 4.73 2.50

ASH 1.80 .80

MOISTURE AND ASH FREE

FL 1.60 SK 1.60

RAW 83.43 83.84 73.24

ASH 5.43 5.47 5.08

2.03 2.09 1.63

1.48 .96 5.36

7.63 7.64 14.69

SULFUR FORMS ANALYSIS, %

AS RECEIVED

FL 1.60 SK 1.60

RAW .50 .17 1.96

PYRITIC .01 .01 .01

SULFATIC .60 .64 .61

ORGANIC 1.11 .81 2.58

TOTAL

MOISTURE FREE

FL 1.60 SK 1.60

RAW .53 .17 2.01

MOISTURE .01 .01 .01

ASH .63 .65 .62

MOISTURE AND ASH FREE

FL 1.60 SK 1.60

RAW .67 .20 4.08

ASH .01 .01 .02

.80 .75 1.27

1.48 .96 5.36

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

FL 1.60 SK 1.60

RAW

OXIDES

SiO2 (SILICON OXIDE)

Al2O3 (ALUMINUM OXIDE)

Fe2O3 (IRON OXIDE)

TiO2 (TITANIUM OXIDE)

CaO (CALCIUM OXIDE)

MgO (MAGNESIUM OXIDE)

Na2O (SODIUM OXIDE)

K2O (POTASSIUM OXIDE)

SO3 (SULFITES)

MOISTURE FREE

FL 1.60 SK 1.60

RAW

INITIAL DEFORMATION (ID)

SOFTENING TEMPERATURE (ST)

FLUID TEMPERATURE (FT)

MOISTURE AND ASH FREE

FL 1.60 SK 1.60

RAW 2910+ 2910+ 2910+

2380 2430 2530

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

23.43 15.17 56.32

COAL UTILIZATION RATIOS

AS RECEIVED

FL 1.60

RAW

BASE/ACID

DOLomite

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

MOISTURE FREE

FL 1.60

RAW

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

MOISTURE AND ASH FREE

FL 1.60 SK 1.60

RAW 7 8 62

PHYSICAL PARAMETERS, INDEX

AS RECEIVED

FL 1.60

RAW

BASE/ACID

DOLomite

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

MOISTURE FREE

FL 1.60

RAW

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

MOISTURE AND ASH FREE

FL 1.60 SK 1.60

RAW 7 8 62

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

AS RECEIVED

FL 1.60

RAW

BASE/ACID

DOLomite

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

MOISTURE FREE

FL 1.60

RAW

INITIAL DEFORMATION (ID)

SOFTENING TEMPERATURE (ST)

FLUID TEMPERATURE (FT)

MOISTURE AND ASH FREE

FL 1.60 SK 1.60

RAW 2910+ 2910+ 2910+

2380 2430 2530

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

23.43 15.17 56.32

PHYSICAL PARAMETERS, INDEX

AS RECEIVED

FL 1.60

RAW

BASE/ACID

DOLomite

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

MOISTURE FREE

FL 1.60

RAW

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

MOISTURE AND ASH FREE

FL 1.60 SK 1.60

RAW 7 8 62

STATE: TENNESSEE
COUNTY: ANDERSON

BED: BIG MARY
RANK: HIGH VOLATILE A BITUMINOUS

B.D CODE: 134
SAMPLE NO. 418

CUMULATIVE WASHABILITY DATA (DRY BASIS)

1-1/2" X 0

100M X 0

TOTAL(1-1/2" X 0)

RECOVERY, %
WEIGHT

36.7
87.0
94.7
100.0

39.5
90.2
97.1
100.0

3.0
6.2
7.1
9.1

ASH, %

11.9
9.1

2.17
1.99

SULFUR, %
PYRITIC

2.22
2.38
2.71
3.57

TOTAL

14515
13969
13815
13474

HEATING VALUE
BTU/LB

3.1
3.4
3.9
5.3

SO2 EMISSION
LB/MM BTU

3/8" X 0

100M X 0

TOTAL(3/8" X 0)

RECOVERY, %
WEIGHT

42.0
84.6
94.0
100.0

45.4
88.5
96.7
100.0

2.8
5.6
6.9
9.2

ASH, %

7.1
9.2

2.04
2.02

SULFUR, %
PYRITIC

2.13
2.26
2.52
3.61

TOTAL

14549
14071
13850
13457

HEATING VALUE
BTU/LB

2.9
3.2
3.6
5.4

SO2 EMISSION
LB/MM BTU

14M X 0

100M X 0

TOTAL(14M X 0)

RECOVERY, %
WEIGHT

48.2
81.9
93.1
100.0

52.5
86.7
96.3
100.0

2.6
5.0
6.9
9.6

ASH, %

2.6
5.1
7.1
2.15

2.04
2.02

SULFUR, %
PYRITIC

1.97
2.15
2.30
3.66

TOTAL

14583
14174
13850
13389

HEATING VALUE
BTU/LB

2.7
3.0
3.3
5.5

SO2 EMISSION
LB/MM BTU

RAW COAL SIZE AND MOISTURE ANALYSES

1-1/2" X 3/8"

3/8" X 14M

14M X 100M

100M X 0

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

2.2
1.2

MOISTURE, %
TOTAL
AS RECEIVED

STATE: TENNESSEE		BED: BIG MARY		BED CODE: 134		
COUNTY: ANDERSON		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 418		
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M						
PROXIMATE ANALYSIS, % AND BTU ANALYSIS						
MOISTURE ASH VOLATILE MATTER FIXED CARBON BTU/LB	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
	1.20	1.20 1.10	--	--	--	--
	9.19	6.54 44.80	9.30	6.62 45.30	--	--
	39.03	40.41 --	39.50	40.90 --	43.55	43.80
BTU/LB	50.59	51.84 --	51.20	52.47 --	56.45	56.20
	13279	13730 --	13440	13897 --	14818	14882
ULTIMATE ANALYSIS, %						
CARBON HYDROGEN NITROGEN SULFUR OXYGEN ASH	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
	--	-- --	--	--	--	--
	--	-- --	--	--	--	--
	3.71	2.34 21.77	3.76	2.37 22.02	4.14	2.54 40.25
ASH	9.19	6.54 44.80	9.30	6.62 45.30	--	--
	--	-- --	--	--	--	--
SULFUR FORMS ANALYSIS, %						
PYRITIC SULFATIC ORGANIC TOTAL	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
	2.07	.68 21.34	2.10	.69 21.58	2.32	.74 39.45
	.00	.00 .01	.01	.00 .01	.01	.00 .02
	1.63	1.66 .42	1.65	1.68 .43	1.82	1.80 .78
TOTAL	3.71	2.34 21.77	3.76	2.37 22.02	4.14	2.54 40.25
	--	-- --	--	--	--	--
MINERAL ANALYSIS OF ASH, %						
OXIDES SiO2 (SILICON OXIDE) Al2O3 (ALUMINUM OXIDE) Fe2O3 (IRON OXIDE) TiO2 (TITANIUM OXIDE) CaO (CALCIUM OXIDE) MgO (MAGNESIUM OXIDE) Na2O (SODIUM OXIDE) K2O (POTASSIUM OXIDE) SO3 (SULFITES)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
	--	-- --	--	--	--	--
	--	-- --	--	--	--	--
	--	-- --	--	--	--	--
	--	-- --	--	--	--	--
	--	-- --	--	--	--	--
	.27	-- --	--	--	--	--
	--	-- --	--	--	--	--
	--	-- --	--	--	--	--
	--	-- --	--	--	--	--
FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)						
INITIAL DEFORMATION (ID)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
	--	-- --	--	--	--	--
	--	-- --	--	--	--	--
SOFTENING TEMPERATURE (ST)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FLUID TEMPERATURE (FT)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
	--	-- --	--	--	--	--
	--	-- --	--	--	--	--
MISCELLANEOUS DATA, %						
CL (CHLORINE) (ANALYZED)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
	--	-- --	--	--	--	--
NA (SODIUM) (CALCULATED)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MINERAL MATTER (PARR)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
	--	-- --	--	--	--	--
	--	-- --	--	--	--	--
PHYSICAL PARAMETERS, INDEX						
FREE SWELLING (FSI)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
HARDGROVE GRINDABILITY (HGI)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
	--	-- --	--	--	--	--
	--	-- --	--	--	--	--
COAL UTILIZATION RATIOS						
BASE/ACID DOLOMITE HYDROGEN/CARBON OXYGEN/CARBON R250 SILICA SILICA/ALUMINA	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
	--	-- --	--	--	--	--
	--	-- --	--	--	--	--
	--	-- --	--	--	--	--

STATE: TENNESSEE
COUNTY: CAMPBELL

BED: JELLICO
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 151
SAMPLE NO. 419

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	76.8	2.2	.29	14473	1.3
FLOAT 1.40	93.3	2.9	.30	14358	1.4
FLOAT 1.60	98.8	3.7	.30	14228	1.4
CUM(1-1/2" X 100M)	100.0	4.5	.31	14097	1.4
100M X 0	1.4	16.1	.38	12202	1.4
TOTAL(1-1/2" X 0)	100.0	4.7	.31	14070	1.4

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	77.8	2.1	.25	14489	1.3
FLOAT 1.40	95.2	2.7	.26	14391	1.3
FLOAT 1.60	98.6	3.3	.25	14293	1.3
CUM(3/8" X 100M)	100.0	4.0	.26	14179	1.4
100M X 0	4.4	12.4	.38	12807	1.3
TOTAL(3/8" X 0)	100.0	4.4	.27	14118	1.4

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.0	1.9	.25	14522	1.3
FLOAT 1.40	89.6	2.4	.28	14440	1.3
FLOAT 1.60	98.0	3.4	.28	14277	1.3
CUM(14M X 0)	100.0	4.4	.29	14113	1.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	81.3
3/8" X 14M	13.5
14M X 100M	3.8
100M X 0	1.4

MOISTURE, %

TOTAL AS RECEIVED	5.1
	4.3

STATE: TENNESSEE

COUNTY: CAMPBELL

BED: JELLICO

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 151

SAMPLE NO. 419

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

FL 1.60 SK 1.60

RAW

FL 1.60 SK 1.60

MOISTURE FREE

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

MOISTURE

4.30

2.80

--

--

--

--

--

ASH

4.38

3.17

52.20

4.58

3.26

53.70

34.77

VOLATILE MATTER

36.16

37.30

15.65

37.79

38.37

16.10

39.60

FIXED CARBON

55.16

56.73

29.35

57.64

58.36

30.20

60.40

BTU/LB

13487

13891

5890

14093

14291

6060

14768

14773

13089

ULTIMATE ANALYSIS, %

AS RECEIVED

FL 1.60 SK 1.60

RAW

FL 1.60 SK 1.60

MOISTURE FREE

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

CARBON

76.20

78.24

35.35

79.63

80.50

36.37

83.45

HYDROGEN

5.37

5.36

2.45

5.12

5.19

2.20

5.36

NITROGEN

1.71

1.77

.58

1.79

1.82

.60

1.87

SULFUR

.90

.86

1.89

.94

.88

1.94

.91

OXYGEN

11.43

10.60

7.53

7.95

8.35

5.19

8.33

ASH

4.38

3.17

52.20

4.58

3.26

53.70

8.63

11.21

--

SULFUR FORMS ANALYSIS, %

AS RECEIVED

FL 1.60 SK 1.60

RAW

FL 1.60 SK 1.60

MOISTURE FREE

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

PYRITIC

.25

.24

.76

.26

.25

.78

.28

SULFATIC

.01

.01

.01

.01

.01

.01

.01

ORGANIC

.64

.60

1.12

.67

.62

1.15

.70

TOTAL

.90

.86

1.89

.94

.88

1.94

.99

4.19

--

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

FL 1.60 SK 1.60

RAW

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

OXIDES

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SiO2 (SILICON OXIDE)

--

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Al2O3 (ALUMINUM OXIDE)

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Fe2O3 (IRON OXIDE)

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TiO2 (TITANIUM OXIDE)

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CaO (CALCIUM OXIDE)

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MgO (MAGNESIUM OXIDE)

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Na2O (SODIUM OXIDE)

.39

.40

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--

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K2O (POTASSIUM OXIDE)

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--

--

SO3 (SULFITES)

--

--

--

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--

--

--

COAL UTILIZATION RATIOS

AS RECEIVED

FL 1.60

RAW

FL 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

BASE/ACID

--

--

--

--

--

--

--

DOLOMITE

.77

.77

--

--

--

--

--

HYDROGEN/CARBON

.07

.08

--

--

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--

--

OXYGEN/CARBON

--

--

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--

--

R250

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--

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--

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SILICA

--

--

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--

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--

--

SILICA/ALUMINA

--

--

--

--

--

--

--

PHYSICAL PARAMETERS, INDEX

AS RECEIVED

FL 1.60

RAW

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

FREE SWELLING

3 1/2

3 1/2

5

40

40

40

40

HARDGROVE GRINDABILITY (HGI)

40

40

40

40

40

40

40

59.06

--

FUSIBILITY OF ASH, DEGREES F

AS RECEIVED

FL 1.60 SK 1.60

RAW

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

INITIAL DEFORMATION (ID)

2640

2640

2520

2520

2520

2520

2520

SOFTENING TEMPERATURE (ST)

2690

2690

2570

2570

2570

2570

2570

FLUID TEMPERATURE (FT)

2740

2740

2620

2620

2620

2620

2620

MISCELLANEOUS DATA, %

AS RECEIVED

FL 1.60 SK 1.60

RAW

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

CL (CHLORINE) (ANALYZED)

.23

.23

--

--

--

--

--

NA (SODIUM) (CALCULATED)

.01

.01

--

--

--

--

--

MINERAL MATTER (PARR)

5.46

5.46

4.01

4.01

4.01

4.01

4.01

59.06

--

STATE: TENNESSEE
COUNTY: CAMPBELL

BED: JELICO
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 151
SAMPLE NO. 420

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	90.8	92.3	1.5	.10	.79	14569	1.1
FLOAT 1.40	97.7	99.1	1.7	.12	.81	14535	1.1
FLOAT 1.60	98.5	99.7	1.9	.12	.81	14501	1.1
CUM(1-1/2" X 100M)	100.0	100.0	2.9	.14	.83	14331	1.2
100M X 0	.9	.7	20.6	.66	1.06	11320	1.9
TOTAL(1-1/2" X 0)	100.0	100.0	3.1	.14	.83	14304	1.2

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	88.0	89.5	1.5	.10	.79	14569	1.1
FLOAT 1.40	97.6	99.0	1.7	.11	.80	14535	1.1
FLOAT 1.60	98.5	99.8	1.8	.12	.81	14518	1.1
CUM(3/8" X 100M)	100.0	100.0	2.9	.15	.83	14331	1.2
100M X 0	3.8	3.3	13.4	.53	1.03	12545	1.6
TOTAL(3/8" X 0)	100.0	100.0	3.3	.16	.84	14263	1.2

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	64.5	65.9	1.5	.10	.76	14569	1.0
FLOAT 1.40	96.9	98.6	1.7	.11	.77	14535	1.1
FLOAT 1.60	98.0	99.5	1.9	.12	.78	14501	1.1
CUM(14M X 0)	100.0	100.0	3.2	.18	.83	14280	1.2

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	81.5
3/8" X 14M	12.4
14M X 100M	5.2
100M X 0	.9

--- MOISTURE, % ---

TOTAL	4.4
AS RECEIVED	3.9

STATE: TENNESSEE
COUNTY: CAMPBELL

BED: JELLICO
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 151
SAMPLE NO. 420

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.90	3.10 3.10	--	--	--	--
ASH	3.17	1.77 67.42	3.30	1.82 69.58	--	--
VOLATILE MATTER	37.26	37.91 22.12	38.77	39.12 22.82	40.09	39.85 75.02
FIXED CARBON	55.67	57.22 7.36	57.93	59.05 7.60	59.91	60.15 24.98
BTU/LB	13713	14057 2896	14270	14506 2989	14757	14776 9823

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	77.07	79.07 10.15	80.20	81.60 10.47	82.94	83.12 34.41
HYDROGEN	5.63	5.67 1.38	5.41	5.49 1.07	5.59	5.59 3.50
NITROGEN	1.86	1.91 .24	1.93	1.97 .25	2.00	2.00 .82
SULFUR	.88	.78 3.50	.92	.81 3.61	.95	.83 11.86
OXYGEN	11.39	10.81 17.32	8.24	8.31 15.03	8.53	8.46 49.40
ASH	3.17	1.77 67.42	3.30	1.82 69.58	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.17	.12 3.33	.18	.12 3.43	.19	.12 11.28
SULFATIC	.01	.01 .02	.02	.01 .02	.02	.01 .06
ORGANIC	.69	.66 .15	.72	.68 .16	.75	.69 .52
TOTAL	.88	.78 3.50	.92	.81 3.61	.95	.83 11.86

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60	FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
OXIDES	--	--	RAW	FL 1.60 SK 1.60
SiO2 (SILICON OXIDE)	--	--	2030	2090 --
Al2O3 (ALUMINUM OXIDE)	--	--	2080	2140 --
Fe2O3 (IRON OXIDE)	--	--	2130	2250 --
TiO2 (TITANIUM OXIDE)	--	--	----- MISCELLANEOUS DATA, % -----	
CaO (CALCIUM OXIDE)	--	--	RAW	FL 1.60 SK 1.60
MgO (MAGNESIUM OXIDE)	--	--	.24	--
Na2O (SODIUM OXIDE)	.13	.80 .30	.00	.01 .15
K2O (POTASSIUM OXIDE)	--	--	4.32	2.42 85.39
SO3 (SULFITES)	--	--	----- PHYSICAL PARAMETERS, INDEX -----	
BASE/ACID	RAW	FL 1.60	RAW	FL 1.60 SK 1.60
DOLOMITE	--	--	2	3 1/2 0
HYDROGEN/CARBON	.81	.81	39	39 --
OXYGEN/CARBON	.07	.08	FREE SWELLING (FSI)	
R250	--	--	HARDGROVE GRINDABILITY (HGI)	
SILICA	--	--	-----	
SILICA/ALUMINA	--	--	-----	

STATE: TENNESSEE
COUNTY: CLAIBORNE

BED: JELLICO
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 151
SAMPLE NO. 421

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.8	2.5	.13	14475	1.0
FLOAT 1.40	84.4	3.4	.17	14325	1.1
FLOAT 1.60	87.7	4.1	.10	14208	1.1
FLOAT 1.90	90.0	5.1	.20	14042	1.1
CUM(1-1/2" X 100M)	100.0	12.9	.31	12741	1.3
100M X 0	.1	38.5	.55	8474	2.1
TOTAL(1-1/2" X 0)	100.0	12.9	.31	12737	1.3

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	71.3	1.8	.09	14592	.9
FLOAT 1.40	84.0	2.5	.12	14475	1.0
FLOAT 1.60	86.8	3.1	.13	14375	1.0
FLOAT 1.90	90.0	5.1	.20	14042	1.1
CUM(3/8" X 100M)	100.0	12.7	.27	12775	1.3
100M X 0	.6	24.5	.42	10808	1.6
TOTAL(3/8" X 0)	100.0	12.8	.27	12763	1.3

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.3	1.6	.06	14625	.9
FLOAT 1.40	80.7	3.1	.12	14375	1.0
FLOAT 1.60	86.7	4.1	.13	14208	1.0
FLOAT 1.90	90.0	5.1	.20	14042	1.1
CUM(14M X 0)	100.0	13.0	.27	12725	1.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"
1-1/2" X 3/8" ---
3/8" X 14M ---
14M X 100M ---
100M X 0 .1

--- MOISTURE, % ---
TOTAL
AS RECEIVED
2.2
1.3

STATE: TENNESSEE BED: JELLICO BED CODE: 151
COUNTY: CLAIBORNE RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 421

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	1.30	--	--	--	--	--
ASH	12.44	--	12.60	--	--	--
VOLATILE MATTER	34.35	--	34.80	--	39.82	--
FIXED CARBON	51.92	--	52.60	--	60.18	--
BTU/LB	13006	--	13177	--	15077	--

----- ULTIMATE ANALYSIS, % -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.78	--	.79	--	.90	--
OXYGEN	--	--	--	--	--	--
ASH	12.44	--	12.60	--	--	--

----- SULFUR FORMS ANALYSIS, % -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	.29	--	.30	--	.34	--
SULFATIC	.06	--	.06	--	.07	--
ORGANIC	.42	--	.43	--	.49	--
TOTAL	.78	--	.79	--	.90	--

----- MINERAL ANALYSIS OF ASH, % -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	.57	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

----- FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE) -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--
----- MISCELLANEOUS DATA, % -----						
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	14.04	--

----- COAL UTILIZATION RATIOS -----

RAW FL 1.60

BASE/ACID
DOLOMITE
HYDROGEN/CARBON
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

----- PHYSICAL PARAMETERS, INDEX -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: TENNESSEE
 COUNTY: CAMPBELL

BED: PEADBODY
 RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 144
 SAMPLE NO. 422

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.3	1.8	.05	14671	.9
FLOAT 1.40	95.8	2.7	.06	14518	1.0
FLOAT 1.60	98.1	3.0	.06	14467	1.0
FLOAT 1.90	98.5	3.2	.07	14433	1.0
CUM(1-1/2" X 100M)	100.0	4.3	.14	14247	1.1
100M X 0	.2	13.7	.50	12652	1.6
TOTAL(1-1/2" X 0)	100.0	4.3	.14	14243	1.1

SAMPLE CRUSHED TO PASS 3/8"
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	71.1	1.7	.03	14688	.9
FLOAT 1.40	95.1	2.5	.04	14552	.9
FLOAT 1.60	97.9	2.9	.04	14484	.9
FLOAT 1.90	98.5	3.2	.07	14433	1.0
CUM(3/8" X 100M)	100.0	4.3	.13	14247	1.1
100M X 0	.5	8.3	.39	13568	1.5
TOTAL(3/8" X 0)	100.0	4.3	.13	14243	1.1

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.7	1.6	.03	14705	.9
FLOAT 1.40	92.6	2.4	.04	14569	.9
FLOAT 1.60	97.3	2.9	.04	14484	.9
FLOAT 1.90	98.5	3.2	.07	14433	1.0
CUM(14M X 0)	100.0	4.6	.15	14196	1.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
 SAMPLE CRUSHED TO PASS 1-1/2"
 1-1/2" X 3/8" ---
 3/8" X 14M ---
 14M X 100M ---
 100M X 0 .2

MOISTURE, %
 TOTAL AS RECEIVED
 2.6
 1.6

STATE: TENNESSEE
COUNTY: CAMPBELL
BED: PEADBODY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 144
SAMPLE NO. 422

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	MOISTURE FREE	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE
AS RECEIVED											
MOISTURE	1.60	--	--	--	--	--	--	--	--	--	--
ASH	4.35	--	--	4.42	--	--	--	--	--	--	--
VOLATILE MATTER	37.40	--	--	38.01	--	--	--	--	--	--	--
FIXED CARBON	56.65	--	--	57.57	--	--	--	--	--	--	--
BTU/LB	14161	--	--	14391	--	--	--	--	--	--	15056

ULTIMATE ANALYSIS, %

	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	MOISTURE FREE	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE
AS RECEIVED											
CARBON	--	--	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--	--	--
SULFUR	.70	--	--	.71	--	--	--	--	--	--	.74
OXYGEN	--	--	--	--	--	--	--	--	--	--	--
ASH	4.35	--	--	4.42	--	--	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	MOISTURE FREE	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE
AS RECEIVED											
PYRITIC	.15	--	--	.15	--	--	--	--	--	--	.16
SULFATIC	.00	--	--	.00	--	--	--	--	--	--	.00
ORGANIC	.55	--	--	.56	--	--	--	--	--	--	.59
TOTAL	.70	--	--	.71	--	--	--	--	--	--	.74

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE
OXIDES							
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	RAW FL 1.60 SK 1.60
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	1.27	--	--	--	--	--	RAW FL 1.60 SK 1.60
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--
DOLOMITE	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--
R250	--	--	--	--	--
SILICA	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.04	--	--
MINERAL MATTER (PAR)	5.16	--	--

STATE: TENNESSEE
COUNTY: SCOTT
BED: POPLAR LICK
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 135
SAMPLE NO. 423

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.0	3.1	.06	14496	1.2
FLOAT 1.40	91.9	7.5	.05	13754	1.2
FLOAT 1.60	99.2	8.3	.05	13619	1.2
CUM(1-1/2" X 100M)	100.0	8.8	.11	13535	1.3
100M X 0	.4	18.1	.99	11967	2.9
TOTAL(1-1/2" X 0)	100.0	8.8	.11	13529	1.3

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.2	3.0	.03	14513	1.3
FLOAT 1.40	87.3	6.8	.05	13872	1.3
FLOAT 1.60	98.3	8.1	.06	13653	1.3
CUM(3/8" X 100M)	100.0	8.9	.13	13518	1.4
100M X 0	1.1	13.6	.71	12725	2.4
TOTAL(3/8" X 0)	100.0	9.0	.14	13509	1.4

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.3	2.4	.02	14614	1.3
FLOAT 1.40	82.6	5.3	.02	14125	1.2
FLOAT 1.60	97.1	7.5	.04	13754	1.2
CUM(14M X 0)	100.0	8.7	.12	13552	1.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

--- MOISTURE, % ---

TOTAL
AS RECEIVED
2.9
1.9

STATE: TENNESSEE BED: POPLAR LICK BED CODE: 135
COUNTY: SCOTT RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 423

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.90	1.80	1.80	--	--	--	--	--	--
ASH	8.63	7.37	46.08	8.80	7.50	46.92	--	--	--
VOLATILE MATTER	35.13	35.74	18.44	35.81	36.39	18.78	39.26	39.34	35.38
FIXED CARBON	54.34	55.10	33.68	55.39	56.11	34.30	60.74	60.66	64.62
BTU/LB	13312	13473	6977	13570	13720	7105	14879	14832	13387

----- ULTIMATE ANALYSIS, % -----

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	.88	.80	3.51	.90	.81	3.58	.98	.88	6.74
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	8.63	7.37	46.08	8.80	7.50	46.92	--	--	--

----- SULFUR FORMS ANALYSIS, % -----

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.11	.04	2.75	.12	.04	2.80	.13	.04	5.27
SULFATIC	.76	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.76	.75	.76	.77	.76	.77	.84	.83	1.45
TOTAL	.88	.80	3.51	.90	.81	3.58	.98	.88	6.74

----- MINERAL ANALYSIS OF ASH, % -----

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	.27	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

----- COAL UTILIZATION RATIOS -----

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

----- FUSIBILITY OF ASH, DEGREES F -----
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--	--	--	--
----- MISCELLANEOUS DATA, % -----									
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--	10.00	8.55	52.65
----- PHYSICAL PARAMETERS, INDEX -----									
FREE SWELLING (FSI)	--	--	--	--	--	--	5 1/2	6 1/2	1
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--

STATE: TENNESSEE BED: SEWANEE BED CODE: 286
COUNTY: MARION RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 424

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	RECOVERY, % BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.6	2.7	9.5	2.7	.03	14591	.8
FLOAT 1.40	91.5	7.7	95.2	7.7	.08	13740	.9
FLOAT 1.60	96.0	8.2	99.2	8.2	.13	13655	1.0
FLOAT 1.90	96.7	8.3	99.8	8.3	.14	13638	1.0
CUM(1-1/2" X 100M)	100.0	10.8	100.0	10.8	.19	13212	1.1
100M X 0	.2	11.8	.2	11.8	.18	13042	.9
TOTAL(1-1/2" X 0)	100.0	10.8	100.0	10.8	.19	13212	1.1

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	RECOVERY, % BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.0	2.6	24.1	2.6	.03	14608	.7
FLOAT 1.40	87.0	6.6	91.0	6.6	.05	13927	.8
FLOAT 1.60	95.8	7.6	99.0	7.6	.10	13757	.9
FLOAT 1.90	96.7	8.3	99.8	8.3	.14	13638	1.0
CUM(3/8" X 100M)	100.0	10.2	100.0	10.2	.17	13314	1.0
100M X 0	.6	10.4	.6	10.4	.22	13280	1.1
TOTAL(3/8" X 0)	100.0	10.2	100.0	10.2	.17	13314	1.0

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	RECOVERY, % BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.2	2.2	29.1	2.2	.03	14676	.7
FLOAT 1.40	77.1	5.8	82.0	5.8	.04	14064	.7
FLOAT 1.60	95.3	7.9	98.7	7.9	.09	13706	.8
FLOAT 1.90	96.7	8.3	99.8	8.3	.14	13638	1.0
CUM(14M X 0)	100.0	10.7	100.0	10.7	.18	13229	1.0

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"
1-1/2" X 3/8" --
3/8" X 14M --
14M X 100M --
100M X 0 .2

----- MOISTURE, % -----
TOTAL AS RECEIVED 1.4
.9

STATE: TENNESSEE
COUNTY: MARION

BED: SEWANEE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 286
SAMPLE NO. 424

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.90	--	--	--	--	--	--	--	--
ASH	10.21	--	--	10.30	--	--	--	--	--
VOLATILE MATTER	28.94	--	--	29.20	--	--	32.55	--	--
FIXED CARBON	59.96	--	--	60.50	--	--	67.45	--	--
BTU/LB	13545	--	--	13668	--	--	15237	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	.59	--	--	.60	--	--	.67	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	10.21	--	--	10.30	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.19	--	--	.19	--	--	.21	--	--
SULFATIC	.00	--	--	.00	--	--	.00	--	--
ORGANIC	.41	--	--	.41	--	--	.46	--	--
TOTAL	.59	--	--	.60	--	--	.67	--	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (FARR)	11.45	--	--	11.45	--	--	--	--	--

STATE: TENNESSEE
COUNTY: CAMPBELL

BED: WALNUT MOUNTAIN
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 128
SAMPLE NO. 425

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.4	3.4	.02	14472	.9
FLOAT 1.40	86.9	4.5	.07	14285	1.0
FLOAT 1.60	92.4	5.3	.10	14149	1.0
FLOAT 1.90	94.0	5.8	.12	14064	1.0
CUM(1-1/2" X 100M)	100.0	10.0	.21	13349	1.2
100M X 0	.4	23.3	.21	11084	1.2
TOTAL(1-1/2" X 0)	100.0	10.1	.21	13339	1.2

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	67.3	2.5	.00	14625	.9
FLOAT 1.40	86.6	3.2	.01	14506	.9
FLOAT 1.60	91.1	3.8	.02	14404	.9
FLOAT 1.90	94.0	5.8	.12	14064	1.0
CUM(3/8" X 100M)	100.0	9.5	.21	13434	1.2
100M X 0	.7	18.5	.16	11901	1.1
TOTAL(3/8" X 0)	100.0	9.6	.21	13423	1.2

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.5	2.4	.00	14642	.9
FLOAT 1.40	84.0	3.1	.06	14523	.9
FLOAT 1.60	88.7	3.7	.01	14421	.9
FLOAT 1.90	94.0	5.8	.12	14064	1.0
CUM(14M X 0)	100.0	10.6	.21	13246	1.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.4

MOISTURE, %

TOTAL	2.2
AS RECEIVED	1.4

STATE: TENNESSEE
COUNTY: CAMPBELL

BED: WALNUT MOUNTAIN
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 128
SAMPLE NO. 425

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.40	--	--	--	--	--
ASH	10.85	--	--	11.00	--	--
VOLATILE MATTER	37.07	--	--	37.60	--	--
FIXED CARBON	50.68	--	--	51.40	--	--
BTU/LB	13118	--	--	13304	--	14948

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.76	--	--	.77	--	.86
OXYGEN	--	--	--	--	--	--
ASH	10.85	--	--	11.00	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.23	--	--	.23	--	.26
SULFATIC	.00	--	--	.00	--	.00
ORGANIC	.53	--	--	.54	--	.60
TOTAL	.76	--	--	.77	--	.86

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	1.08	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.09	--	--
MINERAL MATTER (PARR)	12.30	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: VIRGINIA
COUNTY: WISE
BED: CEDAR GROVE
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 151
SAMPLE NO. 426

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.3	1.9	.09	14757	1.0
FLOAT 1.40	97.9	2.6	.14	14637	1.0
FLOAT 1.60	99.4	2.8	.15	14603	1.1
CUM(1-1/2" X 100M)	100.0	3.2	.19	14534	1.1
100M X 0	1.0	17.4	1.75	12094	4.2
TOTAL(1-1/2" X 0)	100.0	3.3	.21	14510	1.1

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	70.6	1.8	.09	14775	1.0
FLOAT 1.40	97.3	2.3	.12	14689	1.0
FLOAT 1.60	99.4	2.6	.13	14637	1.0
CUM(3/8" X 100M)	100.0	2.9	.16	14586	1.1
100M X 0	3.8	8.6	.66	13606	1.9
TOTAL(3/8" X 0)	100.0	3.1	.18	14548	1.1

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.7	1.4	.09	14843	1.0
FLOAT 1.40	95.6	2.1	.11	14723	1.0
FLOAT 1.60	99.3	2.5	.13	14654	1.0
CUM(14M X 0)	100.0	2.9	.17	14586	1.1

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	65.3
3/8" X 14M	28.8
14M X 100M	4.9
100M X 0	1.0

--- MOISTURE, % ---

TOTAL	5.2
AS RECEIVED	3.8

STATE: VIRGINIA
COUNTY: WISE
BED: CEDAR GROVE
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 151
SAMPLE NO. 426

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.80	1.50 1.50	--	--	--	--
ASH	2.90	2.56 57.62	3.02	2.60 58.50	--	--
VOLATILE MATTER	33.94	34.89 16.55	35.28	35.42 16.80	36.38	36.37 40.48
FIXED CARBON	59.35	61.05 24.33	61.70	61.98 24.70	63.62	63.63 59.52
BTU/LB	13985	14445 4955	14538	14665 5030	14990	15057 12120

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	79.65	81.95 28.57	82.80	83.20 29.00	85.37	85.42 69.88
HYDROGEN	5.42	5.31 2.04	5.19	5.22 1.90	5.36	5.36 4.58
NITROGEN	1.44	1.48 .59	1.50	1.51 .60	1.55	1.55 1.45
SULFUR	.82	.75 7.76	.86	.76 7.88	.88	.78 18.99
OXYGEN	9.76	7.94 3.42	6.63	6.71 2.12	6.84	6.89 5.10
ASH	2.90	2.56 57.62	3.02	2.60 58.50	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.17	.13 5.76	.18	.13 5.84	.18	.14 14.08
SULFATIC	.01	.01 .01	.01	.01 .01	.01	.01 .02
ORGANIC	.64	.61 2.00	.67	.62 2.03	.69	.64 4.89
TOTAL	.82	.75 7.76	.86	.76 7.88	.88	.78 18.99

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	.19	1.00
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.75	.75
OXYGEN/CARBON	.06	.06
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2500	2480
SOFTENING TEMPERATURE (ST)	2600	2580
FLUID TEMPERATURE (FT)	2800	2780
MISCELLANEOUS DATA, %		
CL (CHLORINE) (ANALYZED)	.01	--
NA (SODIUM) (CALCULATED)	.00	.03
MINERAL MATTER (PARR)	3.73	3.23
		67.52

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	5	5 1/2
HARDGROVE GRINDABILITY (HGI)	47	48

STATE: VIRGINIA
COUNTY: WISE

BED: DORCHESTER
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 185
SAMPLE NO. 427

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	95.2	1.3	.15	14928	1.2
FLOAT 1.40	98.5	1.4	.17	14910	1.2
FLOAT 1.60	99.0	1.5	.17	14893	1.2
CUM(1-1/2" X 100M)	100.0	2.1	.26	14787	1.3
100M X 0	1.0	10.9	1.23	13240	3.0
TOTAL(1-1/2" X 0)	100.0	2.2	.27	14772	1.3

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	95.0	1.1	.09	14963	1.1
FLOAT 1.40	98.2	1.2	.10	14945	1.2
FLOAT 1.60	98.8	1.3	.10	14928	1.2
CUM(3/8" X 100M)	100.0	1.9	.23	14822	1.3
100M X 0	3.8	7.2	.79	13891	1.8
TOTAL(3/8" X 0)	100.0	2.1	.25	14787	1.3

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	92.0	.8	.09	15016	1.1
FLOAT 1.40	97.9	1.0	.09	14981	1.1
FLOAT 1.60	98.6	1.0	.10	14981	1.1
CUM(14M X 0)	100.0	1.9	.27	14822	1.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	83.6
3/8" X 14M	9.9
14M X 100M	5.5
100M X 0	1.0

--- MOISTURE, % ---

TOTAL	2.6
AS RECEIVED	2.2

STATE: VIRGINIA
COUNTY: WISE

BED: DORCHESTER
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 185
SAMPLE NO. 427

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	2.20	1.60	1.98	1.04	36.32	36.25
ASH	1.93	1.02	35.60	35.87	63.68	63.75
VOLATILE MATTER	34.82	35.30	62.42	63.08	15143	15096
FIXED CARBON	61.05	62.07	17.64	18.00	50.85	50.85
BTU/LB	14517	14700	3724	14939	3800	10734

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	81.86	83.25	83.70	84.60	85.39	85.49
HYDROGEN	5.46	5.49	5.33	5.40	5.44	5.45
NITROGEN	1.56	1.59	1.59	1.61	1.63	1.63
SULFUR	1.06	.79	1.09	.80	1.11	.81
OXYGEN	8.13	7.86	6.31	6.55	6.44	6.62
ASH	1.93	1.02	1.98	1.04	6.62	6.62

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	.28	.11	.29	.11	.30	.11
SULFATIC	.01	.00	.01	.00	.01	.00
ORGANIC	.77	.68	.79	.69	.80	.70
TOTAL	1.06	.79	1.09	.80	1.11	.81

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	---	---	---
Al2O3 (ALUMINUM OXIDE)	---	---	---
Fe2O3 (IRON OXIDE)	---	---	---
TiO2 (TITANIUM OXIDE)	---	---	---
CaO (CALCIUM OXIDE)	---	---	---
MgO (MAGNESIUM OXIDE)	---	---	---
Na2O (SODIUM OXIDE)	.81	2.60	.40
K2O (POTASSIUM OXIDE)	---	---	---
SO3 (SULFITES)	---	---	---

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	---	---
DOLOMITE	---	---
HYDROGEN/CARBON	.76	.77
OXYGEN/CARBON	.05	.06
R250	---	---
SILICA	---	---
SILICA/ALUMINA	---	---

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2050	2030	---
SOFTENING TEMPERATURE (ST)	2100	2080	---
FLUID TEMPERATURE (FT)	2150	2130	---

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.05	---	---
NA (SODIUM) (CALCULATED)	.01	.02	.19
MINERAL MATTER (PARR)	2.87	1.57	82.37

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8 1/2	9	0
HARDGROVE GRINDABILITY (HGI)	55	55	---

STATE: VIRGINIA
COUNTY: RUSSELL

BED: JAWBONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 266
SAMPLE NO. 428

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.2	3.6	.07	14874	.9
FLOAT 1.40	61.1	6.3	.06	14405	.9
FLOAT 1.60	84.2	10.3	.06	13709	.8
CUM(1-1/2" X 100M)	100.0	20.2	.09	11988	.9
100M X 0	1.0	40.6	.37	8442	1.6
TOTAL(1-1/2" X 0)	100.0	20.4	.09	11953	.9

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.5	4.1	.08	14787	.7
FLOAT 1.40	63.0	5.9	.08	14474	.8
FLOAT 1.60	83.3	9.7	.08	13814	.8
CUM(3/8" X 100M)	100.0	19.9	.12	12040	.9
100M X 0	1.5	35.4	.32	9346	1.5
TOTAL(3/8" X 0)	100.0	20.1	.12	12000	.9

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.9	3.3	.08	14926	.9
FLOAT 1.40	61.1	5.6	.05	14526	.9
FLOAT 1.60	83.0	9.2	.05	13900	.9
CUM(14M X 0)	100.0	19.2	.09	12162	1.0

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	---

----- MOISTURE, % -----

TOTAL	1.9
AS RECEIVED	1.0

STATE: VIRGINIA
COUNTY: RUSSELL

BED: JAWBONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 266
SAMPLE NO. 428

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.00	1.00	1.00	--	--	--	--
ASH	19.31	8.71	67.12	19.50	8.80 67.80	--	--
VOLATILE MATTER	28.81	31.09	--	29.10	31.40	36.15	34.43
FIXED CARBON	50.89	59.20	--	51.40	59.80	63.85	65.57
BTU/LB	11989	13830	--	12110	13970	15043	15318

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--
SULFUR	.50	.58	.50	.51	.59 .50	.63	.64 1.56
OXYGEN	--	--	--	--	--	--	--
ASH	19.31	8.71	67.12	19.50	8.80 67.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.09	.04	.28	.09	.05 .29	.11	.05 .89
SULFATIC	.00	.00	.00	.00	.00 .00	.00	.00 .00
ORGANIC	.41	.54	.21	.41	.54 .22	.51	.60 .67
TOTAL	.50	.58	.50	.51	.59 .50	.63	.64 1.56

MINERAL ANALYSIS OF ASH, %

	RAW		SF 1.60	
	FL 1.60	SK 1.60	FL 1.60	SK 1.60
OXIDES	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--
SO3 (SULFITES)	--	--	--	--

COAL UTILIZATION RATIOS

	RAW		FL 1.60	
	FL 1.60	SK 1.60	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--
DOLOMITE	--	--	--	--
HYDROGEN/CARBON	--	--	--	--
OXYGEN/CARBON	--	--	--	--
R250	--	--	--	--
SILICA	--	--	--	--
SILICA/ALUMINA	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW		FL 1.60	
	FL 1.60	SK 1.60	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2290	2460	--	--
SOFTENING TEMPERATURE (ST)	2340	2520	--	--
FLUID TEMPERATURE (FT)	2410	2570	--	--

MISCELLANEOUS DATA, %

	RAW		FL 1.60	
	FL 1.60	SK 1.60	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--
MINERAL MATTER (PARR)	21.34	9.83	73.50	--

PHYSICAL PARAMETERS, INDEX

	RAW		FL 1.60	
	FL 1.60	SK 1.60	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6	1/2	8	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--

STATE: VIRGINIA

COUNTY: WISE

BED: KELLY

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 165

SAMPLE NO. 429

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.3	3.6	.07	14782	.9
FLOAT 1.40	87.7	4.9	.07	14564	.9
FLOAT 1.60	95.1	6.5	.08	14295	.9
CUM(1-1/2" X 100M)	100.0	8.7	.11	13925	.9
100M X 0	.7	14.0	.20	13035	1.1
TOTAL(1-1/2" X 0)	100.0	8.7	.11	13919	.9

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.9	3.1	.07	14866	.9
FLOAT 1.40	86.9	4.7	.07	14597	.9
FLOAT 1.60	94.8	6.4	.07	14312	.9
CUM(3/8" X 100M)	100.0	8.8	.10	13908	.9
100M X 0	2.8	11.0	.14	13539	1.0
TOTAL(3/8" X 0)	100.0	8.9	.10	13898	.9

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.9	2.5	.12	14967	.9
FLOAT 1.40	84.8	4.0	.10	14715	.9
FLOAT 1.60	94.1	5.4	.12	14480	.9
CUM(14M X 0)	100.0	8.3	.15	13992	.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.4	TOTAL AS RECEIVED
3/8" X 14M	17.6	
14M X 100M	4.3	
100M X 0	.7	

MOISTURE, %

2.6

1.6

STATE: VIRGINIA
COUNTY: WISE
BED: KELLY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 165
SAMPLE NO. 429

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.60	1.40	1.50	--	--	--	--	--	--
ASH	8.36	5.54	51.58	8.50	5.62	52.37	--	--	--
VOLATILE MATTER	32.07	33.13	16.77	32.60	33.61	17.03	35.62	35.60	35.75
FIXED CARBON	57.96	59.93	30.14	58.90	60.78	30.60	64.38	64.40	64.25
BTU/LB	13756	14221	6489	13980	14423	6587	15279	15282	13831

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	77.63	80.27	42.67	78.89	81.41	43.31	86.22	86.25	90.94
HYDROGEN	5.14	5.26	3.00	5.04	5.18	2.88	5.51	5.49	6.05
NITROGEN	1.36	1.40	.66	1.38	1.42	.67	1.51	1.51	1.41
SULFUR	.56	.63	.75	.57	.64	.76	.62	.68	1.60
OXYGEN	6.95	6.90	--	5.62	5.74	--	6.14	6.08	--
ASH	8.36	5.54	51.58	8.50	5.62	52.37	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.11	.11	.59	.11	.11	.60	.12	.11	1.27
SULFATIC	.00	.00	.01	.01	.00	.01	.01	.00	.02
ORGANIC	.45	.52	.15	.45	.53	.15	.50	.31	--
TOTAL	.56	.63	.75	.57	.64	.76	.62	.68	1.60

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
AL2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
FE2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	.70	.90	.40	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	.77	.76	--	--	--	--	--	--	--
OXYGEN/CARBON	.05	.05	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING	--	--	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PAR)	--	--	--	--	--	--	--	--	--

STATE: VIRGINIA
COUNTY: WISE

BED: NO.2 GAS
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 168
SAMPLE NO. 430

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL) -----

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	81.1	1.6	.12	15023	1.2
FLOAT 1.40	96.0	2.7	.22	14819	1.3
FLOAT 1.60	98.9	3.2	.31	14727	1.5
CUM(1-1/2" X 100M)	100.0	3.6	.43	14653	1.6
100M X 0	1.1	10.0	1.61	13467	3.5
TOTAL(1-1/2" X 0)	100.0	3.7	.44	14640	1.7

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL) -----

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	81.4	1.5	.14	15042	1.2
FLOAT 1.40	95.8	2.5	.23	14856	1.3
FLOAT 1.60	98.7	3.0	.27	14764	1.3
CUM(3/8" X 100M)	100.0	3.6	.47	14653	1.6
100M X 0	4.7	7.3	1.53	13967	3.2
TOTAL(3/8" X 0)	100.0	3.8	.52	14620	1.7

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL) -----

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	80.7	1.3	.14	15079	1.1
FLOAT 1.40	94.7	2.3	.20	14893	1.2
FLOAT 1.60	98.9	3.0	.32	14764	1.3
CUM(14M X 0)	100.0	3.5	.43	14671	1.5

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	65.6
3/8" X 14M	27.8
14M X 100M	5.5
100M X 0	1.1

----- MOISTURE, % -----

TOTAL	2.4
AS RECEIVED	1.8

BED CODE:	168
SAMPLE NO.	430

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

ULTIMATE ANALYSIS, &

SULFUR FORMS ANALYSIS, %

MINERAL ANALYSIS OF ASH, %

COAL UTILIZATION RATIOS

PHYSICAL PARAMETERS, INDEX

STATE: VIRGINIA
 COUNTY: DICKENSON

BED: SPLASH DAM
 RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 210
 SAMPLE NO. 431

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	52.8	67.6	2.3	.06	.79	15080	1.0
FLOAT 1.40	67.6	85.2	3.7	.12	.83	14844	1.1
FLOAT 1.60	76.2	93.8	5.8	.15	.83	14490	1.1
CUM(1-1/2" X 100M)	100.0	100.0	21.9	.25	.80	11776	1.4
100M X 0	.8	.7	28.7	.54	1.02	10630	1.9
TOTAL(1-1/2" X 0)	100.0	100.0	22.0	.25	.80	11767	1.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	49.1	65.2	2.3	.03	.79	15080	1.0
FLOAT 1.40	63.3	82.8	3.7	.09	.82	14844	1.1
FLOAT 1.60	71.0	90.7	5.7	.11	.82	14507	1.1
CUM(3/8" X 100M)	100.0	100.0	24.4	.27	.81	11355	1.4
100M X 0	1.3	1.2	29.5	.62	1.09	10495	2.1
TOTAL(3/8" X 0)	100.0	100.0	24.5	.27	.81	11344	1.4

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	42.9	55.2	2.0	.07	.80	15131	1.1
FLOAT 1.40	62.9	79.5	3.6	.09	.79	14861	1.1
FLOAT 1.60	74.3	91.4	5.9	.10	.79	14473	1.1
CUM(14M X 0)	100.0	100.0	22.0	.27	.84	11759	1.4

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
 3/8" X 14M
 14M X 100M
 100M X 0

--- MOISTURE, % ---

TOTAL
 AS RECEIVED
 1.8
 .9

STATE: VIRGINIA
COUNTY: DICKENSON

BED: SPLASH DAM
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 210
SAMPLE NO. 431

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.90	1.20	1.40	--	--	--	--	--	--
ASH	22.30	5.60	67.54	22.50	5.66	68.50	--	--	--
VOLATILE MATTER	25.77	30.31	--	26.00	30.68	--	33.55	32.52	--
FIXED CARBON	51.04	62.89	--	51.50	63.66	--	66.45	67.48	--
BTU/LB	11793	14395	--	11900	14570	--	15355	15445	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	.77	.78	.98	.77	.79	.99	1.00	.84	3.14
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	22.30	5.60	67.54	22.50	5.66	68.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.27	.09	.75	.27	.09	.76	.35	.10	2.42
SULFATIC	.00	.00	.01	.01	.00	.01	.01	.00	.03
ORGANIC	.50	.69	.22	.50	.70	.22	.65	.74	.69
TOTAL	.77	.78	.98	.77	.79	.99	1.00	.84	3.14

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
--	-----	---------

BASE/ACID
DOLOMITE
HYDROGEN/CARBON
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2620	2910+	--
SOFTENING TEMPERATURE (ST)	2680	2910+	--
FLUID TEMPERATURE (FT)	2780	2910+	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	24.73	6.55	74.52

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7 1/2	8 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: VIRGINIA
COUNTY: RUSSELL

BED: TILLER
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 269
SAMPLE NO. 432

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	64.2	67.8	2.8	.01	.49	15015	.7
FLOAT 1.40	88.9	92.8	3.8	.01	.48	14846	.6
FLOAT 1.60	95.2	98.3	4.8	.01	.48	14676	.7
CUM(1-1/2" X 100M)	100.0	100.0	7.5	.01	.47	14217	.7
100M X 0	.9	.9	6.6	.36	.60	14370	.8
TOTAL(1-1/2" X 0)	100.0	100.0	7.5	.01	.47	14219	.7

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	70.0	73.9	2.7	.01	.45	15032	.7
FLOAT 1.40	87.9	92.0	3.5	.01	.48	14897	.6
FLOAT 1.60	94.3	97.7	4.4	.01	.48	14744	.7
CUM(3/8" X 100M)	100.0	100.0	7.4	.01	.47	14234	.7
100M X 0	1.7	1.6	13.8	.19	.58	13147	.9
TOTAL(3/8" X 0)	100.0	100.0	7.5	.31	.47	14216	.7

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	67.6	72.4	2.3	.01	.52	15100	.7
FLOAT 1.40	80.0	85.0	3.0	.01	.52	14981	.7
FLOAT 1.60	91.2	95.9	3.9	.01	.51	14829	.7
CUM(14M X 0)	100.0	100.0	8.2	.02	.50	14098	.7

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

----- MOISTURE, % -----

TOTAL
AS RECEIVED
1.6
.7

STATE: VIRGINIA

COUNTY: RUSSELL

BED: TILLER

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 269

SAMPLE NO. 432

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW FL 1.60 SK 1.60

FL 1.60 SK 1.60

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

MOISTURE

ASH

VOLATILE MATTER

FIXED CARBON

BTU, LB

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

FL 1.60 SK 1.60

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

CARBON

HYDROGEN

NITROGEN

SULFUR

OXYGEN

ASH

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

FL 1.60 SK 1.60

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

PYRITIC

SULFATIC

ORGANIC

TOTAL

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW FL 1.60 SK 1.60

FL 1.60 SK 1.60

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

OXIDES

SiO2 (SILICON OXIDE)

Al2O3 (ALUMINUM OXIDE)

Fe2O3 (IRON OXIDE)

TiO2 (TITANIUM OXIDE)

CaO (CALCIUM OXIDE)

MgO (MAGNESIUM OXIDE)

Na2O (SODIUM OXIDE)

K2O (POTASSIUM OXIDE)

SO3 (SULFITES)

COAL UTILIZATION RATIOS

AS RECEIVED

RAW FL 1.60 SK 1.60

FL 1.60 SK 1.60

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

AS RECEIVED

RAW FL 1.60 SK 1.60

FL 1.60 SK 1.60

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

INITIAL DEFORMATION (ID)

SOFTENING TEMPERATURE (ST)

FLUID TEMPERATURE (FT)

MISCELLANEOUS DATA, %

AS RECEIVED

RAW FL 1.60 SK 1.60

FL 1.60 SK 1.60

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

BED CODE: 214
SAMPLE NO. 433

BED: UPPER BANNER
RANK: HIGH VOLATILE A BITUMINOUS

STATE: VIRGINIA
COUNTY: DICKENSON

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.9	69.2	3.5	.01	.59	15003	.8
FLOAT 1.40	82.1	90.6	4.7	.05	.59	14798	.8
FLOAT 1.60	87.7	96.1	5.3	.13	.66	14696	.9
CUM(1-1/2" X 100M)	100.0	100.0	12.8	.20	.69	13415	1.0
100M X 0	.4	.3	26.9	.32	.73	11006	1.3
TOTAL(1-1/2" X 0)	100.0	100.0	12.9	.20	.69	13405	1.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.3	72.8	3.1	.04	.55	15072	.7
FLOAT 1.40	81.8	91.4	4.3	.08	.58	14867	.8
FLOAT 1.60	87.2	96.2	5.4	.16	.66	14679	.9
CUM(3/8" X 100M)	100.0	100.0	13.4	.24	.70	13312	1.1
100M X 0	1.1	1.0	23.7	.28	.70	11552	1.2
TOTAL(3/8" X 0)	100.0	100.0	13.5	.24	.70	13293	1.1

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.9	70.9	2.6	.04	.63	15157	.8
FLOAT 1.40	81.7	90.7	3.9	.08	.66	14935	.9
FLOAT 1.60	88.4	96.6	5.3	.13	.70	14696	1.0
CUM(14M X 0)	100.0	100.0	12.6	.22	.74	13449	1.1

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
3/8" X 14M ---
14M X 100M ---
100M X 0 ---

--- MOISTURE, % ---

TOTAL 1.9
AS RECEIVED 1.0

STATE: VIRGINIA

COUNTY: DICKENSON

BED: UPPER BANNER

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 214

SAMPLE NO. 433

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW FL 1.60 SK 1.60

1.00 1.00 1.20

12.18 5.05 67.58

31.49 31.58 --

55.33 62.37 --

13365 14583 --

MOISTURE FREE

RAW FL 1.60 SK 1.60

-- --

12.30 5.10 68.40

31.81 31.90 --

55.89 63.00 --

13500 14730 --

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

-- --

-- --

36.27 33.61

63.73 66.39

15393 15522

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

-- --

.67 1.14

-- --

5.05 67.58

MOISTURE FREE

RAW FL 1.60 SK 1.60

-- --

.68 1.15

-- --

5.10 68.40

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

-- --

-- --

.89 .71 3.64

-- --

-- --

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

.24 .13 .98

.00 .00 .00

.53 .15

.77 .67 1.14

MOISTURE FREE

RAW FL 1.60 SK 1.60

.24 .14 1.00

.00 .00 .00

.54 .15

.78 .68 1.15

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

.28 .14 3.15

.00 .00 .00

.61 .57 .48

.89 .71 3.64

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW FL 1.60 SK 1.60

-- --

-- --

-- --

.65 --

-- --

-- --

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

-- --

-- --

-- --

-- --

-- --

COAL UTILIZATION RATIOS

RAW FL 1.60

-- --

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-- --

PHYSICAL PARAMETERS, INDEX

RAW FL 1.60

-- --

-- --

7 1/2 8 1/2

-- --

-- --

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

RAW FL 1.60

-- --

-- --

-- --

-- --

-- --

FUSIBILITY OF ASH, DEGREES F

(IN OXIDIZING ATMOSPHERE)

INITIAL DEFORMATION (ID)

SOFTENING TEMPERATURE (ST)

FLUID TEMPERATURE (FT)

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

13.96 5.88 76.80

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: BAKERSTOWN
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 62
SAMPLE NO. 434

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	28.2	3.2	.09	15110	1.1
FLOAT 1.40	50.0	5.9	.36	14631	1.4
FLOAT 1.60	65.7	10.3	.71	13882	1.9
CUM(1-1/2" X 100M)	100.0	31.2	1.59	10375	3.9
100M X 0	1.9	31.7	1.85	10231	5.5
TOTAL(1-1/2" X 0)	100.0	31.2	1.59	10372	4.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	32.8	3.6	.06	15011	1.1
FLOAT 1.40	50.0	5.6	.20	14655	1.1
FLOAT 1.60	63.7	9.5	.35	13996	1.3
CUM(3/8" X 100M)	100.0	32.1	1.66	10169	4.1
100M X 0	7.1	24.5	1.36	11458	3.3
TOTAL(3/8" X 0)	100.0	31.6	1.64	10261	4.0

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	34.5	3.9	.06	14969	1.0
FLOAT 1.40	50.6	5.7	.09	14664	1.0
FLOAT 1.60	62.5	8.8	.31	14126	1.1
CUM(14M X 0)	100.0	32.2	1.71	10082	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	55.3
3/8" X 14M	32.4
14M X 100M	10.4
100M X 0	1.9

--- MOISTURE, % ---

TOTAL	1.4
AS RECEIVED	1.0

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: BAKERSTOWN
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 62
SAMPLE NO. 434

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	1.00	.90	1.10	--	--	--	--
ASH	32.57	9.07	72.59	32.90	73.40	--	--
VOLATILE MATTER	24.78	32.21	12.26	25.03	12.40	37.30	35.78
FIXED CARBON	41.65	57.82	14.04	42.07	14.20	62.70	64.22
BTU/LB	10012	13945	3052	10113	3086	15072	15489
							11601

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	55.48	77.68	17.38	56.04	17.57	83.52	86.29
HYDROGEN	4.17	5.49	1.90	4.10	1.80	6.11	5.99
NITROGEN	1.09	1.50	.40	1.10	.40	1.64	1.56
SULFUR	2.04	.77	4.03	2.06	4.08	3.07	.85
OXYGEN	4.65	5.49	3.70	3.80	2.75	5.67	5.21
ASH	32.57	9.07	72.59	32.90	73.40	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	1.74	.28	4.00	1.76	4.04	2.62	.31
SULFATIC	.01	.01	.01	.01	.01	.01	.01
ORGANIC	.29	.48	.02	.29	.02	.43	.09
TOTAL	2.04	.77	4.03	2.06	4.08	3.07	.85

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	58.47	53.39	59.52
Al2O3 (ALUMINUM OXIDE)	24.11	30.92	21.08
Fe2O3 (IRON OXIDE)	9.38	5.36	9.51
TiO2 (TITANIUM OXIDE)	1.06	1.32	1.04
CaO (CALCIUM OXIDE)	1.40	3.02	1.12
MgO (MAGNESIUM OXIDE)	1.41	1.35	1.31
Na2O (SODIUM OXIDE)	.66	--	--
K2O (POTASSIUM OXIDE)	2.50	1.99	4.89
SO3 (SULFITES)	.77	1.61	.56

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.18	--
DOLomite	.18	--
HYDROGEN/CARBON	.88	.83
OXYGEN/CARBON	.05	.05
R250	.88	.91
SILICA	.83	.85
SILICA/ALUMINA	2.43	1.73

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2390	2760	--
SOFTENING TEMPERATURE (ST)	2510	2890	--
FLUID TEMPERATURE (FT)	2650	2910+	--
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	.08	--	--
NA (SODIUM) (CALCULATED)	.16	--	--
MINERAL MATTER (PARR)	36.67	10.31	81.51

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6	8 1/2	--
HARDGROVE GRINDABILITY (HGI)	64	65	--

STATE: WEST VIRGINIA
COUNTY: LOGAN
BED: CEDAR GROVE
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 151
SAMPLE NO. 435

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" ----- (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)						
PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.3	3.5	.08	.86	14707	1.2
FLOAT 1.40	78.6	5.8	.17	.88	14291	1.2
FLOAT 1.60	84.2	6.9	.22	.92	14092	1.3
CUM(1-1/2" X 100M)	100.0	13.1	.32	.91	12068	1.5
100M X 0	.7	20.2	.78	1.73	11689	3.0
TOTAL(1-1/2" X 0)	100.0	18.1	.32	.92	12066	1.5

----- SAMPLE CRUSHED TO PASS 3/8" ----- (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)						
PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.0	2.9	.08	.86	14815	1.2
FLOAT 1.40	76.9	5.1	.13	.87	14417	1.2
FLOAT 1.60	82.8	6.1	.18	.91	14237	1.3
CUM(3/8" X 100M)	100.0	18.6	.35	.96	11978	1.6
100M X 0	3.1	18.1	.48	1.23	12068	2.0
TOTAL(3/8" X 0)	100.0	18.6	.35	.97	11981	1.6

----- SAMPLE CRUSHED TO PASS 14M ----- (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)						
PRODUCT	RECOVERY, %	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.1	2.4	.04	.85	14905	1.1
FLOAT 1.40	73.1	4.7	.09	.83	14490	1.1
FLOAT 1.60	83.4	6.3	.14	.86	14201	1.2
CUM(14M X 0)	100.0	18.0	.35	.99	12086	1.6

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----		----- MOISTURE, % -----	
SAMPLE CRUSHED TO PASS 1-1/2"		TOTAL AS RECEIVED	
1-1/2" X 3/8"	76.9	4.5	
3/8" X 14M	17.8	1.4	
14M X 100M	4.6		
100M X 0	.7		

STATE: WEST VIRGINIA
COUNTY: LOGAN
BED: CEDAR GROVE
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 151
SAMPLE NO. 435

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.40	1.00	1.00	--	--	--	--	--	--
ASH	17.75	6.34	76.13	18.00	6.40	76.90	--	--	--
VOLATILE MATTER	30.94	34.77	11.98	31.37	35.13	12.10	38.26	37.53	52.38
FIXED CARBON	49.92	57.89	10.89	50.63	58.47	11.00	61.74	62.47	47.62
BTU/LB	11960	14005	1421	12130	14146	1436	14792	15113	6215

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	68.70	79.71	14.99	69.68	80.52	15.14	84.98	86.03	65.54
HYDROGEN	4.64	5.21	1.60	4.55	5.15	1.50	5.54	5.51	6.49
NITROGEN	1.25	1.42	.40	1.27	1.43	.40	1.55	1.53	1.73
SULFUR	1.00	.87	1.63	1.02	.88	1.65	1.24	.94	7.13
OXYGEN	6.66	6.45	5.26	5.49	5.61	4.41	6.70	6.00	19.10
ASH	17.75	6.34	76.13	18.00	6.40	76.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.34	.15	1.39	.34	.15	1.41	.41	.16	6.08
SULFATIC	.05	.05	.06	.06	.05	.06	.07	.05	.26
ORGANIC	.61	.67	.18	.62	.68	.18	.76	.73	.79
TOTAL	1.00	.87	1.63	1.02	.88	1.65	1.24	.94	7.13

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	.19	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.78	.77
OXYGEN/CARBON	.06	.05
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2910+
SOFTENING TEMPERATURE (ST)	2910+	2910+	2910+
FLUID TEMPERATURE (FT)	2910+	2910+	2910+
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.09	--	--
MINERAL MATTER (FARR)	20.00	7.40	83.96

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7	8	0
HARDGROVE GRINDABILITY (HGI)	49	--	--

STATE: WEST VIRGINIA
 COUNTY: LOGAN
 BED: CEDAR GROVE
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 151
 SAMPLE NO. 436

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	48.1	51.3	3.8	.14	14442	1.8
FLOAT 1.40	87.1	91.1	5.3	.17	14167	1.9
FLOAT 1.60	94.8	97.5	6.6	.24	13929	2.0
CUM(1-1/2" X 100M)	100.0	100.0	8.7	.70	13544	2.8
100M X 0	.7	.6	15.2	2.41	12354	10.0
TOTAL(1-1/2" X 0)	100.0	100.0	8.7	.71	13536	2.9

SAMPLE CRUSHED TO PASS 3/8"
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	49.4	53.3	2.6	.13	14661	1.8
FLOAT 1.40	86.2	90.5	4.7	.17	14277	1.9
FLOAT 1.60	94.2	97.4	5.9	.23	14057	2.0
CUM(3/8" X 100M)	100.0	100.0	8.4	.67	13599	2.8
100M X 0	4.2	4.1	10.7	1.66	13178	6.4
TOTAL(3/8" X 0)	100.0	100.0	8.5	.71	13582	2.9

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	49.1	53.3	2.1	.09	14753	1.6
FLOAT 1.40	84.0	89.0	4.1	.15	14387	1.7
FLOAT 1.60	93.2	97.0	5.5	.22	14130	1.9
CUM(14M X 0)	100.0	100.0	8.5	.78	13511	2.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	75.3
3/8" X 14M	19.4
14M X 100M	4.6
100M X 0	.7

MOISTURE, %

TOTAL	5.0
AS RECEIVED	3.3

STATE: WEST VIRGINIA		BED: CEDAR GROVE		BED CODE: 151	
COUNTY: LOGAN		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 436	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
AS RECEIVED	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.30	1.30	2.70	--	--
ASH	8.41	5.53	49.91	8.70	51.30
VOLATILE MATTER	32.72	34.31	20.63	33.84	21.20
FIXED CARBON	55.57	58.86	26.76	57.46	27.50
BTU/LB	13151	13877	5595	13600	5740
----- ULTIMATE ANALYSIS, % -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
AS RECEIVED	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	73.91	78.72	32.06	76.43	32.95
HYDROGEN	5.11	5.17	2.54	4.90	2.30
NITROGEN	1.28	1.36	.49	1.32	.50
SULFUR	1.87	1.32	9.77	1.93	10.04
OXYGEN	9.43	7.89	5.23	6.72	2.91
ASH	8.41	5.53	49.91	8.70	51.30
----- SULFUR FORMS ANALYSIS, % -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
AS RECEIVED	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.67	.20	8.23	.70	8.46
SULFATIC	.17	.13	.21	.16	.22
ORGANIC	1.03	1.00	1.33	1.06	1.37
TOTAL	1.87	1.32	9.77	1.93	10.04
----- MINERAL ANALYSIS OF ASH, % -----					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
OXIDES	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
SiO2 (SILICON OXIDE)	--	--	--	2620	2910+
Al2O3 (ALUMINUM OXIDE)	--	--	--	2680	2910+
Fe2O3 (IRON OXIDE)	--	--	--	2770	2910+
TiO2 (TITANIUM OXIDE)	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--
Na2O (SODIUM OXIDE)	.46	.50	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--
----- COAL UTILIZATION RATIOS -----					
	RAW	FL 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
DOLOMITE	--	--	--	--	--
HYDROGEN/CARBON	.77	.77	--	--	--
OXYGEN/CARBON	.07	.06	--	--	--
R250	--	--	--	--	--
SILICA	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--
----- FUSIBILITY OF ASH, DEGREES F -----					
(IN OXIDIZING ATMOSPHERE)					
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
AS RECEIVED	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	2620	2910+	2080
SOFTENING TEMPERATURE (ST)	--	--	2680	2910+	2130
FLUID TEMPERATURE (FT)	--	--	2770	2910+	2180
----- MISCELLANEOUS DATA, % -----					
	RAW	FL 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	.03	.02	.19
MINERAL MATTER (FARR)	--	--	10.46	6.79	60.93
----- PHYSICAL PARAMETERS, INDEX -----					
	RAW	FL 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	7	7 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	49	48	--

STATE: WEST VIRGINIA
 COUNTY: LOGAN
 BED: CHILTON
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 135
 SAMPLE NO. 437

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO ₂ EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	79.0	2.1	.01	14871	1.0
FLOAT 1.40	89.8	2.8	.01	14741	1.0
FLOAT 1.60	96.5	3.9	.01	14538	1.0
CUM(1-1/2" X 100M)	100.0	6.2	.01	14114	1.0
100M X 0	.2	11.4	.28	13155	1.5
TOTAL(1-1/2" X 0)	100.0	6.2	.01	14112	1.0

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO ₂ EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	76.8	1.9	.02	14907	.9
FLOAT 1.40	89.5	2.7	.02	14760	.9
FLOAT 1.60	96.1	3.8	.02	14557	.9
CUM(3/8" X 100M)	100.0	6.4	.03	14077	.9
100M X 0	.8	10.0	.19	13413	1.3
TOTAL(3/8" X 0)	100.0	6.4	.03	14072	.9

SAMPLE CRUSHED TO PASS 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO ₂ EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	31.7	1.3	.01	15018	1.0
FLOAT 1.40	87.8	2.4	.01	14815	.9
FLOAT 1.60	93.9	3.5	.01	14612	.9
CUM(14M X 0)	100.0	6.9	.03	13985	.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
 3/8" X 14M
 14M X 100M
 100M X 0

MOISTURE, %

TOTAL
 AS RECEIVED
 2.6
 1.0

STATE: WEST VIRGINIA
COUNTY: LOGAN

BED: CHILTON
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 135
SAMPLE NO. 437

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.00	1.20	1.20	--	--	--	--	--	--
ASH	6.53	3.32	60.87	6.60	3.36	61.61	--	--	--
VOLATILE MATTER	34.33	35.14	19.16	34.68	35.57	19.39	37.13	36.80	50.51
FIXED CARBON	58.14	60.34	18.77	58.72	61.07	19.00	62.87	63.20	49.49
BTU/LB	14058	14500	5042	14200	14676	5104	15203	15186	13293

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	.64	.64	.64	.65	.65	.65	.69	.67	1.69
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	6.53	3.32	60.87	6.60	3.36	61.61	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.03	.01	.33	.03	.01	.34	.03	.01	.88
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.03
ORGANIC	.60	.62	.30	.61	.63	.30	.65	.65	.79
TOTAL	.64	.64	.64	.65	.65	.65	.69	.67	1.69

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
AL2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
FE2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CAO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MGO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	.08	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--	--	--	--
MISCELLANEOUS DATA, %	--	--	--	--	--	--	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--	--	--	--
PHYSICAL PARAMETERS, INDEX	--	--	--	--	--	--	--	--	--
FREE SWELLING (FSI)	--	--	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: CLARION
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 87
SAMPLE NO. 438

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.9	2.9	.12	14996	1.2
FLOAT 1.40	85.0	6.4	.89	14406	2.0
FLOAT 1.60	95.7	7.5	1.17	14191	2.4
CUM(1-1/2" X 100M)	100.0	9.2	1.71	13876	3.4
100M X 0	2.4	12.3	3.16	13328	5.4
TOTAL(1-1/2" X 0)	100.0	9.3	1.74	13863	3.4

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.9	2.7	.14	15122	1.1
FLOAT 1.40	83.5	5.4	.34	14630	1.5
FLOAT 1.60	94.1	6.7	.63	14377	1.9
CUM(3/8" X 100M)	100.0	9.3	1.59	13904	3.4
100M X 0	9.6	9.3	2.52	13887	4.2
TOTAL(3/8" X 0)	100.0	9.3	1.68	13903	3.5

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.3	2.9	.09	15119	1.1
FLOAT 1.40	81.6	4.7	.18	14774	1.3
FLOAT 1.60	92.8	6.1	.44	14498	1.6
CUM(14M X 0)	100.0	9.4	1.71	13881	3.6

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	49.1
3/8" X 14M	38.1
14M X 100M	10.4
100M X 0	2.4

----- MOISTURE, % -----

TOTAL	2.2
AS RECEIVED	1.3

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: CLARION
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 87
SAMPLE NO. 438

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.30	1.20 1.20	--	--	--	--
ASH	9.38	6.03 51.47	9.50	6.10 52.10	--	--
VOLATILE MATTER	30.80	31.51 22.33	31.21	31.89 22.60	34.49	33.96 47.18
FIXED CARBON	58.52	61.27 25.00	59.29	62.01 25.30	65.51	66.04 52.82
BTU/LB	13686	14324 5838	13866	14498 5908	15321	15440 12335

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	77.25	81.21 27.01	78.27	82.19 27.34	86.48	87.53 57.08
HYDROGEN	5.12	5.34 2.15	5.04	5.27 2.04	5.57	5.61 4.27
NITROGEN	1.31	1.38 .38	1.33	1.40 .39	1.47	1.49 .81
SULFUR	2.34	1.05 17.91	2.37	1.06 18.13	2.62	1.13 37.84
OXYGEN	4.61	5.00 --	3.50	3.98 --	3.86	4.24 --
ASH	9.38	6.03 51.47	9.50	6.10 52.10	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.62	.48 16.08	1.64	.48 16.27	1.81	.52 33.97
SULFATIC	.01	.01 .01	.01	.01 .01	.01	.01 .02
ORGANIC	.71	.56 1.82	.72	.57 1.85	.80	.60 3.86
TOTAL	2.34	1.05 17.91	2.37	1.06 18.13	2.62	1.13 37.84

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	32.55	38.84 23.26
SiO2 (SILICON OXIDE)	26.74	34.32 15.50
Al2O3 (ALUMINUM OXIDE)	32.90	18.72 56.42
Fe2O3 (IRON OXIDE)	1.91	1.30 1.31
TiO2 (TITANIUM OXIDE)	2.38	2.66 .84
CaO (CALCIUM OXIDE)	.40	.67 .57
MgO (MAGNESIUM OXIDE)	.49	-- --
Na2O (SODIUM OXIDE)	1.19	1.49 .86
K2O (POTASSIUM OXIDE)	1.40	1.48 .85
SO3 (SULFITES)	--	-- --

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.61	--
DOLOMITE	.07	--
HYDROGEN/CARBON	.77	--
OXYGEN/CARBON	.03	.04
R250	.63	.77
SILICA	.48	.64
SILICA/ALUMINA	1.22	1.13

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2050	2480
SOFTENING TEMPERATURE (ST)	2230	2570
FLUID TEMPERATURE (FT)	2340	2650
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	.15	--
NA (SODIUM) (CALCULATED)	.03	--
MINERAL MATTER (PARR)	11.56	7.17 66.24

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	9	9
HARDGROVE GRINDABILITY (HGI)	71	67

STATE: WEST VIRGINIA
COUNTY: MINGO

BED: COALBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 111
SAMPLE NO. 439

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.6	3.6	.04	14374	.9
FLOAT 1.40	62.4	4.9	.04	14009	.9
FLOAT 1.60	69.7	7.0	.04	13645	.9
CUM(1-1/2" X 100M)	100.0	25.4	.05	10537	.9
100M X 0	2.4	46.4	.17	7267	1.1
TOTAL(1-1/2" X 0)	100.0	25.9	.05	10459	.9

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.4	3.0	.03	14486	.8
FLOAT 1.40	61.9	4.4	.03	14230	.9
FLOAT 1.60	70.3	6.5	.03	13844	.9
CUM(3/8" X 100M)	100.0	25.0	.04	10723	.9
100M X 0	7.4	44.7	.10	8775	.8
TOTAL(3/8" X 0)	100.0	26.5	.04	10579	.9

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.3	3.2	.01	14438	.8
FLOAT 1.40	55.4	4.4	.01	14069	.9
FLOAT 1.60	64.5	6.4	.01	13684	.8
CUM(14M X 0)	100.0	26.6	.04	10291	.9

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" --
3/8" X 14M --
14M X 100M --
100M X 0 2.4

----- MOISTURE, % -----

TOTAL 2.3
AS RECEIVED 1.8

STATE: WEST VIRGINIA

COUNTY: MINGO

BED: COALBURG

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 111

SAMPLE NO. 439

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	1.75	1.65 1.65	--	--	--
ASH	27.22	6.55 64.12	27.70	6.66 65.20	--
VOLATILE MATTER	29.78	37.78 15.54	30.31	38.41 15.80	41.93 41.15 45.40
FIXED CARBON	41.25	54.03 18.69	41.99	54.93 19.00	58.07 58.85 54.60
BTU/LB	10026	13421 3848	10205	13647 3913	14115 14620 11244

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	57.31	75.29 25.44	58.33	76.55 25.87	80.68 82.01 74.34
HYDROGEN	4.12	5.21 2.17	4.00	5.11 2.02	5.53 5.47 5.80
NITROGEN	1.02	1.35 .36	1.04	1.37 .37	1.44 1.47 1.06
SULFUR	.42	.59 .27	.43	.60 .27	.59 .64 .78
OXYGEN	9.91	11.03 7.63	8.50	9.72 6.27	11.76 10.41 18.02
ASH	27.22	6.55 64.12	27.70	6.66 65.20	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	.04	.01 .09	.04	.01 .09	.06 .01 .27
SULFATIC	.01	.01 .01	.01	.01 .01	.01 .01 .03
ORGANIC	.37	.57 .16	.38	.58 .17	.52 .62 .48
TOTAL	.42	.59 .27	.43	.60 .27	.59 .64 .78

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	59.23	53.60 58.40			
SiO2 (SILICON OXIDE)	29.42	34.70 28.30			
Al2O3 (ALUMINUM OXIDE)	3.72	4.60 3.40			
Fe2O3 (IRON OXIDE)	1.55	1.70 1.50			
TiO2 (TITANIUM OXIDE)	.45	1.20 .22			
CaO (CALCIUM OXIDE)	1.23	1.10 4.03			
MgO (MAGNESIUM OXIDE)	.11	.13 .08			
Na2O (SODIUM OXIDE)	3.85	2.41 4.10			
K2O (POTASSIUM OXIDE)	.11	.31 .05			
SO3 (SULFITES)					

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)					
SOFTENING TEMPERATURE (ST)					
FLUID TEMPERATURE (FT)					

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)					
NA (SODIUM) (CALCULATED)					
MINERAL MATTER (PARR)					

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)					
HARDGROVE GRINDABILITY (HGI)					

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	.10	.10			
DOLOMITE	.18	.24			
HYDROGEN/CARBON	.82	.80			
OXYGEN/CARBON	.11	.10			
R250	.96	.94			
SILICA	.92	.88			
SILICA/ALUMINA	2.01	1.54			

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)					
SOFTENING TEMPERATURE (ST)					
FLUID TEMPERATURE (FT)					

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)					
NA (SODIUM) (CALCULATED)					
MINERAL MATTER (PARR)					

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)					
HARDGROVE GRINDABILITY (HGI)					

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	.10	.10			
DOLOMITE	.18	.24			
HYDROGEN/CARBON	.82	.80			
OXYGEN/CARBON	.11	.10			
R250	.96	.94			
SILICA	.92	.88			
SILICA/ALUMINA	2.01	1.54			

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)					
SOFTENING TEMPERATURE (ST)					
FLUID TEMPERATURE (FT)					

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)					
NA (SODIUM) (CALCULATED)					
MINERAL MATTER (PARR)					

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)					
HARDGROVE GRINDABILITY (HGI)					

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	.10	.10			
DOLOMITE	.18	.24			
HYDROGEN/CARBON	.82	.80			
OXYGEN/CARBON	.11	.10			
R250	.96	.94			
SILICA	.92	.88			
SILICA/ALUMINA	2.01	1.54			

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)					
SOFTENING TEMPERATURE (ST)					
FLUID TEMPERATURE (FT)					

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)					
NA (SODIUM) (CALCULATED)					
MINERAL MATTER (PARR)					

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)					
HARDGROVE GRINDABILITY (HGI)					

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	.10	.10			
DOLOMITE	.18	.24			
HYDROGEN/CARBON	.82	.80			
OXYGEN/CARBON	.11	.10			
R250	.96	.94			
SILICA	.92	.88			
SILICA/ALUMINA	2.01	1.54			

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)					
SOFTENING TEMPERATURE (ST)					
FLUID TEMPERATURE (FT)					

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)					
NA (SODIUM) (CALCULATED)					
MINERAL MATTER (PARR)					

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)					
HARDGROVE GRINDABILITY (HGI)					

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	.10	.10			
DOLOMITE	.18	.24			
HYDROGEN/CARBON	.82	.80			
OXYGEN/CARBON	.11	.10			
R250	.96	.94			
SILICA	.92	.88			
SILICA/ALUMINA	2.01	1.54			

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)					
SOFTENING TEMPERATURE (ST)					
FLUID TEMPERATURE (FT)					

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)					
NA (SODIUM) (CALCULATED)					
MINERAL MATTER (PARR)					

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)					
HARDGROVE GRINDABILITY (HGI)					

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	.10	.10			
DOLOMITE	.18	.24			
HYDROGEN/CARBON	.82	.80			
OXYGEN/CARBON	.11	.10			
R250	.96	.94			
SILICA	.92	.88			
SILICA/ALUMINA	2.01	1.54			

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)					
SOFTENING TEMPERATURE (ST)					
FLUID TEMPERATURE (FT)					

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)					
NA (SODIUM) (CALCULATED)					
MINERAL MATTER (PARR)					

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)					
HARDGROVE GRINDABILITY (HGI)					

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	.10	.10			
DOLOMITE	.18	.24			
HYDROGEN/CARBON	.82	.80			
OXYGEN/CARBON	.11	.10			
R250	.96	.94			
SILICA	.92	.88			
SILICA/ALUMINA	2.01	1.54			

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)					
SOFTENING TEMPERATURE (ST)					
FLUID TEMPERATURE (FT)					

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)					
NA (SODIUM) (CALCULATED)					
MINERAL MATTER (PARR)					

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)					
HARDGROVE GRINDABILITY (HGI)					

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	.10	.10			
DOLOMITE	.18	.24			
HYDROGEN/CARBON	.82	.80			
OXYGEN/CARBON	.11	.10			
R250	.96	.94			
SILICA	.92	.88			
SILICA/ALUMINA	2.01	1.54			

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)					
SOFTENING TEMPERATURE (ST)					
FLUID TEMPERATURE (FT)					

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)					
NA (SODIUM) (CALCULATED)					
MINERAL MATTER (PARR)					

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSI)					
HARDGROVE GRINDABILITY (HGI)					

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	.10	.10			
DOLOMITE	.18	.24			
HYDROGEN/CARBON	.82	.80			
OXYGEN/CARBON	.11	.10			

STATE: WEST VIRGINIA
COUNTY: LEWIS
BED: ELK LICK
RANK: HIGH VOLATILE A BITUMINOUS
RED CODE: 55
SAMPLE NO. 440

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	11.8	5.3	.12	14304	1.1
FLOAT 1.40	62.3	19.2	.22	13510	1.2
FLOAT 1.60	87.9	14.3	.56	12858	1.5
CUM(1-1/2" X 100M)	100.0	18.0	.81	12208	2.0
100M X 0	.9	22.6	1.25	11369	2.7
TOTAL(1-1/2" X 0)	100.0	18.0	.81	12201	2.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	19.3	4.8	.05	14386	1.0
FLOAT 1.40	62.0	9.5	.12	13635	1.1
FLOAT 1.60	85.4	13.1	.20	13044	1.2
CUM(3/8" X 100M)	100.0	18.3	.73	12165	2.1
100M X 0	4.7	18.4	.80	12094	2.1
TOTAL(3/8" X 0)	100.0	18.3	.73	12161	2.1

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	27.1	4.6	.06	14413	.9
FLOAT 1.40	60.7	8.0	.08	13865	1.0
FLOAT 1.60	83.8	12.1	.10	13203	1.0
CUM(14M X 0)	100.0	19.1	.89	11980	2.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	48.9
3/8" X 14M	38.9
14M X 100M	11.3
100M X 0	.9

--- MOISTURE, % ---

TOTAL	2.3
AS RECEIVED	1.4

STATE: WEST VIRGINIA
COUNTY: LEWIS

BED: ELK LICK
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 55
SAMPLE NO. 440

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.40	1.50	--	--	--	--
ASH	18.64	11.44	18.90	11.62	--	--
VOLATILE MATTER	35.15	36.51	35.64	37.06	43.95	41.94
FIXED CARBON	44.82	50.55	45.46	51.32	56.05	58.06
BTU/LB	11841	13076	12009	13275	14808	15020
		5518		5591		12649

----- ULTIMATE ANALYSIS, % -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	67.45	72.43	68.41	73.53	84.35	83.20
HYDROGEN	5.12	5.63	5.03	5.54	6.21	5.66
NITROGEN	1.28	1.40	1.29	1.43	1.60	1.36
SULFUR	1.39	.66	1.41	.68	1.74	.76
OXYGEN	6.13	8.43	4.95	7.21	6.11	8.15
ASH	18.64	11.44	18.90	11.62	--	--

----- SULFUR FORMS ANALYSIS, % -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.88	.09	.89	.10	1.10	.11
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.50	.56	.51	.57	.62	.64
TOTAL	1.39	.66	1.41	.68	1.74	.76

----- MINERAL ANALYSIS OF ASH, % -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	49.25	53.62	49.25	53.62	53.62	53.62
SiO2 (SILICON OXIDE)	26.20	31.45	26.20	31.45	26.20	31.45
Al2O3 (ALUMINUM OXIDE)	9.70	4.60	9.70	4.60	9.70	4.60
Fe2O3 (IRON OXIDE)	1.25	1.27	1.25	1.27	1.25	1.27
TiO2 (TITANIUM OXIDE)	6.30	3.44	6.30	3.44	6.30	3.44
CaO (CALCIUM OXIDE)	1.15	1.15	1.15	1.15	1.15	1.15
MgO (MAGNESIUM OXIDE)	.80	--	.80	--	.80	--
Na2O (SODIUM OXIDE)	1.88	1.78	1.88	1.78	1.88	1.78
K2O (POTASSIUM OXIDE)	3.21	1.69	3.21	1.69	3.21	1.69
SO3 (SULFITES)						

----- COAL UTILIZATION RATIOS -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.26	--	.26	--	.26	--
DOLOMITE	.38	--	.38	--	.38	--
HYDROGEN/CARBON	.88	.90	.88	.90	.88	.90
OXYGEN/CARBON	.05	.07	.05	.07	.05	.07
R250	.83	.91	.83	.91	.83	.91
SILICA	.74	.85	.74	.85	.74	.85
SILICA/ALUMINA	1.88	1.70	1.88	1.70	1.88	1.70

----- FUSIBILITY OF ASH, DEGREES F -----

(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2260	2760	2260	2760	2260	2760
SOFTENING TEMPERATURE (ST)	2340	2840	2340	2840	2340	2840
FLUID TEMPERATURE (FT)	2450	2910+	2450	2910+	2450	2910+

----- MISCELLANEOUS DATA, % -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.13	--	.13	--	.13	--
NA (SODIUM) (CALCULATED)	.11	--	.11	--	.11	--
MINERAL MATTER (PAPP)	21.19	12.92	21.19	12.92	21.19	12.92

----- PHYSICAL PARAMETERS, INDEX -----

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	5	6 1/2	5	6 1/2	5	6 1/2
HARDGROVE GRINDABILITY (HGI)	45	44	45	44	45	44

STATE: WEST VIRGINIA
COUNTY: WYOMING

BED: GILBERT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 216
SAMPLE NO. 441

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	19.0	22.2	3.0	.22	1.01	15142	1.3
FLOAT 1.40	75.5	83.0	8.1	.28	.98	14245	1.4
FLOAT 1.60	89.0	95.3	10.2	.36	1.03	13875	1.5
CUM(1-1/2" X 100M)	100.0	100.0	15.4	.69	1.29	12960	2.0
100M X 0	1.8	1.8	15.9	1.73	2.50	12872	3.9
TOTAL(1-1/2" X 0)	100.0	100.0	15.4	.71	1.31	12959	2.0

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	24.1	28.4	2.9	.25	.92	15160	1.2
FLOAT 1.40	70.9	79.1	7.5	.25	.95	14350	1.3
FLOAT 1.60	87.1	94.3	10.0	.30	.94	13910	1.4
CUM(3/8" X 100M)	100.0	100.0	16.0	.74	1.30	12855	2.0
100M X 0	8.9	9.4	12.2	.92	1.67	13523	2.5
TOTAL(3/8" X 0)	100.0	100.0	15.7	.76	1.33	12914	2.1

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	23.8	27.9	2.4	.17	.97	15247	1.3
FLOAT 1.40	67.4	75.2	6.7	.22	.96	14491	1.3
FLOAT 1.60	87.8	94.3	9.7	.29	.98	13963	1.4
CUM(14M X 0)	100.0	100.0	15.2	.73	1.36	12996	2.1

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	48.3
3/8" X 14M	37.4
14M X 100M	12.5
100M X 0	1.8

----- MOISTURE, %

TOTAL	2.6
AS RECEIVED	1.0

STATE: WEST VIRGINIA
COUNTY: WYOMING

BED: GILBERT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 216
SAMPLE NO. 441

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	1.00	1.00	--	--	--	--
ASH	15.05	9.80	15.20	53.81	--	--
VOLATILE MATTER	27.10	28.44	27.38	16.95	32.28	31.88
FIXED CARBON	56.85	60.76	57.42	28.34	67.72	68.12
BTU/LB	12919	13741	13050	6055	15389	15405

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.29	.94	1.31	.95	1.54	1.05
OXYGEN	--	--	--	--	--	--
ASH	15.05	9.80	15.20	53.81	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	.69	.28	.70	.28	.83	.31
SULFATIC	.01	.01	.02	.01	.02	.01
ORGANIC	.58	.65	.59	.18	.70	.40
TOTAL	1.29	.94	1.31	.95	1.54	1.05

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2570
SOFTENING TEMPERATURE (ST)	2910+	2910+	2660
FLUID TEMPERATURE (FT)	2910+	2910+	2820
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	17.13	11.21	60.90

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	8	--
HARDGROVE GRINDABILITY (HGI)	73	75	--

STATE: WEST VIRGINIA
COUNTY: GRANT
BED: LOWER BAKERSTOWN
RANK: MED VOLATILE BITUMINOUS
BED CODE: 63
SAMPLE NO. 442

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.6	3.0	.35	15278	1.3
FLOAT 1.40	67.4	5.2	.78	14868	1.7
FLOAT 1.60	81.3	7.8	1.07	14383	2.2
CUM(1-1/2" X 100M)	100.0	14.6	2.17	13115	3.9
100M X 0	1.7	11.3	1.75	13730	3.9
TOTAL(1-1/2" X 0)	100.0	14.5	2.16	13126	3.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.4	3.2	.25	15240	1.2
FLOAT 1.40	67.4	5.0	.43	14905	1.4
FLOAT 1.60	82.7	8.0	.66	14346	1.7
CUM(3/8" X 100M)	100.0	14.6	2.25	13115	4.1
100M X 0	6.6	8.8	1.54	14196	3.4
TOTAL(3/8" X 0)	100.0	14.2	2.20	13186	4.1

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.2	2.7	.21	15334	1.2
FLOAT 1.40	70.9	4.5	.26	14998	1.2
FLOAT 1.60	85.1	7.0	.31	14532	1.3
CUM(14M X 0)	100.0	13.8	2.30	13264	4.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	58.2
3/8" X 14M	28.3
14M X 100M	11.8
100M X 0	1.7

MOISTURE, %

TOTAL	2.2
AS RECEIVED	1.5

STATE: WEST VIRGINIA
COUNTY: GRANT
BED: LOWER BAKERSTOWN
RANK: MED VOLATILE BITUMINOUS
BED CODE: 63
SAMPLE NO. 442

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	1.50	.80	--	--	--	--
ASH	13.99	7.22	14.20	7.28	27.32	26.41
VOLATILE MATTER	23.09	24.29	23.44	24.49	72.68	73.59
FIXED CARBON	61.42	67.69	62.36	68.23	15443	15562
BTU/LB	13051	14313	13250	14429	6040	12716

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	73.86	81.46	74.98	82.12	87.39	88.56
HYDROGEN	4.41	4.75	4.30	4.70	5.02	5.07
NITROGEN	1.49	1.67	1.52	1.69	1.77	1.82
SULFUR	2.58	.88	2.62	.89	3.05	.96
OXYGEN	3.68	4.01	2.38	3.32	2.78	3.59
ASH	13.99	7.22	14.20	7.28	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	2.13	.28	2.16	.28	2.52	.30
SULFATIC	.00	.00	.01	.00	.01	.00
ORGANIC	.44	.61	.45	.61	.52	.66
TOTAL	2.58	.88	2.62	.89	3.05	.96

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	2160	2910+
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	2250	2910+
Fe2O3 (IRON OXIDE)	--	--	--	--	2460	2910+
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	.60	.90	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.69	.69	--	--	--	--
OXYGEN/CARBON	.02	.03	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING	--	--	--	--	9	9
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	89	--

STATE: WEST VIRGINIA BED: LOWER BAKERSTOWN BED CODE: 63
COUNTY: GRANT RANK: MED VOLATILE BITUMINOUS SAMPLE NO. 443

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT				TOTAL	BTU/LB	LB/MM BTU
FLOAT 1.30	16.3	23.6	3.5	.18	.78	15168	1.0
FLOAT 1.40	43.6	60.5	7.0	.47	1.06	14526	1.5
FLOAT 1.60	63.1	81.7	12.3	.78	1.36	13554	2.0
FLOAT 1.90	81.3	95.3	19.3	1.12	1.68	12269	2.7
CUM(1-1/2" X 100M)	100.0	100.0	29.1	2.37	3.01	10472	5.7
100M X 0	.4	.5	15.0	1.65	2.34	13058	3.6
TOTAL(1-1/2" X 0)	100.0	100.0	29.0	2.37	3.01	10482	5.7

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT				TOTAL	BTU/LB	LB/MM BTU
FLOAT 1.30	19.8	28.4	3.4	.16	.78	15186	1.0
FLOAT 1.40	46.8	64.5	6.7	.29	.85	14581	1.2
FLOAT 1.60	65.2	84.5	11.4	.41	.95	13719	1.4
FLOAT 1.90	81.3	95.3	19.3	1.12	1.68	12269	2.7
CUM(3/8" X 100M)	100.0	100.0	28.5	2.38	3.03	10582	5.7
100M X 0	1.1	1.3	20.5	2.34	2.92	12049	4.8
TOTAL(3/8" X 0)	100.0	100.0	28.4	2.38	3.03	10598	5.7

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT				TOTAL	BTU/LB	LB/MM BTU
FLOAT 1.30	22.9	32.5	3.3	.20	.73	15205	1.0
FLOAT 1.40	47.6	65.2	6.1	.28	.76	14691	1.0
FLOAT 1.60	68.2	87.2	11.4	.41	.86	13719	1.3
FLOAT 1.90	81.3	95.3	19.3	1.12	1.68	12269	2.7
CUM(14M X 0)	100.0	100.0	27.7	2.35	2.99	10728	5.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.4

MOISTURE, %

TOTAL	1.5
AS RECEIVED	1.0

STATE: WEST VIRGINIA
COUNTY: GRANT

BED: LOWER BAKERSTOWN
RANK: MED VOLATILE BITUMINOUS

BED CODE: 63
SAMPLE NO. 443

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.00	--	--	--	--	--	--	--	--
ASH	28.52	--	--	28.81	--	--	--	--	--
VOLATILE MATTER	19.57	--	--	19.76	--	--	27.76	--	--
FIXED CARBON	50.91	--	--	51.43	--	--	72.24	--	--
BTU/LB	10786	--	--	10895	--	--	15303	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.83	--	--	2.86	--	--	4.02	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	28.52	--	--	28.81	--	--	--	--	--

969

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.58	--	--	2.60	--	--	3.66	--	--
SULFATIC	.01	--	--	.01	--	--	.01	--	--
ORGANIC	.25	--	--	.25	--	--	.35	--	--
TOTAL	2.83	--	--	2.86	--	--	4.02	--	--

MINERAL ANALYSIS OF ASH, % FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--	32.69	--	--

STATE: WEST VIRGINIA
COUNTY: PRESTON

RED: LOWER BAKERSTOWN
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 63
SAMPLE NO. 444

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	59.0	4.5	.29	15178	.9
FLOAT 1.40	88.7	4.5	.62	14828	3.1
FLOAT 1.60	96.0	7.0	.83	14642	1.7
CUM(1-1/2" X 100M)	100.0	7.5	1.26	14319	2.6
100M X 0	1.9	9.3	.93	13945	2.5
TOTAL(1-1/2" X 0)	100.0	7.5	1.25	14312	2.6

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	68.0	3.9	.32	15227	2.7
FLOAT 1.40	88.9	5.1	.46	14947	2.9
FLOAT 1.60	94.3	5.9	.61	14796	3.1
CUM(3/8" X 100M)	100.0	8.6	1.22	14309	4.1
100M X 0	6.4	9.5	2.05	14196	5.0
TOTAL(3/8" X 0)	100.0	8.7	1.27	14301	4.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	67.4	3.4	.34	15331	2.5
FLOAT 1.40	88.4	4.6	.42	15065	2.7
FLOAT 1.60	94.8	5.7	.58	14873	2.9
CUM(14M X 0)	100.0	8.4	1.20	14356	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	53.2
3/8" X 14M	32.7
14M X 100M	12.2
100M X 0	1.9

----- MOISTURE, % -----
TOTAL
AS RECEIVED
1.8
1.0

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: LOWER BAKERSTOWN
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 63
SAMPLE NO. 444

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	1.00	.71	7.49	5.10	34.40	33.83
ASH	7.42	5.06	31.82	32.10	65.60	66.17
VOLATILE MATTER	31.50	31.87	60.69	62.80		
FIXED CARBON	60.08	62.35		15.53		
BTU/LB	14186	14711	14331	14816	15491	15612
		4720		4754		12345

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	79.42	82.19	80.22	82.78	86.71	87.23
HYDROGEN	5.18	5.30	5.12	5.26	5.53	5.54
NITROGEN	1.65	1.70	1.67	1.71	1.81	1.80
SULFUR	2.29	2.02	2.31	2.03	2.50	2.14
OXYGEN	4.04	3.73	3.19	3.12	3.45	3.29
ASH	7.42	5.06	7.49	5.10		

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	1.35	.54	1.37	.54	1.48	.57
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.93	1.47	.94	1.48	1.01	1.56
TOTAL	2.29	2.02	2.31	2.03	2.50	2.14

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	34.72	49.16	20.41
Al2O3 (ALUMINUM OXIDE)	18.56	29.23	11.54
Fe2O3 (IRON OXIDE)	27.99	6.34	49.22
TiO2 (TITANIUM OXIDE)	1.38	1.54	1.74
CaO (CALCIUM OXIDE)	8.54	6.44	10.50
MgO (MAGNESIUM OXIDE)	.40	.20	.51
Na2O (SODIUM OXIDE)	.78	--	.80
K2O (POTASSIUM OXIDE)	.83	.72	.86
SO3 (SULFITES)	6.34	4.16	3.54

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.71	--
DOLOMITE	.23	--
HYDROGEN/CARBON	.77	.76
OXYGEN/CARBON	.03	.03
R250	.59	.86
SILICA	.48	.79
SILICA/ALUMINA	1.87	1.68

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING	8	1 1/2	8
HARDGROVE GRINDABILITY (HGL)	76	1/2	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2040	2910+	--
SOFTENING TEMPERATURE (ST)	2150	2910+	--
FLUID TEMPERATURE (FT)	2240	2910+	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.16	--	--
NA (SODIUM) (CALCULATED)	.04	--	.36
MINERAL MATTER (PARR)	9.16	6.62	77.07

STATE: WEST VIRGINIA
COUNTY: BARPOUR

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 445

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.7	24.8	3.8	.10	.75	14892	1.0
FLOAT 1.40	64.3	72.4	8.9	.24	.96	14007	1.4
FLOAT 1.60	85.7	91.9	12.7	.52	1.22	13339	1.8
CUM(1-1/2" X 100M)	100.0	100.0	17.6	1.74	2.72	12440	4.4
100M X 0	1.2	1.2	14.8	2.03	3.24	12933	5.0
TOTAL(1-1/2" X 0)	100.0	100.0	17.6	1.74	2.73	12446	4.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.5	36.0	3.2	.06	.65	15071	.9
FLOAT 1.40	63.5	73.4	7.4	.10	.74	14282	1.0
FLOAT 1.60	83.0	91.2	11.5	.17	.83	13580	1.2
CUM(3/8" X 100M)	100.0	100.0	18.0	1.72	2.75	12357	4.5
100M X 0	4.7	5.1	12.8	1.70	2.67	13294	4.0
TOTAL(3/8" X 0)	100.0	100.0	17.8	1.72	2.75	12401	4.4

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.0	42.5	3.0	.05	.69	14999	.9
FLOAT 1.40	63.2	74.0	6.2	.07	.73	14452	1.0
FLOAT 1.60	82.7	91.8	10.5	.09	.73	13707	1.1
CUM(14M X 0)	100.0	100.0	18.0	1.67	2.67	12347	4.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	68.9
3/8" X 14M	23.8
14M X 100M	6.1
100M X 0	1.2

--- MOISTURE, % ---

TOTAL	1.7
AS RECEIVED	1.1

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

RED CODE: 84
SAMPLE NO. 445

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.10	.80	--	--	--	--
ASH	17.41	10.71	17.60	10.80	36.58	35.82
VOLATILE MATTER	29.81	31.70	30.15	31.95	63.42	64.18
FIXED CARBON	51.68	56.79	52.25	57.25	15058	15315
BTU/LB	12271	13551	12408	13661	5781	12677

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	70.19	76.21	70.97	76.83	86.13	86.13
HYDROGEN	4.62	5.01	4.55	4.96	5.52	5.56
NITROGEN	1.30	1.41	1.31	1.42	1.59	1.59
SULFUR	2.42	.66	2.44	.67	2.96	.75
OXYGEN	4.07	6.00	3.13	5.33	3.79	5.97
ASH	17.41	10.71	17.60	10.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.52	.10	1.54	.10	1.87	.11
SULFATIC	.01	.01	.02	.01	.02	.01
ORGANIC	.88	.55	.89	.56	1.08	.63
TOTAL	2.42	.66	2.44	.67	2.96	.75

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	44.34	51.49
Al2O3 (ALUMINUM OXIDE)	30.17	37.44
Fe2O3 (IRON OXIDE)	18.03	3.99
TiO2 (TITANIUM OXIDE)	1.44	1.30
CaO (CALCIUM OXIDE)	.70	1.26
MgO (MAGNESIUM OXIDE)	.71	.51
Na2O (SODIUM OXIDE)	.19	--
K2O (POTASSIUM OXIDE)	1.96	2.15
SO3 (SULFITES)	.63	1.01

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.28	--
DOLOMITE	.07	--
HYDROGEN/CARBON	.77	.77
OXYGEN/CARBON	.05	.05
R250	.80	.94
SILICA	.70	.90
SILICA/ALUMINA	1.47	1.38

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2640	2800
SOFTENING TEMPERATURE (ST)	2770	2800
FLUID TEMPERATURE (FT)	2800	2800
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.10	--
MINERAL MATTER (PARR)	19.61	12.03
60.65		

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	8 1/2	9
HARDGROVE GRINDABILITY (HGI)	55	--

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 446

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	25.2	28.4	3.7	.14	15054	1.1
FLOAT 1.40	73.5	79.0	7.8	.34	14338	1.7
FLOAT 1.60	93.5	96.7	11.0	.61	13789	2.0
CUM(1-1/2" X 100M)	100.0	100.0	13.6	1.16	13336	3.0
100M X 0	2.6	2.6	14.3	2.14	13119	4.2
TOTAL(1-1/2" X 0)	100.0	100.0	13.6	1.19	13330	3.0

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	32.5	36.6	3.4	.09	14846	1.1
FLOAT 1.40	69.8	76.3	6.7	.20	14398	1.4
FLOAT 1.60	91.7	95.9	10.6	.27	13765	1.6
CUM(3/8" X 100M)	100.0	100.0	14.0	1.00	13167	2.8
100M X 0	10.1	10.3	12.4	2.02	13463	3.6
TOTAL(3/8" X 0)	100.0	100.0	13.8	1.10	13197	2.9

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	41.2	46.8	3.7	.10	15054	1.1
FLOAT 1.40	69.5	76.9	5.9	.15	14659	1.2
FLOAT 1.60	90.0	95.4	9.4	.22	14054	1.4
CUM(14M X 0)	100.0	100.0	13.7	1.13	13255	2.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	49.0
3/8" X 14M	35.8
14M X 100M	12.6
100M X 0	2.6

MOISTURE, %

TOTAL	2.0
AS RECEIVED	1.2

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 446

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.20	1.10	1.10	--	--	--	--	--	--
ASH	13.63	9.59	53.90	13.80	9.70	54.50	35.18	33.42	70.99
VOLATILE MATTER	29.96	29.84	31.95	30.32	30.18	32.30	64.82	66.58	29.01
FIXED CARBON	55.21	59.46	13.05	55.88	60.12	13.20	--	--	--
BTU/LB	13080	13853	5732	13239	14007	5796	15359	15512	12737

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	74.14	78.06	31.45	75.05	78.92	31.80	87.06	87.40	69.88
HYDROGEN	4.84	5.08	2.40	4.77	5.01	2.30	5.53	5.55	5.05
NITROGEN	1.31	1.38	.49	1.32	1.40	.50	1.53	1.55	1.10
SULFUR	1.88	.85	10.73	1.90	.86	10.85	2.21	.95	23.84
OXYGEN	4.19	5.04	1.03	3.16	4.11	.05	3.67	4.55	.12
ASH	13.63	9.59	53.90	13.80	9.70	54.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.18	.24	9.22	1.19	.24	9.32	1.39	.27	20.48
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.69	.60	1.50	.70	.60	1.52	.81	.67	3.34
TOTAL	1.88	.85	10.73	1.90	.86	10.85	2.21	.95	23.84

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	42.17	50.12	29.57
SiO2 (SILICON OXIDE)	29.62	35.48	19.21
Al2O3 (ALUMINUM OXIDE)	13.78	5.95	28.28
Fe2O3 (IRON OXIDE)	1.66	1.99	1.24
TiO2 (TITANIUM OXIDE)	6.42	2.51	12.88
CaO (CALCIUM OXIDE)	.40	.51	.81
MgO (MAGNESIUM OXIDE)	.46	--	--
Na2O (SODIUM OXIDE)	1.25	1.51	1.27
K2O (POTASSIUM OXIDE)	4.13	1.42	4.54
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.30	--
DOLOMITE	.31	--
HYDROGEN/CARBON	.76	.76
OXYGEN/CARBON	.03	.04
R250	.78	.91
SILICA	.67	.85
SILICA/ALUMINA	1.42	1.41

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2330	2800	--
SOFTENING TEMPERATURE (ST)	2460	2800	--
FLUID TEMPERATURE (FT)	2540	2800	--
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.10	--	--
MINERAL MATTER (PARR)	15.95	10.80	64.82

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7	1/2	9
HARDGROVE GRINDABILITY (HGI)	66	61	--

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 447

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	11.9	13.8	4.0	.49	1.12	14735	1.5
FLOAT 1.40	72.9	80.3	7.1	.47	1.08	13976	1.5
FLOAT 1.60	87.7	93.8	9.5	.60	1.17	13567	1.7
CUM(1-1/2" X 100M)	100.0	100.0	14.6	1.43	2.08	12682	3.3
100M X 0	2.7	2.6	17.1	1.59	2.09	12257	3.4
TOTAL(1-1/2" X 0)	100.0	100.0	14.7	1.43	2.08	12670	3.3

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	18.3	21.4	4.0	.34	1.07	14749	1.5
FLOAT 1.40	72.7	81.0	6.5	.37	1.00	14074	1.4
FLOAT 1.60	86.4	93.7	8.7	.51	1.10	13698	1.6
CUM(3/8" X 100M)	100.0	100.0	14.9	1.47	2.06	12632	3.3
100M X 0	5.6	5.7	14.3	1.43	1.99	12753	3.1
TOTAL(3/8" X 0)	100.0	100.0	14.9	1.47	2.06	12639	3.3

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.4	34.4	3.7	.35	1.03	14711	1.4
FLOAT 1.40	70.0	78.9	6.1	.34	1.00	14184	1.4
FLOAT 1.60	86.1	94.1	8.4	.46	1.08	13753	1.6
CUM(14M X 0)	100.0	100.0	15.0	1.55	2.15	12585	3.4

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	42.1
3/8" X 14M	45.1
14M X 100M	10.1
100M X 0	2.7

----- MOISTURE, % -----

TOTAL	2.2
AS RECEIVED	1.5

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 447

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.50	1.30	--	--	--	--
ASH	14.28	8.49	14.50	8.60	35.01	34.43
VOLATILE MATTER	29.48	31.06	29.93	31.47	64.99	65.57
FIXED CARBON	54.74	59.15	55.57	59.93	14806	15014
BTU/LB	12469	13544	12659	13723	5179	5179

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	70.01	76.48	71.08	77.49	83.13	84.78
HYDROGEN	4.74	5.04	4.64	4.96	5.43	5.42
NITROGEN	1.51	1.65	1.53	1.67	1.79	1.83
SULFUR	2.09	1.10	2.12	1.11	2.48	1.21
OXYGEN	7.37	7.25	6.13	6.17	7.17	6.75
ASH	14.28	8.49	14.50	8.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.43	.41	1.45	.41	1.70	.45
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.65	.68	.66	.69	.77	.75
TOTAL	2.09	1.10	2.12	1.11	2.48	1.21

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	44.14	45.87
Al2O3 (ALUMINUM OXIDE)	31.77	35.78
Fe2O3 (IRON OXIDE)	15.56	8.74
TiO2 (TITANIUM OXIDE)	1.68	1.81
CaO (CALCIUM OXIDE)	1.40	1.82
MgO (MAGNESIUM OXIDE)	.40	.81
Na2O (SODIUM OXIDE)	.30	--
K2O (POTASSIUM OXIDE)	1.43	1.48
SO3 (SULFITES)	1.44	2.10

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.25	--
DOLOMITE	.09	--
HYDROGEN/CARBON	.78	.77
OXYGEN/CARBON	.06	.06
R250	.82	.89
SILICA	.72	.81
SILICA/ALUMINA	1.39	1.28

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2670	2800
SOFTENING TEMPERATURE (ST)	2760	2800
FLUID TEMPERATURE (FT)	2800	2800

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.21	--
NA (SODIUM) (CALCULATED)	.03	--
MINERAL MATTER (PARR)	16.83	9.90

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	6	7
HARDGROVE GRINDABILITY (HGI)	66	--

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 448

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.6	53.3	3.6	.30	1.05	14955	1.4
FLOAT 1.40	68.6	77.8	6.4	.74	1.40	14494	1.9
FLOAT 1.60	84.4	91.8	9.8	1.05	1.75	13904	2.5
CUM(1-1/2" X 100M)	100.0	100.0	16.0	2.20	2.98	12784	4.7
100M X 0	1.4	1.4	14.1	2.55	3.35	13063	5.1
TOTAL(1-1/2" X 0)	100.0	100.0	16.0	2.20	2.99	12788	4.7

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.5	64.4	3.2	.14	.77	15018	1.0
FLOAT 1.40	71.1	82.0	5.3	.22	.84	14668	1.1
FLOAT 1.60	81.9	91.4	8.2	.31	.92	14192	1.3
CUM(3/8" X 100M)	100.0	100.0	16.2	2.20	2.92	12711	4.6
100M X 0	5.3	5.7	11.2	1.85	2.78	13597	4.1
TOTAL(3/8" X 0)	100.0	100.0	15.9	2.18	2.91	12758	4.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.4	65.3	2.9	.11	.72	15079	1.0
FLOAT 1.40	72.5	83.7	4.6	.17	.76	14774	1.0
FLOAT 1.60	82.9	93.1	7.1	.22	.80	14362	1.1
CUM(14M X 0)	100.0	100.0	15.5	2.46	3.13	12793	4.9

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	59.6
3/8" X 14M	29.3
14M X 100M	9.7
100M X 0	1.4

--- MOISTURE, % ---

TOTAL AS RECEIVED	1.4
	.6

STATE: WEST VIRGINIA		BED: LOWER KITTANNING		BED CODE: 84	
COUNTY: BARBOUR		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 448	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
		AS RECEIVED		MOISTURE FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
MOISTURE	.60	.70	.70	FL 1.60	SK 1.60
ASH	16.02	7.33	57.10	7.38	57.50
VOLATILE MATTER	30.67	32.79	20.56	33.02	20.70
FIXED CARBON	52.70	59.18	21.65	59.59	21.80
BTU/LB	12623	14218	5000	12699	5036
				14318	15459
				15140	11849
----- ULTIMATE ANALYSIS, % -----					
		AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
CARBON	71.38	79.50	25.78	71.81	80.06
HYDROGEN	4.53	5.08	1.93	4.49	5.04
NITROGEN	1.31	1.48	.49	1.32	1.49
SULFUR	2.83	.81	14.08	2.85	.82
OXYGEN	3.92	5.80	--	3.41	5.21
ASH	16.02	7.33	57.10	16.12	7.38
				57.50	
----- SULFUR FORMS ANALYSIS, % -----					
		AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
PYRITIC	2.14	.23	13.00	2.15	.23
SULFATIC	.01	.01	.01	.01	.01
ORGANIC	.69	.58	1.07	.69	.58
TOTAL	2.83	.81	14.08	2.85	.82
				14.18	
				5.63	
				--	
----- MINERAL ANALYSIS OF ASH, % -----					
		AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60
OXIDES	43.04	48.58	35.37	2.56	.25
SiO2 (SILICON OXIDE)	27.91	33.75	21.50	.01	.01
Al2O3 (ALUMINUM OXIDE)	19.45	6.15	32.89	.01	.02
Fe2O3 (IRON OXIDE)	2.10	3.01	1.17	.82	.63
TiO2 (TITANIUM OXIDE)	2.10	2.17	2.74	3.40	.89
CaO (CALCIUM OXIDE)	.73	.71	.70	--	--
MgO (MAGNESIUM OXIDE)	.27	.32	.24	--	--
Na2O (SODIUM OXIDE)	1.88	1.71	1.71	--	--
K2O (POTASSIUM OXIDE)	1.32	2.24	1.05	--	--
SO3 (SULFITES)				--	--
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----					
				RAW	
				FL 1.60	
				SK 1.60	
				2910+	
				2910+	
				2910+	
				2910+	
----- MISCELLANEOUS DATA, % -----					
				RAW	
				FL 1.60	
				SK 1.60	
				.10	
				.03	
				.02	
				.10	
				69.90	
----- PHYSICAL PARAMETERS, INDEX -----					
				RAW	
				FL 1.60	
				SK 1.60	
				6	
				63	
----- COAL UTILIZATION RATIOS -----					
				RAW	
				FL 1.60	
				SK 1.60	
				.10	
				.03	
				.02	
				.10	
				69.90	
----- BASE/ACID -----					
				RAW	
				FL 1.60	
				SK 1.60	
				6	
				63	
----- DOLOMITE -----					
				RAW	
				FL 1.60	
				SK 1.60	
				6	
				63	
----- OXYGEN/CARBON -----					
				RAW	
				FL 1.60	
				SK 1.60	
				6	
				63	
----- R250 -----					
				RAW	
				FL 1.60	
				SK 1.60	
				6	
				63	
----- SILICA -----					
				RAW	
				FL 1.60	
				SK 1.60	
				6	
				63	
----- SILICA/ALUMINA -----					
				RAW	
				FL 1.60	
				SK 1.60	
				6	
				63	

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 449

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
100M X 0	2.9	10.9	2.17	13709	4.4
TOTAL(1-1/2" X 0)	100.0	10.0	1.99	13987	3.9
FLOAT 1.30	22.3	3.9	.43	15716	1.4
FLOAT 1.40	87.7	7.3	.95	14538	2.2
FLOAT 1.60	95.0	8.1	1.16	14365	2.5
CUM(1-1/2" X 100M)	100.0	10.0	1.98	13996	3.9

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
100M X 0	10.6	9.1	1.83	14055	4.1
TOTAL(3/8" X 0)	100.0	10.0	1.86	13809	3.9
FLOAT 1.30	37.8	3.9	.32	14980	1.4
FLOAT 1.40	86.5	6.5	.64	14456	1.7
FLOAT 1.60	93.9	7.5	.80	14276	2.0
CUM(3/8" X 100M)	100.0	10.1	1.86	13780	3.8

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
100M X 0	10.6	9.1	1.83	14055	4.1
TOTAL(14M X 0)	100.0	10.0	1.86	13809	3.9
FLOAT 1.30	39.9	3.1	.26	15040	1.3
FLOAT 1.40	82.9	5.6	.35	14612	1.5
FLOAT 1.60	92.5	6.9	.50	14373	1.7
CUM(14M X 0)	100.0	10.5	1.92	13687	4.2

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	54.1
3/8" X 14M	31.9
14M X 100M	11.1
100M X 0	2.9

--- MOISTURE, % ---

TOTAL	2.0
AS RECEIVED	1.3

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 449

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

FL 1.60 SK 1.60

RAW

FL 1.60 SK 1.60

MOISTURE FREE

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

MOISTURE

ASH

VOLATILE MATTER

FIXED CARBON

BTU/LB

13584

14143

5064

13763

14373

5146

15292

15438

11590

ULTIMATE ANALYSIS, %

AS RECEIVED

FL 1.60 SK 1.60

RAW

FL 1.60 SK 1.60

MOISTURE FREE

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

CARBON

HYDROGEN

NITROGEN

SULFUR

OXYGEN

ASH

74.45

78.50

20.05

75.43

79.78

20.38

83.81

85.69

45.90

5.02

5.25

1.82

4.94

5.16

1.67

5.49

5.54

3.76

1.45

1.51

.36

1.46

1.54

.37

1.63

1.65

.83

3.00

1.20

21.63

3.04

1.22

21.98

3.37

1.31

49.51

6.22

6.74

--

5.13

5.41

--

5.70

5.81

--

9.87

6.79

54.71

10.00

6.90

55.60

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SULFUR FORMS ANALYSIS, %

AS RECEIVED

FL 1.60 SK 1.60

RAW

FL 1.60 SK 1.60

MOISTURE FREE

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

PYRITIC

SULFATIC

ORGANIC

TOTAL

2.03

.44

17.71

2.06

.45

18.00

2.29

.48

40.54

.01

.01

.01

.01

.01

.01

1.07

.82

8.95

3.00

1.20

21.63

3.04

1.22

21.98

3.37

1.31

49.51

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

FL 1.60 SK 1.60

RAW

FL 1.60 SK 1.60

MOISTURE FREE

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

OXIDES

(SILICON OXIDE)

AL2O3

(ALUMINUM OXIDE)

FE2O3

(IRON OXIDE)

TiO2

(TITANIUM OXIDE)

CaO

(CALCIUM OXIDE)

MgO

(MAGNESIUM OXIDE)

Na2O

(SODIUM OXIDE)

K2O

(POTASSIUM OXIDE)

SO3

(SULFITES)

36.63

44.91

23.77

30.83

37.66

19.20

26.11

9.41

53.89

1.25

1.29

1.10

1.81

2.52

.55

1.01

.40

.20

.79

--

.58

.87

1.22

.81

.30

2400

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2480

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STATE: WEST VIRGINIA
 COUNTY: BOONE
 BED: LOWER KITTANNING
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 84
 SAMPLE NO. 450

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	5.0	3.2	.07	14566	1.1
FLOAT 1.40	78.7	5.2	.10	14209	1.1
FLOAT 1.60	84.8	7.0	.14	13888	1.2
CUM(1-1/2" X 100M)	100.0	18.5	.19	11838	1.3
100M X 0	1.5	22.6	1.25	11107	3.1
TOTAL(1-1/2" X 0)	100.0	18.6	.21	11827	1.3

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.0	2.9	.08	14619	1.0
FLOAT 1.40	75.5	4.7	.12	14298	1.1
FLOAT 1.60	82.9	6.6	.15	13960	1.1
CUM(3/8" X 100M)	100.0	19.7	.19	11624	1.3
100M X 0	2.9	22.2	.50	11178	1.7
TOTAL(3/8" X 0)	100.0	19.8	.20	11611	1.3

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.9	2.6	.04	14673	1.0
FLOAT 1.40	73.7	4.7	.10	14298	1.1
FLOAT 1.60	82.2	6.1	.13	14049	1.2
CUM(14M X 0)	100.0	19.3	.20	11695	1.4

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 --- MOISTURE, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 5/8"	71.2		
3/8" X 14M	21.3		
14M X 100M	6.0		
100M X 0	1.5		
		TOTAL	2.8
		AS RECEIVED	1.2

STATE: WEST VIRGINIA
COUNTY: BOONE

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 450

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	1.20	1.30	--	--	--	--
ASH	19.07	5.92	19.30	6.00	--	--
VOLATILE MATTER	31.51	35.94	31.89	36.41	39.52	38.74
FIXED CARBON	48.23	56.84	48.81	57.59	60.48	61.26
BTU/LB	11598	13848	11739	14030	14547	14926

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.75	.79	.76	.80	.94	.85
OXYGEN	--	--	--	--	--	--
ASH	19.07	5.92	19.30	6.00	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	.22	.14	.22	.14	.27	.15
SULFATIC	.01	.00	.01	.00	.01	.00
ORGANIC	.52	.65	.53	.66	.66	.70
TOTAL	.75	.79	.76	.80	.94	.85

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2820	2910+	2710
SOFTENING TEMPERATURE (ST)	2870	2910+	2860
FLUID TEMPERATURE (FT)	2910+	2910+	2910+
MISCELLANEOUS DATA, %	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	21.26	6.92	87.25

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6	7	1/2
HARDGROVE GRINDABILITY (HGI)	46	44	--

STATE: WEST VIRGINIA
 COUNTY: LOGAN
 BED: LOWER KITTANNING
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 84
 SAMPLE NO. 451

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.6	4.2	.04	14260	1.0
FLOAT 1.40	75.0	6.4	.07	13894	.9
FLOAT 1.60	93.5	10.4	.06	13227	.9
CUM(1-1/2" X 100M)	100.0	13.4	.07	12727	.9
100M X 0	1.9	15.6	.17	12361	.9
TOTAL(1-1/2" X 0)	100.0	13.4	.07	12720	.9

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.4	3.0	.07	14460	1.0
FLOAT 1.40	73.5	5.5	.05	14044	.9
FLOAT 1.60	89.5	8.8	.08	13494	.9
CUM(3/8" X 100M)	100.0	13.5	.09	12711	1.0
100M X 0	5.1	16.0	.12	12294	.8
TOTAL(3/8" X 0)	100.0	13.6	.09	12690	1.0

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.6	2.4	.09	14560	1.0
FLOAT 1.40	69.0	4.7	.08	14177	.9
FLOAT 1.60	88.2	8.1	.10	13610	.9
CUM(14M X 0)	100.0	13.4	.11	12727	.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
--- SAMPLE CRUSHED TO PASS 1-1/2" ---	
1-1/2" X 3/8"	71.7
3/8" X 14M	21.6
14M X 100M	4.8
100M X 0	1.9

TOTAL	3.7
AS RECEIVED	2.1

STATE: WEST VIRGINIA
COUNTY: LOGAN

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 451

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.10	1.90	1.90	--	--	--
ASH	13.31	8.26	52.88	13.60	8.42	53.90
VOLATILE MATTER	32.51	34.29	19.62	33.21	34.95	20.00
FIXED CARBON	52.08	55.55	25.60	53.19	56.62	26.10
BTU/LB	12424	13302	5866	12690	13560	5980

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.58	.62	.26	.60	.63	.27
OXYGEN	--	--	--	--	--	--
ASH	13.31	8.26	52.88	13.60	8.42	53.90

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.10	.09	.18	.10	.09	.18
SULFATIC	.01	.01	.02	.02	.01	.02
ORGANIC	.47	.52	.06	.48	.53	.06
TOTAL	.58	.62	.26	.60	.63	.27

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2910+
SOFTENING TEMPERATURE (ST)	2910+	2910+	2910+
FLUID TEMPERATURE (FT)	2910+	2910+	2910+
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (FARR)	15.02	9.44	58.36

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3	4	1/2
HARDGROVE GRINDABILITY (HGI)	44	43	--

STATE: WEST VIRGINIA
COUNTY: LOGAN

BED: LG-ER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 452

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.5	3.3	11.6	.05	14444	1.0
FLOAT 1.40	75.0	7.0	79.3	.08	13825	1.1
FLOAT 1.60	97.1	10.3	98.6	.14	13273	1.2
CUM(1-1/2" X 100M)	100.0	11.5	100.0	.17	13072	1.2
100M X 0	.9	14.9	.9	.65	12503	2.1
TOTAL(1-1/2" X 0)	100.0	11.5	100.0	.17	13067	1.2

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.5	3.1	22.7	.07	14478	1.1
FLOAT 1.40	76.2	6.4	81.1	.10	13926	1.1
FLOAT 1.60	95.3	9.4	97.7	.15	13423	1.2
CUM(3/8" X 100M)	100.0	11.4	100.0	.21	13089	1.3
100M X 0	2.6	14.4	2.5	.43	12587	1.5
TOTAL(3/8" X 0)	100.0	11.5	100.0	.22	13076	1.3

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	17.5	2.7	19.3	.08	14545	1.1
FLOAT 1.40	72.7	5.6	77.7	.13	14059	1.1
FLOAT 1.60	94.0	8.4	97.1	.24	13591	1.2
CUM(14M X 0)	100.0	11.0	100.0	.20	13156	1.3

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	81.1
3/8" X 14M	14.1
14M X 100M	3.9
100M X 0	.9

----- MOISTURE, % -----

TOTAL	3.8
AS RECEIVED	2.2

STATE: WEST VIRGINIA
COUNTY: LOGAN
BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 84
SAMPLE NO. 452

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	2.20	2.10	--	--	--	--
ASH	11.15	8.52	11.40	8.70	--	--
VOLATILE MATTER	33.80	34.69	34.56	35.44	39.01	38.81
FIXED CARBON	52.85	54.69	54.04	55.86	60.93	61.19
BTU/LB	12812	13246	13100	13530	14786	14819

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.80	.78	.82	.80	.93	.88
OXYGEN	--	--	--	--	--	--
ASH	11.15	8.52	11.40	8.70	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	.21	.15	.21	.15	.24	.16
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.59	.63	.60	.64	.68	.70
TOTAL	.80	.78	.82	.80	.93	.88

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)	4	1/2	5	1
HARDGROVE GRINDABILITY (HGI)	40	40	40	--

STATE: WEST VIRGINIA
COUNTY: LOGAN
BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 84
SAMPLE NO.: 453

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU				
FLOAT 1.30	44.3	2.9	.08	14414	1.1				
FLOAT 1.40	85.0	4.8	.15	14106	1.2				
FLOAT 1.60	93.0	6.2	.18	13879	1.2				
CUM(1-1/2" X 100M)	100.0	10.0	.32	13262	1.4				
100M X 0	1.8	10.4	.55	13197	1.5				
TOTAL(1-1/2" X 0)	100.0	10.0	.32	13261	1.4				

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU				
FLOAT 1.30	46.2	2.7	.07	14447	1.1				
FLOAT 1.40	84.5	4.5	.12	14155	1.1				
FLOAT 1.60	92.7	5.9	.15	13928	1.2				
CUM(3/8" X 100M)	100.0	9.9	.30	13278	1.4				
100M X 0	3.8	11.8	.52	12970	1.6				
TOTAL(3/8" X 0)	100.0	10.0	.31	13267	1.4				

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU				
FLOAT 1.30	39.9	2.2	.07	14528	1.0				
FLOAT 1.40	78.9	4.0	.15	14236	1.1				
FLOAT 1.60	92.7	6.0	.18	13911	1.2				
CUM(14M X 0)	100.0	9.6	.33	13327	1.4				

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %		MOISTURE, %	
SAMPLE CRUSHED TO PASS 1-1/2"			
1-1/2" X 3/8"	73.8	TOTAL	4.1
3/8" X 14M	19.8	AS RECEIVED	2.5
14M X 100M	4.6		
100M X 0	1.8		

STATE: WEST VIRGINIA
COUNTY: LOGAN

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 453

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.50	2.50	--	--	--	--
ASH	9.56	5.85	9.80	6.00	38.45	38.42
VOLATILE MATTER	33.81	35.22	34.68	36.12	61.55	61.58
FIXED CARBON	54.13	56.43	55.52	57.88	62.35	62.35
BTU/LB	13016	13513	13350	13860	14800	14745

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	.92	.81	.94	.83	1.04	.88
OXYGEN	--	--	--	--	--	--
ASH	9.56	5.85	9.80	6.00	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.30	.16	.31	.16	.34	.17
SULFATIC	.01	.01	.01	.01	.01	.02
ORGANIC	.60	.64	.62	.66	.69	.70
TOTAL	.92	.81	.94	.83	1.04	.88

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--
MISCELLANEOUS DATA, %	--	--	--	--	--	--
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--
PHYSICAL PARAMETERS, INDEX	--	--	--	--	--	--
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: WEST VIRGINIA
COUNTY: MARION

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 454

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL)
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.2	3.7	.09	14862	1.1
FLOAT 1.40	56.5	6.7	.24	14373	1.5
FLOAT 1.60	83.2	12.6	.75	13368	2.2
CUM(1-1/2" X 100M)	100.0	18.6	2.21	12285	5.2
100M X 0	2.4	18.8	3.00	12255	6.5
TOTAL(1-1/2" X 0)	100.0	18.6	2.23	12284	5.2

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL)
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.9	3.4	.08	14899	1.1
FLOAT 1.40	66.9	6.2	.16	14450	1.2
FLOAT 1.60	89.6	11.4	.43	13586	1.6
CUM(3/8" X 100M)	100.0	18.9	2.15	12246	5.2
100M X 0	3.0	14.2	2.16	13062	4.4
TOTAL(3/8" X 0)	100.0	18.8	2.15	12270	5.2

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.3	3.5	.06	14914	1.0
FLOAT 1.40	60.9	5.6	.07	14574	1.0
FLOAT 1.60	79.8	10.1	.10	13823	1.1
CUM(14M X 0)	100.0	19.1	2.08	12215	5.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	53.0
3/8" X 14M	33.0
14M X 100M	11.6
100M X 0	2.4

MOISTURE, %

TOTAL AS RECEIVED	1.3
	.9

STATE: WEST VIRGINIA
COUNTY: MARION

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 454

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.90	.60	.60	--	--	--	--	--	--
ASH	19.23	10.24	55.86	19.40	10.30	56.20	--	--	--
VOLATILE MATTER	30.64	33.28	20.58	30.92	33.48	20.70	38.36	37.32	47.26
FIXED CARBON	49.23	55.88	22.96	49.68	56.22	23.10	61.64	62.68	52.74
BTU/LB	12060	13710	5627	12169	13792	5661	15099	15376	12925

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	68.03	75.75	27.63	68.65	76.20	27.80	85.18	84.96	63.47
HYDROGEN	4.55	5.09	2.25	4.49	5.05	2.20	5.58	5.63	5.02
NITROGEN	1.48	1.64	.80	1.50	1.65	.80	1.85	1.84	1.83
SULFUR	2.84	.78	11.37	2.86	.79	11.44	3.55	.88	26.12
OXYGEN	3.87	6.50	2.08	3.10	6.00	1.56	3.84	6.69	3.56
ASH	19.23	10.24	55.86	19.40	10.30	56.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.92	.10	8.86	1.94	.10	8.91	2.40	.11	20.35
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.02	.01
ORGANIC	.91	.68	2.50	.91	.68	2.52	1.13	.76	5.75
TOTAL	2.84	.78	11.37	2.86	.79	11.44	3.55	.88	26.12

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	43.66	52.91	36.86
Al2O3 (ALUMINUM OXIDE)	26.64	33.90	22.29
Fe2O3 (IRON OXIDE)	19.60	3.54	32.07
TiO2 (TITANIUM OXIDE)	1.53	1.68	1.30
CaO (CALCIUM OXIDE)	2.38	1.82	2.52
MgO (MAGNESIUM OXIDE)	.91	.91	.71
Na2O (SODIUM OXIDE)	1.15	--	--
K2O (POTASSIUM OXIDE)	2.26	2.08	1.94
SO3 (SULFITES)	1.67	1.38	2.17

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.37	--
DOLOMITE	.13	--
HYDROGEN/CARBON	.79	.80
OXYGEN/CARBON	.05	.06
R250	.76	.94
SILICA	.66	.89
SILICA/ALUMINA	1.64	1.56

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2300	2800	--
SOFTENING TEMPERATURE (ST)	2440	2800	--
FLUID TEMPERATURE (FT)	2550	2800	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	.27	--	--
NA (SODIUM) (CALCULATED)	.17	--	--
MINERAL MATTER (PARR)	21.62	11.56	62.35

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	1/2	--
HARDGROVE GRINDABILITY (HGI)	57	--	--

STATE: WEST VIRGINIA
COUNTY: UP SHUR

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 455

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"									
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU			
FLOAT 1.30	13.1	3.7	.05	.72	14568	1.0			
FLOAT 1.40	58.0	6.3	.06	.72	13637	1.1			
FLOAT 1.60	78.6	11.0	.05	.68	12835	1.1			
CUM(1-1/2" X 100M)	100.0	18.6	.06	.61	11628	1.0			
100M X 0	2.3	21.5	.33	1.02	11215	1.8			
TOTAL(1-1/2" X 0)	100.0	18.7	.07	.62	11618	1.1			

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

SAMPLE CRUSHED TO PASS 3/8"									
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU			
FLOAT 1.30	17.0	3.5	.03	.76	14582	1.0			
FLOAT 1.40	56.8	5.6	.02	.73	13850	1.1			
FLOAT 1.60	76.4	9.7	.03	.69	13131	1.1			
CUM(3/8" X 100M)	100.0	18.9	.04	.61	11666	1.0			
100M X 0	8.9	15.0	.07	.71	12306	1.2			
TOTAL(3/8" X 0)	100.0	18.6	.04	.62	11723	1.1			

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

SAMPLE CRUSHED TO PASS 14M									
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU			
FLOAT 1.30	15.8	3.9	.05	.81	14424	1.1			
FLOAT 1.40	55.4	5.4	.05	.77	13801	1.1			
FLOAT 1.60	77.2	8.7	.07	.73	13170	1.1			
CUM(14M X 0)	100.0	18.1	.13	.67	11667	1.1			

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %		MOISTURE, %	
SAMPLE CRUSHED TO PASS 1-1/2"			
1-1/2" X 3/8"	51.1	TOTAL	2.4
3/8" X 14M	37.3	AS RECEIVED	2.1
14M X 100M	9.3		
100M X 0	2.3		

STATE: WEST VIRGINIA

COUNTY: UP SHUR

BED: LOWER KITTANNING

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84

SAMPLE NO. 455

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW FL 1.60 SK 1.60

2.10 3.20 3.20

18.43 8.52 49.37

26.57 28.00 20.81

52.90 60.29 26.62

11321 12735 6230

MOISTURE FREE

RAW FL 1.60 SK 1.60

-- -- --

18.82 8.80 51.00

27.14 28.92 21.50

54.04 62.28 27.50

11564 13156 6436

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

-- -- --

33.43 31.71 43.88

66.57 68.29 56.12

14245 14425 13135

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

65.00 72.69 36.04

4.50 4.97 3.26

1.28 1.45 .68

.63 .69 .46

10.16 11.69 10.20

18.43 8.52 49.37

MOISTURE FREE

RAW FL 1.60 SK 1.60

66.39 75.09 37.23

4.36 4.76 3.00

1.31 1.50 .70

.64 .71 .47

8.47 9.14 7.60

18.82 8.80 51.00

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

81.79 82.34 75.98

5.37 5.22 6.12

1.61 1.64 1.43

.79 .78 .96

10.44 10.02 15.51

-- -- --

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

.09 .06 .32

.00 .00 .01

.54 .63 .12

.63 .69 .46

MOISTURE FREE

RAW FL 1.60 SK 1.60

.09 .06 .33

.01 .00 .01

.55 .65 .13

.64 .71 .47

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

.11 .07 .68

.01 .00 .02

.68 .71 .26

.79 .78 .96

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW FL 1.60 SK 1.60

50.85 42.28 55.38

33.25 32.16 32.41

3.15 3.43 3.66

1.85 2.03 1.62

3.53 8.72 1.74

1.24 1.51 .89

.47 -- --

2.42 1.61 2.40

1.85 4.12 .62

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

AS RECEIVED

RAW FL 1.60 SK 1.60

2830 2300

2910+ 2390

2910+ 2490

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

MISCELLANEOUS DATA, %

AS RECEIVED

RAW FL 1.60 SK 1.60

.15 -- --

.07 -- --

20.68 9.89

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

PHYSICAL PARAMETERS, INDEX

AS RECEIVED

RAW FL 1.60 SK 1.60

1 1 1/2

55 55

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

BASE/ACID

AS RECEIVED

RAW FL 1.60 SK 1.60

.13 -- --

.44 -- --

.79 .76

.10 .09

.93 .86

.87 .76

1.53 1.31

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

COAL UTILIZATION RATIOS

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

STATE: WEST VIRGINIA
 COUNTY: UPSHUR
 BED: LOWER KITTANNING
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 84
 SAMPLE NO. 456

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	14.8	5.4	.13	14453	1.4
FLOAT 1.40	80.6	9.2	.64	13755	2.0
FLOAT 1.60	92.2	10.9	.86	13460	2.4
CUM(1-1/2" X 100M)	100.0	13.2	1.64	13006	3.8
100M X 0	1.6	15.5	1.98	12531	5.1
TOTAL(1-1/2" X 0)	100.0	13.2	1.65	12999	3.8

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	19.1	4.7	.45	14533	1.4
FLOAT 1.40	77.1	8.3	.63	13894	1.7
FLOAT 1.60	90.3	10.3	.79	13532	2.0
CUM(3/8" X 100M)	100.0	13.6	1.67	12896	4.0
100M X 0	5.0	12.5	1.69	13105	4.3
TOTAL(3/8" X 0)	100.0	13.5	1.67	12906	4.0

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.0	4.8	.54	14541	1.4
FLOAT 1.40	77.8	7.3	.68	14087	1.5
FLOAT 1.60	89.8	9.5	.86	13698	1.8
CUM(14M X 0)	100.0	13.6	1.79	12902	4.2

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	50.6
3/8" X 14M	38.3
14M X 100M	9.5
100M X 0	1.6

--- MOISTURE, % ---

TOTAL	2.0
AS RECEIVED	1.3

STATE: WEST VIRGINIA
COUNTY: UP SHUR

BED: LOWER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 84
SAMPLE NO. 456

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.30	1.20	--	--	--	--
ASH	13.32	9.29	13.50	50.80	--	--
VOLATILE MATTER	34.90	36.10	36.54	24.70	40.88	40.33
FIXED CARBON	50.47	53.41	51.14	24.50	59.12	59.67
BTU/LB	12749	13549	12917	5762	14933	15136

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	70.54	74.78	71.47	28.02	82.62	83.54
HYDROGEN	5.23	5.51	5.16	2.70	5.96	6.01
NITROGEN	1.38	1.48	1.40	1.50	1.62	1.66
SULFUR	2.40	1.20	2.43	15.75	2.81	1.34
OXYGEN	7.12	7.74	6.04	6.76	6.99	7.46
ASH	13.32	9.29	13.50	50.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.64	.76	1.66	.77	1.92	.85
SULFATIC	.01	.01	.01	.01	.01	.02
ORGANIC	.75	.42	.76	.43	.88	.47
TOTAL	2.40	1.20	2.43	1.21	2.81	1.34

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	42.19	46.00
Al2O3 (ALUMINUM OXIDE)	33.87	40.10
Fe2O3 (IRON OXIDE)	18.40	8.54
TiO2 (TITANIUM OXIDE)	1.35	1.26
CaO (CALCIUM OXIDE)	1.63	1.79
MgO (MAGNESIUM OXIDE)	.10	.34
Na2O (SODIUM OXIDE)	.33	--
K2O (POTASSIUM OXIDE)	.77	.81
SO3 (SULFITES)	.37	.60

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.27	--
DOLOMITE	.08	--
HYDROGEN/CARBON	.87	.86
OXYGEN/CARBON	.06	.07
R250	.79	.89
SILICA	.68	.82
SILICA/ALUMINA	1.25	1.15

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING	8	1/2
HARDGROVE GRINDABILITY (HGI)	62	63

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2620	2910+
SOFTENING TEMPERATURE (ST)	2750	2910+
FLUID TEMPERATURE (FT)	2830	2910+
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	.22	--
NA (SODIUM) (CALCULATED)	.03	--
MINERAL MATTER (PARR)	15.92	10.82
		63.53

STATE: WEST VIRGINIA
COUNTY: MCDOWELL

ZED: LOWER WAR EAGLE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 195
SAMPLE NO. 457

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.8	71.9	2.8	.09	.72	15071	1.0
FLOAT 1.40	86.5	93.0	4.2	.17	.75	14829	1.0
FLOAT 1.60	92.0	97.7	5.3	.18	.78	14639	1.1
CUM(1-1/2" X 100M)	100.0	100.0	10.2	.73	1.28	13792	1.9
100M X 0	1.1	1.1	13.1	1.73	2.31	13290	3.5
TOTAL(1-1/2" X 0)	100.0	100.0	10.2	.74	1.29	13786	1.9

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.8	72.5	2.4	.12	.71	15140	.9
FLOAT 1.40	85.1	92.4	3.7	.15	.69	14916	.9
FLOAT 1.60	90.9	97.3	4.9	.19	.72	14708	1.0
CUM(3/8" X 100M)	100.0	100.0	10.5	.75	1.23	13740	1.8
100M X 0	7.7	7.9	8.4	.95	1.54	14103	2.2
TOTAL(3/8" X 0)	100.0	100.0	10.3	.77	1.25	13768	1.8

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.2	64.3	1.9	.08	.70	15227	.9
FLOAT 1.40	83.6	90.7	3.5	.12	.72	14950	1.0
FLOAT 1.60	91.5	97.4	5.2	.26	.78	14656	1.1
CUM(14M X 0)	100.0	100.0	10.3	.77	1.30	13774	1.9

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	59.5
3/8" X 14M	30.6
14M X 100M	8.8
100M X 0	1.1

--- MOISTURE, % ---
TOTAL
AS RECEIVED
2.6
1.0

STATE: WEST VIRGINIA
COUNTY: MCDOWELL

BED: LOWER WAR EAGLE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 195
SAMPLE NO. 457

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW
1.00
9.79
31.14
58.07
13732

FL 1.60
1.20
5.04
32.48
61.28
14474

SK 1.60
1.10
65.27
14.54
19.09
4094

MOISTURE FREE

RAW
--
9.89
31.46
58.66
13871

FL 1.60
--
5.10
32.88
62.02
14650

SK 1.60
--
66.00
14.70
19.30
4140

MOISTURE AND ASH FREE

RAW
--
34.91
65.09
15393

FL 1.60
--
34.65
65.35
15437

SK 1.60
--
43.24
56.76
12176

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW
--
--
1.29
9.79

FL 1.60
--
--
.77
5.04

SK 1.60
--
--
6.82
65.27

MOISTURE FREE

RAW
--
--
1.30
9.89

FL 1.60
--
--
.78
5.10

SK 1.60
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--
6.90
66.00

MOISTURE AND ASH FREE

RAW
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1.44
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FL 1.60
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.82
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SK 1.60
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20.29
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SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW
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1.29

FL 1.60
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.77

SK 1.60
--
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6.82

MOISTURE FREE

RAW
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1.30
1.30

FL 1.60
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.78
.78

SK 1.60
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6.90
6.90

MOISTURE AND ASH FREE

RAW
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1.44
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FL 1.60
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SK 1.60
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MINERAL ANALYSIS OF ASH, %

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STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: MAHONING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 70
SAMPLE NO. 458

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.2	4.0	.27	14993	1.1
FLOAT 1.40	84.7	5.5	.67	14726	1.5
FLOAT 1.60	92.9	6.6	.90	14532	1.8
CUM(1-1/2" X 100M)	100.0	9.3	2.09	13995	3.9
100M X 0	4.0	11.0	3.72	13628	6.5
TOTAL(1-1/2" X 0)	100.0	9.4	2.16	13980	4.0

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.9	4.0	.21	15013	1.1
FLOAT 1.40	84.7	5.3	.43	14783	1.3
FLOAT 1.60	92.2	6.3	.59	14597	1.5
CUM(3/8" X 100M)	100.0	9.5	2.03	13961	4.0
100M X 0	8.6	9.5	2.93	13926	5.2
TOTAL(3/8" X 0)	100.0	9.5	2.11	13958	4.1

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.5	3.2	.12	15129	1.0
FLOAT 1.40	84.2	4.7	.23	14854	1.2
FLOAT 1.60	91.5	5.8	.35	14659	1.3
CUM(14M X 0)	100.0	10.0	2.10	13816	4.3

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	26.7
3/8" X 14M	47.8
14M X 100M	21.5
100M X 0	4.0

----- MOISTURE, % -----

TOTAL	1.5
AS RECEIVED	.9

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: MAHONING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 70
SAMPLE NO. 458

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	90	90	--	--	--	--
ASH	10.01	5.95	10.10	6.00	--	--
VOLATILE MATTER	28.47	29.21	28.73	29.48	31.96	31.36
FIXED CARBON	60.62	63.94	61.17	64.52	68.04	68.64
BTU/LB	13676	14497	13801	14628	15351	15562

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	77.96	82.82	78.67	83.57	87.51	88.91
HYDROGEN	5.16	5.49	5.11	5.44	5.69	5.79
NITROGEN	1.47	1.57	1.48	1.59	1.65	1.69
SULFUR	3.13	3.90	3.16	3.91	3.52	3.97
OXYGEN	2.26	3.27	1.47	2.49	1.64	2.65
ASH	10.01	5.95	10.10	6.00	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.31	38	2.33	39	2.60	41
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.81	.51	.82	.52	.91	.55
TOTAL	3.13	.90	3.16	.91	3.52	.97

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	42.03	54.57
Al2O3 (ALUMINUM OXIDE)	18.31	26.17
Fe2O3 (IRON OXIDE)	33.49	10.84
TiO2 (TITANIUM OXIDE)	1.07	1.57
CaO (CALCIUM OXIDE)	1.65	2.55
MgO (MAGNESIUM OXIDE)	1.03	.95
Na2O (SODIUM OXIDE)	.88	--
K2O (POTASSIUM OXIDE)	.69	.98
SO3 (SULFITES)	.49	.93

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.61	--
DOLomite	.07	--
HYDROGEN/CARBON	.78	.78
OXYGEN/CARBON	.01	.02
R250	.63	.86
SILICA	.54	.79
SILICA/ALUMINA	2.30	2.09

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	1990	2500
SOFTENING TEMPERATURE (ST)	2090	2580
FLUID TEMPERATURE (FT)	2180	2680
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.19	--
MINERAL MATTER (PARR)	.07	--
	13.05	6.98
		75.03

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	8	8
HARDGROVE GRINDABILITY (HGI)	87	84

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 459

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	26.5	3.4	.23	15036	1.1
FLOAT 1.40	60.0	6.4	.65	14509	1.8
FLOAT 1.60	76.8	10.5	.99	13830	2.2
CUM(1-1/2" X 100M)	100.0	20.4	2.04	12061	4.5
100M X 0	2.1	18.2	4.67	12464	9.5
TOTAL(1-1/2" X 0)	100.0	20.4	2.10	12070	4.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	37.2	3.4	.19	15056	1.0
FLOAT 1.40	67.5	5.8	.27	14638	1.0
FLOAT 1.60	76.0	9.2	.39	14071	1.2
CUM(3/8" X 100M)	100.0	20.1	1.95	12108	4.1
100M X 0	6.2	15.2	3.44	12990	6.5
TOTAL(3/8" X 0)	100.0	19.8	2.04	12163	4.3

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	42.7	3.4	.08	15066	.9
FLOAT 1.40	63.1	5.2	.10	14743	.9
FLOAT 1.60	77.4	8.5	.15	14178	1.0
CUM(14M X 0)	100.0	19.2	1.87	12294	4.1

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	56.9
3/8" X 14M	30.8
14M X 100M	10.2
100M X 0	2.1

--- MOISTURE, % ---

TOTAL AS RECEIVED	1.5
	.9

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 459

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	90	90	90	--	--	--	--	--	--
ASH	19.23	8.72	55.81	19.40	8.80	56.32	37.64	36.58	45.60
VOLATILE MATTER	30.06	33.06	19.74	30.34	33.36	19.92	62.36	63.42	54.40
FIXED CARBON	49.81	57.31	23.55	50.26	57.84	23.76	15215	15495	13228
BTU/LB	12153	14004	5726	12263	14131	5778			

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	68.81	78.04	25.72	69.44	78.75	25.95	86.15	86.35	59.41
HYDROGEN	4.71	5.41	2.21	4.66	5.36	2.13	5.78	5.88	4.38
NITROGEN	1.29	1.52	.48	1.30	1.53	.48	1.62	1.68	1.10
SULFUR	2.35	.74	7.72	2.37	.74	7.79	2.95	.81	17.84
OXYGEN	3.60	5.57	8.06	2.83	4.82	7.33	3.51	5.28	16.77
ASH	19.23	8.72	55.81	19.40	8.80	56.32	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.79	.16	6.92	1.80	.16	6.98	2.24	.18	15.99
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.56	.56	.79	.56	.57	.80	.70	.63	1.83
TOTAL	2.35	.74	7.72	2.37	.74	7.79	2.95	.81	17.84

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	48.76	55.57	40.48
Al2O3 (ALUMINUM OXIDE)	29.15	32.70	25.64
Fe2O3 (IRON OXIDE)	15.91	4.37	28.88
TiO2 (TITANIUM OXIDE)	1.70	1.91	1.57
CaO (CALCIUM OXIDE)	1.12	1.74	.20
MgO (MAGNESIUM OXIDE)	1.17	.97	.80
Na2O (SODIUM OXIDE)	.54	.49	.22
K2O (POTASSIUM OXIDE)	1.84	1.49	2.02
SO3 (SULFITES)	.63	.69	.11

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.26	.10
DOLOMITE	.11	.30
HYDROGEN/CARBON	.80	.82
OXYGEN/CARBON	.05	.05
R250	.82	.94
SILICA	.73	.88
SILICA/ALUMINA	1.67	1.70

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2460	2800	--
SOFTENING TEMPERATURE (ST)	2540	2800	--
FLUID TEMPERATURE (FT)	2650	2800	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	.21	--	--
NA (SODIUM) (CALCULATED)	.08	.03	.09
MINERAL MATTER (PARR)	21.40	9.91	61.41

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7	1/2	--
HARDGROVE GRINDABILITY (HGI)	52	--	--

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 460

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	13.8	15.9	4.0	.08	14847	1.0
FLOAT 1.40	71.9	79.3	7.5	.26	14239	1.3
FLOAT 1.60	87.1	92.7	10.4	.34	13740	1.5
CUM(1-1/2" X 100M)	100.0	100.0	15.2	.70	12905	2.1
100M X 0	3.4	3.6	11.9	.58	13481	2.3
TOTAL(1-1/2" X 0)	100.0	100.0	15.1	.70	12924	2.1

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	25.7	29.4	3.8	.09	14766	1.0
FLOAT 1.40	69.7	77.7	6.6	.19	14373	1.2
FLOAT 1.60	86.0	92.5	9.5	.26	13866	1.3
CUM(3/8" X 100M)	100.0	100.0	15.1	.75	12895	2.1
100M X 0	8.9	9.3	12.2	.46	13429	1.8
TOTAL(3/8" X 0)	100.0	100.0	14.8	.72	12943	2.1

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	28.9	33.8	3.4	.07	15128	1.0
FLOAT 1.40	66.0	74.2	5.9	.11	14557	1.0
FLOAT 1.60	85.8	92.7	9.0	.15	13981	1.1
CUM(14M X 0)	100.0	100.0	15.0	.69	12940	2.0

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	60.1
3/8" X 14M	28.0
14M X 100M	8.5
100M X 0	3.4

----- MOISTURE, % -----

TOTAL	2.3
AS RECEIVED	1.5

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 460

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.50	1.40	15.00	9.10	35.92	35.28
ASH	14.78	8.97	30.53	32.07	64.08	64.72
VOLATILE MATTER	30.08	31.62	54.47	58.83	15224	15364
FIXED CARBON	53.65	58.01	12940	13966	57.38	57.38
BTU/LB	12746	13770	6483	6562	13642	13642

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	71.26	76.95	72.34	77.94	85.11	85.74
HYDROGEN	4.70	4.98	4.60	4.89	5.41	5.38
NITROGEN	1.18	1.28	1.20	1.30	1.41	1.43
SULFUR	1.21	.86	1.23	.87	1.44	.96
OXYGEN	6.88	7.06	5.63	5.90	6.62	6.49
ASH	14.78	8.97	15.00	9.10	9.35	9.35

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.66	.16	.67	.17	.79	.18
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.54	.68	.55	.69	.65	.76
TOTAL	1.21	.86	1.23	.87	1.44	.96

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	48.39	48.48	52.81
SiO2 (SILICON OXIDE)	34.21	37.51	32.27
Al2O3 (ALUMINUM OXIDE)	10.46	6.10	13.75
Fe2O3 (IRON OXIDE)	1.44	1.39	1.33
TiO2 (TITANIUM OXIDE)	1.11	1.68	.56
CaO (CALCIUM OXIDE)	1.20	1.21	.90
MgO (MAGNESIUM OXIDE)	.79	--	--
Na2O (SODIUM OXIDE)	2.02	1.87	2.82
K2O (POTASSIUM OXIDE)	.38	.57	.21
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.19	--
DOLOMITE	.15	--
HYDROGEN/CARBON	.76	.75
OXYGEN/CARBON	.06	.06
R250	.88	.92
SILICA	.79	.84
SILICA/ALUMINA	1.41	1.29

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2800	2800	--
SOFTENING TEMPERATURE (ST)	2800	2800	--
FLUID TEMPERATURE (FT)	2800	2800	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.09	--	--
NA (SODIUM) (CALCULATED)	.09	--	--
MINERAL MATTER (PAPP)	16.88	10.38	58.46

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6	8 1/2	--
HARDGROVE GRINDABILITY (HGI)	53	47	--

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 461

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	14.7	3.8	.15	14939	1.0
FLOAT 1.40	74.7	7.7	1.16	14251	2.5
FLOAT 1.60	95.7	9.9	1.63	13849	3.2
CUM(1-1/2" X 100M)	100.0	11.2	2.06	13600	4.0
100M X 0	1.2	14.6	4.26	12945	7.7
TOTAL(1-1/2" X 0)	100.0	11.2	2.09	13592	4.1

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	39.7	3.9	.12	14927	.9
FLOAT 1.40	77.4	6.3	.37	14502	1.4
FLOAT 1.60	91.7	8.3	.77	14148	2.0
CUM(3/8" X 100M)	100.0	11.3	1.90	13587	3.9
100M X 0	7.0	12.0	.08	13433	6.2
TOTAL(3/8" X 0)	100.0	11.3	1.77	13576	4.0

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	32.4	2.8	.10	15161	.9
FLOAT 1.40	74.6	5.1	.16	14729	1.0
FLOAT 1.60	90.6	7.2	.41	14332	1.3
CUM(14M X 0)	100.0	11.3	1.95	13566	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	61.7
3/8" X 14M	30.0
14M X 100M	7.1
100M X 0	1.2

--- MOISTURE, % ---

TOTAL	2.3
AS RECEIVED	1.4

STATE: WEST VIRGINIA	BED: MIDDLE KITTANNING	BED CODE: 80
COUNTY: BARBOUR	RANK: HIGH VOLATILE A BITUMINOUS	SAMPLE NO. 461
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
AS RECEIVED		
RAW	FL 1.60	SK 1.60
1.40	1.20	1.30
11.14	7.11	49.35
31.37	32.29	23.19
56.08	59.40	26.16
13376	14160	6198
MOISTURE		
ASH	FL 1.60	SK 1.60
35.87	35.22	47.00
64.13	64.78	53.00
15294	15444	12559
MOISTURE AND ASH FREE		
RAW	FL 1.60	SK 1.60
87.06	85.85	88.50
5.54	5.50	5.50
1.55	1.57	1.00
2.79	.92	35.80
3.07	6.16	6.16
50.00	50.00	50.00
ULTIMATE ANALYSIS, %		
AS RECEIVED		
RAW	FL 1.60	SK 1.60
76.14	78.72	77.22
5.00	5.17	4.91
1.35	1.44	.49
2.44	.84	17.66
3.93	6.71	2.72
11.14	7.11	49.35
SULFUR FORMS ANALYSIS, %		
AS RECEIVED		
RAW	FL 1.60	SK 1.60
1.72	.45	14.92
.01	.01	.01
.71	.39	2.74
2.44	.84	17.66
MINERAL ANALYSIS OF ASH, %		
AS RECEIVED		
RAW	FL 1.60	SK 1.60
35.22	41.45	23.01
29.29	36.79	17.71
28.56	11.13	55.23
1.23	1.31	1.42
3.64	4.48	1.62
.20	.61	.08
.88	--	--
.68	.90	.27
.30	.43	.44
COAL UTILIZATION RATIOS		
RAW	FL 1.60	SK 1.60
.52	--	--
.11	--	--
.76	.77	--
.04	.05	--
.67	.83	--
.52	.72	--
1.20	1.13	--
BASE/ACID		
DOLOMITE	RAW	FL 1.60
HYDROGEN/CARBON	8	1/2
OXYGEN/CARBON	64	57
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--
FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)		
AS RECEIVED		
RAW	FL 1.60	SK 1.60
1.96	15.11	15.11
.01	.01	.01
.81	.42	2.77
2.79	17.90	17.90
MISCELLANEOUS DATA, %		
RAW	FL 1.60	SK 1.60
2140	2780	2780
2270	2800	2800
2410	2800	2800
CL (CHLORINE) (ANALYZED)		
RAW	FL 1.60	SK 1.60
.20	--	--
.07	--	--
13.04	8.23	58.26
PHYSICAL PARAMETERS, INDEX		
RAW	FL 1.60	SK 1.60
8	1/2	--
64	57	--

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 462

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.5	3.1	.20	14982	1.1
FLOAT 1.40	62.1	6.4	.48	14402	1.5
FLOAT 1.60	83.1	10.3	.74	13716	1.9
CUM(1-1/2" X 100M)	100.0	16.6	1.57	12609	3.3
100M X 0	1.1	18.0	2.99	12363	5.7
TOTAL(1-1/2" X 0)	100.0	16.6	1.59	12606	3.3

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.7	3.5	.12	14912	1.0
FLOAT 1.40	76.0	6.8	.32	14332	1.3
FLOAT 1.60	85.3	8.6	.42	14015	1.4
CUM(3/8" X 100M)	100.0	15.1	1.46	12873	3.1
100M X 0	1.9	19.0	3.16	12187	6.0
TOTAL(3/8" X 0)	100.0	15.2	1.49	12860	3.1

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.5	3.0	.08	14999	1.0
FLOAT 1.40	70.0	6.0	.18	14472	1.1
FLOAT 1.60	84.5	8.7	.26	13998	1.2
CUM(14M X 0)	100.0	15.6	1.45	12785	3.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

MOISTURE, %

TOTAL
AS RECEIVED
2.7
.7

STATE: WEST VIRGINIA		BED: MIDDLE KITTANNING		BED CODE: 80	
COUNTY: BARBOUR		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 462	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
		AS RECEIVED		MOISTURE FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.70	.80	.60	--	--
ASH	15.29	8.73	52.78	15.40	8.80 53.10
VOLATILE MATTER	30.88	32.54	--	31.10	32.80 --
FIXED CARBON	53.13	57.93	--	53.50	58.40 --
BTU/LB	12730	13868	--	12820	13980 --
----- ULTIMATE ANALYSIS, % -----					
		AS RECEIVED		MOISTURE FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--
HYDROGEN	--	--	--	--	--
NITROGEN	--	--	--	--	--
SULFUR	2.05	.84	8.10	2.07	.85 8.15
OXYGEN	--	--	--	--	--
ASH	15.29	8.73	52.78	15.40	8.80 53.10
----- SULFUR FORMS ANALYSIS, % -----					
		AS RECEIVED		MOISTURE FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.47	.26	7.89	1.48	.26 7.94
SULFATIC	.00	.00	.01	.01	.01 .01
ORGANIC	.58	.59	.20	.58	.59 .20
TOTAL	2.05	.84	8.10	2.07	.85 8.15
----- MINERAL ANALYSIS OF ASH, % -----					
		AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--
COAL UTILIZATION RATIOS		RAW		FL 1.60	
BASE/ACID		RAW		FL 1.60	
DOLOMITE		RAW		FL 1.60	
HYDROGEN/CARBON		RAW		FL 1.60	
OXYGEN/CARBON		RAW		FL 1.60	
R250		RAW		FL 1.60	
SILICA		RAW		FL 1.60	
SILICA/ALUMINA		RAW		FL 1.60	
----- FUSIBILITY OF ASH, DEGREES F -----					
(IN OXIDIZING ATMOSPHERE)					
		RAW		FL 1.60	
INITIAL DEFORMATION (ID)		RAW		FL 1.60	
SOFTENING TEMPERATURE (ST)		RAW		FL 1.60	
FLUID TEMPERATURE (FT)		RAW		FL 1.60	
MISCELLANEOUS DATA, %		RAW		FL 1.60	
CL (CHLORINE) (ANALYZED)		RAW		FL 1.60	
NA (SODIUM) (CALCULATED)		RAW		FL 1.60	
MINERAL MATTER (PARR)		RAW		FL 1.60	
PHYSICAL PARAMETERS, INDEX		RAW		FL 1.60	
FREE SWELLING (FSI)		RAW		FL 1.60	
HARDGROVE GRINDABILITY (HGI)		RAW		FL 1.60	

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 463

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.1	3.3	.26	14910	1.3
FLOAT 1.40	55.3	6.7	1.04	14323	2.4
FLOAT 1.60	79.6	11.4	1.82	13512	3.6
CUM(1-1/2" X 100M)	100.0	20.1	2.83	12012	5.5
100M X 0	1.1	17.6	4.62	12546	7.9
TOTAL(1-1/2" X 0)	100.0	20.1	2.85	12017	5.5

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.7	3.4	.19	14892	1.2
FLOAT 1.40	62.0	6.3	.56	14392	1.7
FLOAT 1.60	78.3	9.7	1.07	13806	2.5
CUM(3/8" X 100M)	100.0	19.3	2.64	12150	5.3
100M X 0	1.4	19.8	5.06	12063	9.3
TOTAL(3/8" X 0)	100.0	19.3	2.67	12148	5.3

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.8	3.0	.19	14961	1.2
FLOAT 1.40	63.4	5.5	.33	14530	1.5
FLOAT 1.60	81.3	8.7	.63	13978	2.0
CUM(14M X 0)	100.0	19.3	2.77	12150	5.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--	MOISTURE, %	TOTAL AS RECEIVED
3/8" X 14M	--		
14M X 100M	--		
100M X 0	--		

2.8
.8

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 463

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	80	90	--	--	--	--
ASH	19.15	8.52	19.30	8.60	--	--
VOLATILE MATTER	29.26	32.11	29.50	32.40	36.56	35.45
FIXED CARBON	50.79	58.47	51.20	59.00	63.44	64.55
BTU/LB	12152	13914	12250	14040	15180	15361

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.12	1.25	3.15	1.26	3.90	1.38
OXYGEN	--	--	--	--	--	--
ASH	19.15	8.52	19.30	8.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	2.54	.56	2.56	.57	3.17	.62
SULFATIC	.01	.01	.02	.01	.02	.01
ORGANIC	.57	.68	.57	.68	.71	.75
TOTAL	3.12	1.25	3.15	1.26	3.90	1.38

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2550	2910+	--
SOFTENING TEMPERATURE (ST)	2600	2910+	--
FLUID TEMPERATURE (FT)	2660	2910+	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	22.57	9.97	74.53

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7 1/2	8 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: WEST VIRGINIA
COUNTY: NICHOLAS

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 464

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.8	3.5	.14	14576	1.2
FLOAT 1.40	61.7	5.4	.25	14252	1.4
FLOAT 1.60	78.4	8.3	.31	13673	1.5
CUM(1-1/2" X 100M)	100.0	19.8	.45	11801	1.8
100M X 0	1.0	19.6	.55	11835	2.2
TOTAL(1-1/2" X 0)	100.0	19.8	.45	11801	1.8

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.2	3.0	.14	14661	1.3
FLOAT 1.40	63.4	4.8	.26	14354	1.4
FLOAT 1.60	75.7	7.5	.32	13895	1.5
CUM(3/8" X 100M)	100.0	20.2	.47	11733	1.8
100M X 0	3.8	19.7	.57	11818	2.0
TOTAL(3/8" X 0)	100.0	20.2	.47	11736	1.8

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.4	2.9	.14	14678	1.2
FLOAT 1.40	64.2	4.7	.28	14371	1.4
FLOAT 1.60	75.9	7.0	.35	13980	1.5
CUM(14M X 0)	100.0	19.7	.50	11818	1.8

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.4
3/8" X 14M	18.1
14M X 100M	4.5
100M X 0	1.0

----- MOISTURE, %
TOTAL
AS RECEIVED
2.5
2.1

STATE: WEST VIRGINIA
COUNTY: NICHOLAS

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 464

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.10	1.80	--	--	--	--
ASH	18.51	6.78	18.91	6.90	38.35	37.68
VOLATILE MATTER	30.45	34.45	31.10	35.08	61.65	62.32
FIXED CARBON	48.94	56.98	49.99	58.02		
					59.70	42.93
					23.00	57.07
BTU/LB	11608	13817	11857	14070	14622	15113
		4939		5030		12481

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	67.13	77.81	68.57	79.24	84.57	85.11
HYDROGEN	4.36	4.98	4.21	4.87	5.19	5.23
NITROGEN	1.29	1.54	1.32	1.57	1.63	1.69
SULFUR	1.04	1.02	1.07	1.04	1.31	1.12
OXYGEN	7.66	7.86	5.92	6.38	7.30	6.85
ASH	18.51	6.78	18.91	6.90	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.44	.31	.45	.32	.55	.34
SULFATIC	.01	.01	.02	.01	.02	.01
ORGANIC	.59	.70	.60	.72	.74	.49
TOTAL	1.04	1.02	1.07	1.04	1.31	1.12

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60	FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)	
OXIDES				
SiO2 (SILICON OXIDE)	--	--	RAW	FL 1.60 SK 1.60
Al2O3 (ALUMINUM OXIDE)	--	--	2440	2460
Fe2O3 (IRON OXIDE)	--	--	2550	2610
TiO2 (TITANIUM OXIDE)	--	--	2720	2740
CaO (CALCIUM OXIDE)	--	--		
MgO (MAGNESIUM OXIDE)	--	--	MISCELLANEOUS DATA, %	
Na2O (SODIUM OXIDE)	.50	1.20	CL (CHLORINE) (ANALYZED)	RAW
K2O (POTASSIUM OXIDE)	--	--	NA (SODIUM) (CALCULATED)	FL 1.60 SK 1.60
SO3 (SULFITES)	--	--	MINERAL MATTER (PARR)	.14 --
				.07 .13
				21.01 8.02 65.13

COAL UTILIZATION RATIOS

	RAW	FL 1.60	PHYSICAL PARAMETERS, INDEX	
BASE/ACID				
DOLOMITE	--	--	RAW	FL 1.60 SK 1.60
HYDROGEN/CARBON	.74	.74	6 1/2	8
OXYGEN/CARBON	.06	.06	45	45
R250	--	--		
SILICA	--	--		
SILICA/ALUMINA	--	--		

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 465

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.5	3.8	.02	14790	1.0
FLOAT 1.40	60.0	6.8	.06	14277	1.0
FLOAT 1.60	83.3	11.8	.12	13423	1.1
CUM(1-1/2" X 100M)	100.0	18.4	.13	12293	1.3
100M X 0	2.1	13.9	.53	12988	1.7
TOTAL(1-1/2" X 0)	100.0	18.3	.14	12308	1.3

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.9	3.7	.02	14887	1.0
FLOAT 1.40	62.3	6.4	.03	14405	1.0
FLOAT 1.60	81.7	10.8	.07	13636	1.0
CUM(3/8" X 100M)	100.0	18.1	.16	12385	1.2
100M X 0	6.7	12.5	.37	13255	1.5
TOTAL(3/8" X 0)	100.0	17.7	.17	12443	1.2

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.9	3.1	.03	14910	1.0
FLOAT 1.40	62.3	5.7	.03	14459	1.0
FLOAT 1.60	80.6	9.7	.04	13789	1.0
CUM(14M X 0)	100.0	19.0	.18	12017	1.3

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	65.8
3/8" X 14M	25.5
14M X 100M	6.6
100M X 0	2.1

--- MOISTURE, % ---

TOTAL	1.6
AS RECEIVED	1.0

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 80
SAMPLE NO. 465

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW FL 1.60 SK 1.60

1.00 .90

19.11 9.71

27.42 30.10

52.47 59.29

12038 13650

4869

12160

13774

4908

15068

15270

10989

MOISTURE

ASH

FIXED CARBON

BTU/LB

MOISTURE FREE

RAW FL 1.60 SK 1.60

-- --

19.30 9.80

30.38 16.47

53.00 28.20

55.33

34.32

65.68

15068

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

-- --

-- --

33.68 36.87

66.32 63.13

-- --

-- --

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

67.39 76.91

4.41 4.82

1.12 1.26

.81 .68

7.17 6.61

19.11 9.71

35.81

2.77

.60

1.30

4.63

54.89

68.07

4.34

1.13

.82

6.34

19.30

77.61

2.70

.60

1.31

3.95

55.33

84.34

5.38

1.40

1.02

7.86

86.04

5.28

1.41

.76

6.50

80.83

6.04

2.94

8.84

CARBON

HYDROGEN

NITROGEN

SULFUR

OXYGEN

ASH

MOISTURE FREE

RAW FL 1.60 SK 1.60

68.07

4.76

1.27

.69

5.87

9.80

36.10

2.70

.60

1.31

3.95

55.33

84.34

5.38

1.40

1.02

7.86

86.04

5.28

1.41

.76

6.50

80.83

6.04

2.94

8.84

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

84.34

5.38

1.40

1.02

7.86

86.04

5.28

1.41

.76

6.50

80.83

6.04

2.94

8.84

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

.18 .04

.00 .00

.63 .64

.81 .68

.76

.00

.55

1.30

.18

.04

.00

.64

.82

.76

.00

.55

1.31

.22

.00

.79

1.02

.05

.00

.71

.76

1.71

1.24

2.94

PYRITIC

SULFATIC

ORGANIC

TOTAL

MOISTURE FREE

RAW FL 1.60 SK 1.60

.18

.00

.64

.82

.76

.00

.55

1.31

.22

.00

.79

1.02

.05

.00

.71

.76

1.71

1.24

2.94

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

.22

.00

.79

1.02

.05

.00

.71

.76

1.71

1.24

2.94

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

 

52.84 49.43

36.20 38.47

4.00 5.15

2.73 2.73

.25 .78

.70 .54

.19 --

2.84 2.02

.07 .16

52.84

49.43

32.81

11.15

2.10

.19

.73

2.79

.07

52.84

49.43

32.81

11.15

2.10

.19

.73

2.79

.07

OXIDES

SiO2 (SILICON OXIDE)

Al2O3 (ALUMINUM OXIDE)

Fe2O3 (IRON OXIDE)

TiO2 (TITANIUM OXIDE)

CaO (CALCIUM OXIDE)

MgO (MAGNESIUM OXIDE)

Na2O (SODIUM OXIDE)

K2O (POTASSIUM OXIDE)

SO3 (SULFITES)

MOISTURE FREE

 

49.86

38.47

5.15

2.73

.78

.54

--

2.02

.16

49.86

38.47

11.15

2.10

.19

.73

2.79

.07

MOISTURE AND ASH FREE

 

49.86

38.47

5.15

2.73

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38.47

11.15

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2.79

.07

COAL UTILIZATION RATIOS

RAW FL 1.60

.09

.12

.77

.07

.95

.91

1.46

RAW FL 1.60

.08

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STATE: WEST VIRGINIA
 COUNTY: RANDOLPH
 BED: MIDDLE KITTANNING
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 80
 SAMPLE NO. 466

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	6.2	4.2	.03	14799	1.1
FLOAT 1.40	41.9	9.8	.06	13815	1.2
FLOAT 1.60	87.5	17.7	.08	12445	1.2
CUM(1-1/2" X 100M)	100.0	21.6	.16	11806	1.3
100M X 0	1.6	18.4	.37	12304	2.0
TOTAL(1-1/2" X 0)	100.0	21.5	.16	11814	1.3

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.9	4.0	.04	14647	1.1
FLOAT 1.40	46.5	8.7	.05	13917	1.1
FLOAT 1.60	81.3	15.4	.07	12745	1.2
CUM(3/8" X 100M)	100.0	21.7	.16	11671	1.4
100M X 0	7.1	16.8	.41	12577	1.6
TOTAL(3/8" X 0)	100.0	21.4	.18	11735	1.4

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	17.4	3.8	.14	14812	1.2
FLOAT 1.40	47.4	7.7	.16	14168	1.1
FLOAT 1.60	78.5	13.7	.18	13127	1.1
CUM(14M X 0)	100.0	21.3	.27	11809	1.4

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	63.8
3/8" X 14M	26.9
14M X 100M	7.7
100M X 0	1.6

--- MOISTURE, % ---

TOTAL	1.8
AS RECEIVED	1.2

STATE: WEST VIRGINIA
COUNTY: RANDOLPH
BED: MIDDLE KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 80
SAMPLE NO.: 466

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.20	1.10	--	--	--	--
ASH	21.24	14.09	21.50	14.25	36.83	36.21
VOLATILE MATTER	28.56	30.71	28.91	31.05	63.17	63.79
FIXED CARBON	49.00	54.10	49.59	54.71	15005	15211
BTU/LB	11637	12901	11779	13044	6671	13727

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	66.01	72.63	66.81	73.44	85.11	85.65
HYDROGEN	4.53	4.83	4.45	4.76	5.67	5.56
NITROGEN	1.29	1.39	1.30	1.40	1.66	1.64
SULFUR	.83	.78	.84	.79	1.07	.92
OXYGEN	6.10	6.27	5.09	5.36	6.49	6.25
ASH	21.24	14.09	21.50	14.25	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.22	.20	.22	.20	.29	.23
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.60	.57	.61	.58	.77	.68
TOTAL	.83	.78	.84	.79	1.07	.92

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	50.71	47.73	50.71	47.73	50.71	47.73
SiO2 (SILICON OXIDE)	37.71	41.48	38.47	41.48	38.47	41.48
Al2O3 (ALUMINUM OXIDE)	4.00	2.49	3.72	2.53	3.72	2.53
Fe2O3 (IRON OXIDE)	2.60	3.23	2.53	3.23	2.53	3.23
TiO2 (TITANIUM OXIDE)	.90	1.12	.86	1.12	.86	1.12
CaO (CALCIUM OXIDE)	.73	.66	.66	.66	.66	.66
MgO (MAGNESIUM OXIDE)	.13	--	--	--	--	--
Na2O (SODIUM OXIDE)	2.65	2.29	2.41	2.29	2.41	2.29
K2O (POTASSIUM OXIDE)	.16	.24	.02	.02	.02	.02
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.09	--	--	--	--	--
DOLOMITE	.19	--	--	--	--	--
HYDROGEN/CARBON	.80	.78	.80	.78	.80	.78
OXYGEN/CARBON	.06	.05	.06	.05	.06	.05
R250	.95	.96	.95	.96	.95	.96
SILICA	.90	.92	.90	.92	.90	.92
SILICA/ALUMINA	1.34	1.15	1.34	1.15	1.34	1.15

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	6	1/2	6	1/2	6	1/2
HARDGROVE GRINDABILITY (HGI)	57	53	57	53	57	53

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2800	2800	2800	2800	2800	2800
SOFTENING TEMPERATURE (ST)	2800	2800	2800	2800	2800	2800
FLUID TEMPERATURE (FT)	2800	2800	2800	2800	2800	2800

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.20	--	.20	--	.20	--
NA (SODIUM) (CALCULATED)	.02	--	.02	--	.02	--
MINERAL MATTER (PARR)	23.68	15.82	23.68	15.82	23.68	15.82

STATE: WEST VIRGINIA
 COUNTY: MINGO
 BED: NO. 2 GAS
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 168
 SAMPLE NO. 467

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	75.2	1.4	.13	14771	1.2
FLOAT 1.40	90.9	2.8	.21	14538	1.3
FLOAT 1.60	98.6	4.6	.32	14237	1.5
CUM(1-1/2" X 100M)	100.0	5.3	.41	14121	1.6
100M X 0	1.4	11.4	1.48	13103	3.6
TOTAL(1-1/2" X 0)	100.0	5.4	.42	14106	1.6

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	75.6	1.5	.12	14754	1.2
FLOAT 1.40	90.0	2.6	.28	14571	1.4
FLOAT 1.60	97.6	4.3	.36	14287	1.5
CUM(3/8" X 100M)	100.0	5.3	.42	14121	1.6
100M X 0	3.9	8.0	.93	13670	2.3
TOTAL(3/8" X 0)	100.0	5.4	.44	14103	1.6

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	69.3	1.2	.07	14804	1.0
FLOAT 1.40	87.9	2.1	.14	14654	1.2
FLOAT 1.60	96.2	3.6	.23	14404	1.4
CUM(14M X 0)	100.0	5.3	.39	14121	1.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	78.4
3/8" X 14M	15.7
14M X 100M	4.5
100M X 0	1.4
TOTAL AS RECEIVED	2.5
	1.9

STATE: WEST VIRGINIA		BED: NO.2 GAS		BED CODE: 168			
COUNTY: MINGO		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 467			
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M							
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----							
MOISTURE ASH VOLATILE MATTER FIXED CARBON BTU/LB	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE		
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	
	1.90	1.80 1.80	--	--	--	--	
	5.41	3.68 47.82	5.51	3.74 48.70	--	--	
	38.85	39.56 22.59	39.60	40.28 23.00	41.91	41.85 44.83	
	53.84	54.97 27.79	54.89	55.97 28.30	58.09	58.15 55.17	
	13845	14095 6756	14113	14353 6880	14936	14912 13411	
----- ULTIMATE ANALYSIS, % -----							
CARBON HYDROGEN NITROGEN SULFUR OXYGEN ASH	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE		
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	
	--	-- --	--	--	--	--	
	--	-- --	--	--	--	--	
	1.23	.99 5.32	1.25	1.01 5.42	1.33	1.05 10.57	
	5.41	3.68 47.82	5.51	3.74 48.70	--	--	
----- SULFUR FORMS ANALYSIS, % -----							
PYRITIC SULFATIC ORGANIC TOTAL	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE		
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	
	.45	.22 4.80	.46	.23 4.88	.49	.24 9.52	
	.01	.01 .01	.01	.01 .01	.01	.01 .02	
	.77	.76 .52	.78	.77 .53	.83	.80 1.02	
	1.23	.99 5.32	1.25	1.01 5.42	1.33	1.05 10.57	
----- MINERAL ANALYSIS OF ASH, % -----							
OXIDES (SILICON OXIDE) AL2O3 (ALUMINUM OXIDE) FE2O3 (IRON OXIDE) TiO2 (TITANIUM OXIDE) CaO (CALCIUM OXIDE) MgO (MAGNESIUM OXIDE) Na2O (SODIUM OXIDE) K2O (POTASSIUM OXIDE) SO3 (SULFITES)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE		
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	
	--	-- --	--	--	RAK	FL 1.60 SK 1.60	
	--	-- --	--	--	2490	2530 2430	
	--	-- --	--	--	SOFTENING TEMPERATURE (ST)	2540 2580 2480	
	--	-- --	--	--	FLUID TEMPERATURE (FT)	2590 2630 2590	
	--	-- --	--	--	----- MISCELLANEOUS DATA, % -----		
	--	-- --	--	--	CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
	.51	-- --	--	--	NA (SODIUM) (CALCULATED)	--	--
	--	-- --	--	--	MINERAL MATTER (PARR)	.02	--
	--	-- --	--	--	6.81	4.60 61.74	
----- COAL UTILIZATION RATIOS -----							
BASE/ACID DOLOMITE HYDROGEN/CARBON OXYGEN/CARBON R250 SILICA SILICA/ALUMINA	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE		
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60 SK 1.60	
	--	--	--	--	6	5 1/2	
	--	--	--	--	39	39	
	--	--	--	--	FREE SWELLING (FSI)	39	
----- PHYSICAL PARAMETERS, INDEX -----							
HARDGROVE GRINDABILITY (HGI)							

STATE: WEST VIRGINIA
COUNTY: BARBOUR
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 468

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.7	3.8	.63	14712	2.9
FLOAT 1.40	93.1	5.5	1.14	14459	3.6
FLOAT 1.60	98.4	6.0	1.47	14363	4.1
CUM(1-1/2" X 100M)	100.0	6.5	1.80	14269	4.6
100M X 0	1.3	11.0	3.43	13426	7.7
TOTAL(1-1/2" X 0)	100.0	6.6	1.82	14258	4.6

SAMPLE CRUSHED TO PASS 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.7	3.7	.43	14726	2.7
FLOAT 1.40	92.2	5.0	.76	14530	3.1
FLOAT 1.60	96.9	5.5	1.05	14446	3.5
CUM(3/8" X 100M)	100.0	6.5	1.80	14251	4.6
100M X 0	5.6	8.2	2.55	13947	6.3
TOTAL(3/8" X 0)	100.0	6.6	1.84	14234	4.7

SAMPLE CRUSHED TO PASS 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	67.6	3.5	.37	14825	2.6
FLOAT 1.40	91.5	4.7	.53	14619	2.8
FLOAT 1.60	95.7	5.2	.72	14536	3.1
CUM(14M X 0)	100.0	6.9	1.46	14214	4.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"	MOISTURE, %
1-1/2" X 3/8"	60.0
3/8" X 14M	30.8
14M X 100M	7.9
100M X 0	1.3

TOTAL AS RECEIVED 1.7 1.1

STATE: WEST VIRGINIA

COUNTY: BARBOUR

BED: PITTSBURGH

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36

SAMPLE NO. 468

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW FL 1.60 SK 1.60

FL 1.60 SK 1.60

RAW FL 1.60 SK 1.60

MOISTURE FREE

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

MOISTURE

ASH

VOLATILE MATTER

FIXED CARBON

BTU/LB

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

FL 1.60 SK 1.60

RAW FL 1.60 SK 1.60

MOISTURE FREE

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

CARBON

HYDROGEN

NITROGEN

SULFUR

OXYGEN

ASH

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

FL 1.60 SK 1.60

RAW FL 1.60 SK 1.60

MOISTURE FREE

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

PYRITIC

SULFATIC

ORGANIC

TOTAL

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW FL 1.60 SK 1.60

FL 1.60 SK 1.60

RAW FL 1.60 SK 1.60

MOISTURE FREE

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

OXIDES

SiO2 (SILICON OXIDE)

Al2O3 (ALUMINUM OXIDE)

Fe2O3 (IRON OXIDE)

TiO2 (TITANIUM OXIDE)

CaO (CALCIUM OXIDE)

MgO (MAGNESIUM OXIDE)

Na2O (SODIUM OXIDE)

K2O (POTASSIUM OXIDE)

SO3 (SULFITES)

COAL UTILIZATION RATIOS

AS RECEIVED

RAW FL 1.60 SK 1.60

FL 1.60 SK 1.60

RAW FL 1.60 SK 1.60

MOISTURE FREE

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

FUSIBILITY OF ASH, DEGREES F

AS RECEIVED

RAW FL 1.60 SK 1.60

FL 1.60 SK 1.60

RAW FL 1.60 SK 1.60

MOISTURE FREE

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

INITIAL DEFORMATION (ID)

SOFTENING TEMPERATURE (ST)

FLUID TEMPERATURE (FT)

MISCELLANEOUS DATA, %

AS RECEIVED

RAW FL 1.60 SK 1.60

FL 1.60 SK 1.60

RAW FL 1.60 SK 1.60

MOISTURE FREE

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

PHYSICAL PARAMETERS, INDEX

AS RECEIVED

RAW FL 1.60 SK 1.60

FL 1.60 SK 1.60

RAW FL 1.60 SK 1.60

MOISTURE FREE

FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 469

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC % BTU	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	69.8	5.0	71.7	.87	14625	2.5
FLOAT 1.40	94.9	6.1	96.3	1.13	14449	3.0
FLOAT 1.60	97.5	6.3	98.7	1.30	14403	3.3
CUM(1-1/2" X 100M)	100.0	7.2	100.0	1.83	14233	4.2
100M X 0	1.3	12.2	1.2	4.35	13234	8.8
TOTAL(1-1/2" X 0)	100.0	7.3	100.0	1.86	14220	4.2

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC % BTU	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.3	4.3	67.6	.46	14706	2.2
FLOAT 1.40	94.3	5.7	96.2	.72	14484	2.6
FLOAT 1.60	96.8	6.0	98.4	.88	14438	2.8
CUM(3/8" X 100M)	100.0	7.2	100.0	1.78	14204	4.1
100M X 0	5.2	8.9	5.1	2.68	13880	6.1
TOTAL(3/8" X 0)	100.0	7.3	100.0	1.83	14187	4.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC % BTU	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.7	4.0	68.4	.55	14807	2.1
FLOAT 1.40	93.9	5.5	96.2	.58	14564	2.3
FLOAT 1.60	96.7	5.8	98.7	.70	14508	2.5
CUM(14M X 0)	100.0	7.3	100.0	1.75	14216	4.1

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	48.6
3/8" X 14M	40.2
14M X 100M	9.9
100M X 0	1.3

----- MOISTURE, % -----

TOTAL	2.0
AS RECEIVED	1.2

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 469

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.20	1.00 1.00	--	--	--	--
ASH	7.31	5.54 49.90	7.40	50.40	--	--
VOLATILE MATTER	39.60	40.31 24.85	40.08	25.10	43.29	50.60
FIXED CARBON	51.89	53.15 24.26	52.52	24.50	56.71	49.40
BTU/LB	14030	14393 5702	14201	5759	15335	11611

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	77.24	79.64 23.36	78.18	23.60	84.43	47.58
HYDROGEN	5.43	5.58 1.70	5.36	1.60	5.79	3.23
NITROGEN	1.52	1.57 .50	1.54	.50	1.66	1.01
SULFUR	2.63	1.63 29.98	2.66	30.28	2.87	1.74
OXYGEN	5.86	6.04 --	4.85	--	5.24	5.52
ASH	7.31	5.54 49.90	7.40	50.40	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.61	.56 28.97	1.63	29.27	1.76	59.00
SULFATIC	.01	.01 .01	.01	.01	.01	.02
ORGANIC	1.01	.96 1.00	1.02	1.01	1.10	2.03
TOTAL	2.63	1.63 29.98	2.66	30.28	2.87	61.06

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	33.48	45.08 8.08
Al2O3 (ALUMINUM OXIDE)	20.28	27.38 3.63
Fe2O3 (IRON OXIDE)	36.01	15.41 79.25
TiO2 (TITANIUM OXIDE)	1.18	1.18 1.40
CaO (CALCIUM OXIDE)	3.62	3.08 2.52
MgO (MAGNESIUM OXIDE)	.81	1.41 .20
Na2O (SODIUM OXIDE)	1.35	-- --
K2O (POTASSIUM OXIDE)	.90	1.16 .26
SO3 (SULFITES)	2.32	2.90

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.78	--
DOLOMITE	.10	--
HYDROGEN/CARBON	.82	.82
OXYGEN/CARBON	.05	.05
R250	.58	.80
SILICA	.45	.70
SILICA/ALUMINA	1.65	1.65

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	1990	2530
SOFTENING TEMPERATURE (ST)	2080	2620
FLUID TEMPERATURE (FT)	2190	2720
MISCELLANEOUS DATA, %		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.14	--
MINERAL MATTER (PARR)	.07	--
	9.35	6.93 66.90

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	8 1/2	8 1/2
HARDGROVE GRINDABILITY (HGI)	58	--

STATE: WEST VIRGINIA
COUNTY: BARBOUR
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 470

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.4	4.2	.76	14659	2.4
FLOAT 1.40	93.6	6.5	1.34	14308	3.3
FLOAT 1.60	96.9	6.8	1.52	14249	3.5
CUM(1-1/2" X 100M)	100.0	8.6	1.79	13944	4.0
100M X 0	.9	18.9	3.73	12133	7.9
TOTAL(1-1/2" X 0)	100.0	8.7	1.81	13927	4.0

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.6	4.0	.56	14698	2.2
FLOAT 1.40	91.4	5.9	.88	14412	2.7
FLOAT 1.60	95.7	6.4	1.09	14335	3.0
CUM(3/8" X 100M)	100.0	8.7	1.59	13942	3.9
100M X 0	4.2	13.7	2.72	13040	6.2
TOTAL(3/8" X 0)	100.0	8.9	1.64	13904	4.0

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.5	3.9	.55	14716	2.2
FLOAT 1.40	91.9	5.6	.73	14461	2.4
FLOAT 1.60	95.4	6.0	.89	14381	2.7
CUM(14M X 0)	100.0	8.5	1.80	13943	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	73.5
3/8" X 14M	20.3
14M X 100M	5.3
100M X 0	.9
TOTAL AS RECEIVED	2.0
	1.2

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 470

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.20	1.20	1.20	--	--	--	--	--	--
ASH	8.69	6.03	60.37	8.80	6.10	61.10	--	--	--
VOLATILE MATTER	39.96	40.76	24.70	40.45	41.25	25.00	44.35	43.93	64.27
FIXED CARBON	50.14	52.02	13.73	50.75	52.65	13.90	55.65	56.07	35.73
BTU/LB	13731	14194	4711	13898	14366	4768	15239	15299	12257

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	75.22	78.36	18.51	76.13	79.31	18.73	83.48	84.46	48.15
HYDROGEN	5.37	5.56	1.50	5.30	5.50	1.39	5.82	5.85	3.57
NITROGEN	1.50	1.56	.34	1.52	1.58	.35	1.67	1.68	.89
SULFUR	2.74	1.97	18.90	2.77	1.99	19.13	3.04	2.12	49.18
OXYGEN	6.48	6.53	--	5.48	5.52	--	6.00	5.88	--
ASH	8.69	6.03	60.37	8.80	6.10	61.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.69	.79	18.38	1.71	.80	18.61	1.88	.85	47.83
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.03
ORGANIC	1.04	1.16	.51	1.05	1.18	.52	1.15	1.26	1.33
TOTAL	2.74	1.97	18.90	2.77	1.99	19.13	3.04	2.12	49.18

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	40.08	45.40	19.74
SiO ₂ (SILICON OXIDE)	23.46	28.71	11.69
Al ₂ O ₃ (ALUMINUM OXIDE)	22.73	13.02	46.74
Fe ₂ O ₃ (IRON OXIDE)	1.49	1.34	1.68
TiO ₂ (TITANIUM OXIDE)	5.88	3.64	10.00
CaO (CALCIUM OXIDE)	.71	1.17	.10
MgO (MAGNESIUM OXIDE)	.91	--	--
Na ₂ O (SODIUM OXIDE)	1.05	1.07	.80
K ₂ O (POTASSIUM OXIDE)	4.26	3.70	6.80
SO ₃ (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.48	--
DOLOMITE	.21	--
HYDROGEN/CARBON	.84	.83
OXYGEN/CARBON	.05	.05
R ₂ S ₀	.69	.82
SILICA	.58	.72
SILICA/ALUMINA	1.71	1.58

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2050	2360	--
SOFTENING TEMPERATURE (ST)	2140	2430	--
FLUID TEMPERATURE (FT)	2230	2510	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.08	--	--
MINERAL MATTER (PARR)	11.03	7.68	76.13

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	1 1/2	--
HARDGROVE GRINDABILITY (HGI)	58	--	--

STATE: WEST VIRGINIA
 COUNTY: BARBOUR
 BED: PITTSBURGH
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 36
 SAMPLE NO. 471

CUMULATIVE WASHABILITY DATA (DFY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	69.6	4.6	.47	14229	2.9
FLOAT 1.40	94.5	5.7	.73	14173	3.2
FLOAT 1.60	97.7	6.1	.94	14116	3.5
CUM(1-1/2" X 100M)	100.0	7.1	1.46	13936	4.3
100M X 0	1.0	15.7	3.42	12572	7.2
TOTAL(1-1/2" X 0)	100.0	7.2	1.48	13923	4.4

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	73.3	4.1	.34	14748	2.7
FLOAT 1.40	93.6	5.2	.49	14572	2.8
FLOAT 1.60	96.5	5.6	.66	14510	3.1
CUM(3/8" X 100M)	100.0	7.0	1.54	14232	4.4
100M X 0	5.2	9.1	2.24	13751	5.4
TOTAL(3/8" X 0)	100.0	7.1	1.58	14207	4.4

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	75.3	3.8	.23	14799	2.5
FLOAT 1.40	93.8	4.9	.33	14626	2.6
FLOAT 1.60	96.5	5.2	.44	14566	2.8
CUM(14M X 0)	100.0	6.8	1.43	14275	4.2

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----

SAMPLE CRUSHED TO PASS 1-1/2"	MOISTURE, %
1-1/2" X 3/8"	1.6
3/8" X 14M	1.1
14M X 100M	
100M X 0	

TOTAL
AS RECEIVED

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 471

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.10	1.10	--	--	--	--
ASH	6.82	5.24 50.83	6.90	5.30 51.40	--	--
VOLATILE MATTER	40.42	27.69	40.87	41.33 28.00	43.90	43.65 57.61
FIXED CARBON	51.66	20.37	52.23	53.37 20.60	56.10	56.35 42.39
BTU/LB	13796	14390 6136	13949	14551 6204	14983	15365 12765

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	77.18	78.99 --	78.04	79.87 --	83.82	84.34 --
HYDROGEN	5.56	5.66 --	5.50	5.60 --	5.91	5.91 --
NITROGEN	1.48	1.48 --	1.50	1.50 --	1.61	1.58 --
SULFUR	2.92	2.01 29.41	2.96	2.03 29.74	3.17	2.14 61.19
OXYGEN	6.03	6.62 --	5.11	5.70 --	5.48	6.02 --
ASH	6.82	5.24 50.83	6.90	5.30 51.40	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.37	.43 28.41	1.39	.43 28.73	1.49	.45 59.11
SULFATIC	.00	.00 .01	.01	.00 .01	.01	.00 .02
ORGANIC	1.54	1.58 .99	1.56	1.60 1.00	1.68	1.69 2.06
TOTAL	2.92	2.01 29.41	2.96	2.03 29.74	3.17	2.14 61.19

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	37.47	48.56 14.09
SiO2 (SILICON OXIDE)	24.35	33.39 4.82
Al2O3 (ALUMINUM OXIDE)	26.34	8.59 62.20
Fe2O3 (IRON OXIDE)	1.17	1.50 .04
TiO2 (TITANIUM OXIDE)	5.97	3.65 9.12
CaO (CALCIUM OXIDE)	.61	.69 .60
MgO (MAGNESIUM OXIDE)	.56	.98 .14
Na2O (SODIUM OXIDE)	.85	1.94 4.74
K2O (POTASSIUM OXIDE)	1.72	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.55	--
DOLOMITE	.19	--
HYDROGEN/CARBON	.85	.84
OXYGEN/CARBON	.05	.05
R250	.66	.87
SILICA	.53	.75
SILICA/ALUMINA	1.54	1.45

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2100	2490
SOFTENING TEMPERATURE (ST)	2210	2570
FLUID TEMPERATURE (FT)	2290	2670

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	.03	--
MINERAL MATTER (PARR)	9.08	6.84 71.87

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	8	8
HARDGROVE GRINDABILITY (HGI)	56	--

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 472

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.6	4.5	.54	14611	2.9
FLOAT 1.40	85.7	6.0	.72	14378	3.3
FLOAT 1.60	88.5	6.3	.83	14320	3.5
CUM(1-1/2" X 100M)	100.0	12.3	2.30	13099	5.8
100M X 0	1.2	17.5	2.67	12042	7.4
TOTAL(1-1/2" X 0)	100.0	12.4	2.30	13086	5.8

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.7	4.2	.51	14696	2.7
FLOAT 1.40	84.8	5.7	.66	14454	3.1
FLOAT 1.60	88.2	6.1	.80	14381	3.3
CUM(3/8" X 100M)	100.0	12.5	2.40	13113	5.8
100M X 0	5.6	13.2	2.08	12914	6.5
TOTAL(3/8" X 0)	100.0	12.5	2.38	13102	5.8

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.5	4.2	.39	14687	2.6
FLOAT 1.40	83.2	5.5	.49	14491	2.8
FLOAT 1.60	88.0	6.1	.66	14376	3.1
CUM(14M X 0)	100.0	12.6	2.62	13043	6.1

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	63.6
3/8" X 14M	28.1
14M X 100M	7.1
100M X 0	1.2

--- MOISTURE, % ---

TOTAL AS RECEIVED	1.3
	.8

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 472

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----

AS RECEIVED

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STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 473

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.2	66.1	4.3	.82	1.91	14636	2.6
FLOAT 1.40	92.7	95.6	5.4	1.46	2.52	14436	3.5
FLOAT 1.60	95.0	98.5	5.7	1.67	2.74	14374	3.8
CUM(1-1/2" X 100M)	100.0	100.0	7.7	2.91	3.96	14002	5.7
100M X 0	1.7	1.5	16.5	4.27	6.73	12399	10.9
TOTAL(1-1/2" X 0)	100.0	100.0	7.8	2.93	4.01	13975	5.7

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.1	68.7	3.9	.61	1.65	14735	2.2
FLOAT 1.40	89.8	93.7	4.8	1.04	2.06	14579	2.8
FLOAT 1.60	94.0	97.6	5.2	1.31	2.33	14501	3.2
CUM(3/8" X 100M)	100.0	100.0	8.0	3.06	4.09	13967	5.9
100M X 0	6.2	5.9	11.9	3.54	5.42	13261	8.2
TOTAL(3/8" X 0)	100.0	100.0	8.2	3.09	4.17	13923	6.0

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	71.4	75.8	3.6	.41	1.51	14862	2.0
FLOAT 1.40	89.4	93.9	4.4	.63	1.70	14712	2.3
FLOAT 1.60	93.3	97.5	4.8	.85	1.92	14633	2.6
CUM(14M X 0)	100.0	100.0	8.1	3.10	4.13	14008	5.9

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---		--- MOISTURE, % ---	
SAMPLE CRUSHED TO PASS 1-1/2"		TOTAL	
1-1/2" X 3/8"	64.7	AS RECEIVED	2.5
3/8" X 14M	27.0		1.6
14M X 100M	6.6		
100M X 0	1.7		

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 473

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.60	1.60	1.60	--	--	--	--	--	--
ASH	8.07	4.82	54.02	8.20	4.90	54.90	42.87	42.32	59.20
VOLATILE MATTER	38.72	39.60	26.27	39.35	40.25	26.70	57.13	57.68	40.80
FIXED CARBON	51.61	53.97	18.11	52.45	54.85	18.40	--	--	--
BTU/LB	13769	14384	5125	13993	14618	5208	15243	15371	11548

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	74.87	79.26	--	76.09	80.55	--	82.89	84.70	--
HYDROGEN	5.59	5.79	--	5.50	5.70	--	5.99	5.99	--
NITROGEN	1.48	1.48	--	1.50	1.50	--	1.63	1.58	--
SULFUR	3.98	2.08	34.35	4.05	2.11	34.91	4.41	2.22	77.41
OXYGEN	6.01	6.58	--	4.67	5.24	--	5.08	5.51	--
ASH	8.07	4.82	54.02	8.20	4.90	54.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.95	.80	33.88	3.00	.81	34.43	3.27	.85	76.35
SULFATIC	.00	.00	.01	.01	.00	.01	.01	.00	.02
ORGANIC	1.02	1.28	.46	1.04	1.30	.47	1.13	1.37	1.04
TOTAL	3.98	2.08	34.35	4.05	2.11	34.91	4.41	2.22	77.41

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	24.99	39.18	4.58
SiO2 (SILICON OXIDE)	16.85	27.94	2.26
Al2O3 (ALUMINUM OXIDE)	44.88	20.81	78.44
Fe2O3 (IRON OXIDE)	1.29	1.26	1.71
TiO2 (TITANIUM OXIDE)	5.18	4.06	6.58
CaO (CALCIUM OXIDE)	1.21	1.11	1.07
MgO (MAGNESIUM OXIDE)	.39	.30	1.66
Na2O (SODIUM OXIDE)	.87	1.40	1.06
K2O (POTASSIUM OXIDE)	5.59	3.25	5.83
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	1.22	.40
DOLOMITE	.12	.19
HYDROGEN/CARBON	.87	.85
OXYGEN/CARBON	.05	.05
R250	.46	.73
SILICA	.33	.60
SILICA/ALUMINA	1.48	1.40

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2110	2250	--
SOFTENING TEMPERATURE (ST)	2200	2350	--
FLUID TEMPERATURE (FT)	2280	2440	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	.07	--	--
NA (SODIUM) (CALCULATED)	.02	.01	.68
MINERAL MATTER (PARR)	11.08	6.56	78.49

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	1/2	--
HARDGROVE GRINDABILITY (HGI)	64	--	--

STATE: WEST VIRGINIA
COUNTY: BROOKE

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 474

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	42.2	4.0	.99	14329	2.5
FLOAT 1.40	82.7	5.5	1.46	14037	3.2
FLOAT 1.60	89.2	6.4	1.73	13878	3.6
CUM(1-1/2" X 100M)	100.0	12.6	2.97	12792	6.8
100M X 0	1.8	16.7	4.63	12096	8.9
TOTAL(1-1/2" X 0)	100.0	12.7	3.00	12779	6.9

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	48.3	3.3	.71	14339	2.3
FLOAT 1.40	82.4	4.9	1.14	14080	2.9
FLOAT 1.60	89.7	5.8	1.42	13912	3.3
CUM(3/8" X 100M)	100.0	11.6	2.77	12925	6.1
100M X 0	4.1	14.4	4.86	12491	9.1
TOTAL(3/8" X 0)	100.0	11.7	2.86	12907	6.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	47.3	2.9	.55	14510	2.0
FLOAT 1.40	79.6	4.5	.84	14221	2.4
FLOAT 1.60	90.2	5.7	1.19	14001	3.0
CUM(14M X 0)	100.0	11.0	2.70	13082	5.9

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	79.2
3/8" X 14M	15.0
14M X 100M	4.0
100M X 0	1.8

----- MOISTURE, % -----

TOTAL	4.2
AS RECEIVED	2.9

STATE: WEST VIRGINIA
COUNTY: BROOKE

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 474

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.90	2.60 1.10	--	--	--	--
ASH	10.97	5.55 60.43	11.30	5.70 61.10	--	--
VOLATILE MATTER	37.84	40.26 18.10	38.97	41.33 18.30	43.93	43.83 47.04
FIXED CARBON	48.29	51.59 20.37	49.73	52.97 20.60	56.07	56.17 52.96
BTU/LB	12660	13637 4427	13038	14001 4476	14699	14847 11507

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	70.25	76.00 20.57	72.35	78.03 20.80	81.57	82.75 53.47
HYDROGEN	5.20	5.53 1.90	5.03	5.38 1.80	5.67	5.71 4.63
NITROGEN	1.56	1.68 .49	1.61	1.73 .50	1.81	1.83 1.29
SULFUR	3.57	1.91 18.10	3.68	1.96 18.30	4.15	2.08 47.05
OXYGEN	8.44	9.33 --	6.04	7.20 --	6.80	7.64 --
ASH	10.97	5.55 60.43	11.30	5.70 61.10	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.49	1.17 14.77	2.57	1.20 14.94	2.89	1.27 38.40
SULFATIC	.01	.01 .01	.01	.01 .01	.01	.01 .03
ORGANIC	1.07	.73 3.32	1.10	.75 3.35	1.24	.80 8.62
TOTAL	3.57	1.91 18.10	3.68	1.96 18.30	4.15	2.08 47.05

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO ₂ (SILICON OXIDE)	38.35	42.61 36.22
Al ₂ O ₃ (ALUMINUM OXIDE)	20.36	25.64 16.22
Fe ₂ O ₃ (IRON OXIDE)	34.32	25.16 39.46
TiO ₂ (TITANIUM OXIDE)	1.13	1.40 .70
CaO (CALCIUM OXIDE)	1.26	1.23 1.26
MgO (MAGNESIUM OXIDE)	.56	.60 .70
Na ₂ O (SODIUM OXIDE)	.22	.27 .16
K ₂ O (POTASSIUM OXIDE)	1.37	1.40 1.30
SO ₃ (SULFITES)	.80	.89 .76

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.63	.41
DOLOMITE	.05	.06
HYDROGEN/CARBON	.83	.83
OXYGEN/CARBON	.08	.07
R250	.62	.72
SILICA	.51	.61
SILICA/ALUMINA	1.88	1.66

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2080	2090
SOFTENING TEMPERATURE (ST)	2200	2210
FLUID TEMPERATURE (FT)	2310	2300
MISCELLANEOUS DATA, %		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	.09	--
MINERAL MATTER (PARR)	.02	.01 .07
	13.46	7.23 68.84

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	5 1/2	5 1/2
HARDGROVE GRINDABILITY (HGI)	52	--

STATE: WEST VIRGINIA
COUNTY: BROOKE

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 475

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	15.3	24.4	3.3	.53	2.44	14419	3.4
FLOAT 1.40	50.0	76.7	6.4	1.86	3.82	13878	5.5
FLOAT 1.60	65.6	96.9	9.4	2.63	4.53	13354	6.8
CUM(1-1/2" X 100M)	100.0	100.0	34.1	2.69	4.04	9043	8.9
100M X 0	1.2	1.3	30.0	3.13	4.85	9758	9.9
TOTAL(1-1/2" X 0)	100.0	100.0	34.1	2.70	4.05	9051	8.9

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.2	37.1	3.8	.48	2.49	14332	3.5
FLOAT 1.40	49.2	76.5	6.1	1.40	3.40	13930	4.9
FLOAT 1.60	63.6	95.5	8.9	2.31	4.23	13441	6.3
CUM(3/8" X 100M)	100.0	100.0	34.6	2.63	4.01	8955	9.0
100M X 0	3.8	4.0	32.5	2.90	4.39	9322	9.4
TOTAL(3/8" X 0)	100.0	100.0	34.5	2.64	4.02	8969	9.0

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	14.8	23.3	3.0	.27	2.32	14471	3.2
FLOAT 1.40	44.1	67.4	5.5	.93	2.95	14035	4.2
FLOAT 1.60	61.1	89.7	8.7	1.63	3.60	13476	5.3
CUM(14M X 0)	100.0	100.0	33.3	2.62	4.02	9182	8.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

--- MOISTURE, % ---
TOTAL
AS RECEIVED
3.2
1.8

STATE: WEST VIRGINIA
COUNTY: BROOKE

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 475

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.80	1.80	--	--	--	--
ASH	32.90	8.84 70.80	33.50	9.00 72.10	--	--
VOLATILE MATTER	30.64	39.77 --	31.20	40.50 --	46.92	44.51
FIXED CARBON	34.66	49.59 --	35.30	50.50 --	53.08	55.49
BTU/LB	9270	13110 --	9440	13350 --	14195	14670 --

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.93	3.47 4.62	4.00	3.53 4.70	6.02	3.88 16.84
OXYGEN	--	--	--	--	--	--
ASH	32.90	8.84 70.80	33.50	9.00 72.10	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.58	1.60 4.10	2.63	1.63 4.17	3.95	1.79 14.96
SULFATIC	.04	.02 .06	.04	.02 .06	.06	.02 .22
ORGANIC	1.31	1.85 .46	1.33	1.88 .46	2.00	2.07 1.67
TOTAL	3.93	3.47 4.62	4.00	3.53 4.70	6.02	3.88 16.84

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: WEST VIRGINIA
COUNTY: BROOKE

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 476

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	18.4	20.0	3.9	1.22	14285	3.6
FLOAT 1.40	83.4	87.8	6.7	2.79	13841	6.0
FLOAT 1.60	92.2	96.1	7.5	3.19	13704	6.7
CUM(1-1/2" X 100M)	100.0	100.0	10.7	3.77	13142	7.9
100M X 0	1.4	1.2	20.4	6.86	11395	14.3
TOTAL(1-1/2" X 0)	100.0	100.0	10.8	3.81	13118	8.0

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.9	41.8	3.4	1.03	14438	3.1
FLOAT 1.40	78.0	83.8	5.5	2.04	14074	4.8
FLOAT 1.60	90.4	95.6	6.7	2.71	13853	5.9
CUM(3/8" X 100M)	100.0	100.0	11.0	3.73	13093	7.9
100M X 0	5.2	5.0	14.4	6.23	12464	11.7
TOTAL(3/8" X 0)	100.0	100.0	11.2	3.86	13060	8.1

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.8	45.5	2.8	.67	14515	2.8
FLOAT 1.40	76.0	83.1	4.5	1.40	14226	3.8
FLOAT 1.60	87.5	94.2	5.8	2.11	13996	4.8
CUM(14M X 0)	100.0	100.0	11.3	3.88	13007	8.1

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.6
3/8" X 14M	17.0
14M X 100M	5.0
100M X 0	1.4

TOTAL	3.2
AS RECEIVED	2.2

STATE: WEST VIRGINIA
COUNTY: BROOKE

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 476

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.20	1.70 1.80	--	--	--	--
ASH	10.76	5.80 49.98	11.00	5.90 50.90	--	--
VOLATILE MATTER	39.52	41.76 23.57	40.41	42.49 24.00	45.41	45.15 48.88
FIXED CARBON	47.52	50.74 24.65	48.59	51.61 25.10	54.59	54.85 51.12
BTU/LB	12764	13743 5846	13051	13981 5954	14664	14858 12125

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	69.87	75.87 27.73	71.44	77.18 28.24	80.27	82.02 57.52
HYDROGEN	4.96	5.28 2.28	4.82	5.18 2.12	5.41	5.51 4.32
NITROGEN	1.47	1.57 .66	1.50	1.60 .67	1.69	1.70 1.37
SULFUR	5.07	3.19 17.74	5.18	3.25 18.06	5.82	3.45 36.79
OXYGEN	7.88	8.28 --	6.06	6.89 --	6.81	7.32 --
ASH	10.76	5.80 49.98	11.00	5.90 50.90	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.67	2.01 15.40	3.75	2.04 15.68	4.21	2.17 31.94
SULFATIC	.01	.01 .01	.01	.01 .01	.01	.01 .02
ORGANIC	1.39	1.18 2.33	1.42	1.20 2.37	1.60	1.28 4.83
TOTAL	5.07	3.19 17.74	5.18	3.25 18.06	5.82	3.45 36.79

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	32.81	32.11
SiO2 (SILICON OXIDE)	18.10	19.42
Al2O3 (ALUMINUM OXIDE)	43.75	43.32
Fe2O3 (IRON OXIDE)	1.03	.75
TiO2 (TITANIUM OXIDE)	.98	1.40
CaO (CALCIUM OXIDE)	.53	.53
MgO (MAGNESIUM OXIDE)	.22	.35
Na2O (SODIUM OXIDE)	1.11	1.05
K2O (POTASSIUM OXIDE)	.36	.21
SO3 (SULFITES)		

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.90	.91
DOLOMITE	.03	.04
HYDROGEN/CARBON	.81	.81
OXYGEN/CARBON	.06	.07
R250	.53	.53
SILICA	.42	.41
SILICA/ALUMINA	1.81	1.59

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1970	1920	--
SOFTENING TEMPERATURE (ST)	2060	2010	--
FLUID TEMPERATURE (FT)	2150	2100	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.09	--	--
MINERAL MATTER (PARR)	.02	.02	.04
	14.73	8.16	64.91

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6	7	--
HARDGROVE GRINDABILITY (HGI)	53	--	--

STATE: WEST VIRGINIA
COUNTY: GILMER

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 477

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	% PYRITIC	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	46.9	50.7	3.8	.41	1.62	14521	2.2
FLOAT 1.40	87.2	91.9	5.9	1.11	2.04	14154	2.9
FLOAT 1.60	93.4	97.5	6.8	1.38	2.33	14010	3.3
CUM(1-1/2" X 100M)	100.0	100.0	10.2	2.10	3.15	13424	4.7
100M X 0	1.2	1.1	19.4	3.33	4.34	12132	7.2
TOTAL(1-1/2" X 0)	100.0	100.0	10.3	2.11	3.16	13409	4.7

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	% PYRITIC	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	55.4	60.1	3.6	.61	1.45	14577	2.0
FLOAT 1.40	86.7	92.2	5.3	.89	1.75	14291	2.4
FLOAT 1.60	91.7	96.7	6.0	1.11	1.99	14171	2.8
CUM(3/8" X 100M)	100.0	100.0	10.1	2.12	3.12	13442	4.6
100M X 0	5.5	5.3	13.3	2.54	3.54	13058	5.4
TOTAL(3/8" X 0)	100.0	100.0	10.3	2.14	3.14	13421	4.7

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	% PYRITIC	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	61.1	66.1	3.5	.23	1.47	14610	2.0
FLOAT 1.40	87.5	92.9	5.1	.44	1.66	14341	2.3
FLOAT 1.60	93.0	97.8	5.8	.66	1.84	14211	2.6
CUM(14M X 0)	100.0	100.0	10.4	2.01	3.17	13514	4.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.6
3/8" X 14M	17.7
14M X 100M	4.5
100M X 0	1.2

--- MOISTURE, % ---
TOTAL
AS RECEIVED
3.0
2.1

STATE: WEST VIRGINIA
COUNTY: GILMER

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 477

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.10	2.10	--	--	--	--
ASH	9.69	5.68	9.90	5.80	--	--
VOLATILE MATTER	41.31	42.98	42.19	43.91	46.83	46.61
FIXED CARBON	46.90	49.24	47.91	50.29	53.17	53.39
BTU/LB	13304	13913	13589	14211	15083	15086

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	72.66	76.08	74.22	77.71	82.38	82.49
HYDROGEN	5.55	5.77	5.43	5.66	6.02	6.00
NITROGEN	1.37	1.37	1.40	1.40	1.55	1.49
SULFUR	3.16	1.68	3.23	1.72	3.58	1.83
OXYGEN	7.57	9.42	5.82	7.71	6.46	8.19
ASH	9.69	5.68	9.90	5.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.84	.70	1.88	.71	2.09	.75
SULFATIC	.17	.17	.17	.17	.19	.18
ORGANIC	1.15	.82	1.18	.84	1.31	.89
TOTAL	3.16	1.68	3.23	1.72	3.58	1.83

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	33.67	41.34	28.55	--	--	--
SiO2 (SILICON OXIDE)	19.99	28.66	11.31	--	--	--
Al2O3 (ALUMINUM OXIDE)	25.74	15.87	37.46	--	--	--
Fe2O3 (IRON OXIDE)	.80	1.22	.50	--	--	--
TiO2 (TITANIUM OXIDE)	7.84	4.90	9.24	--	--	--
CaO (CALCIUM OXIDE)	1.09	1.28	.93	--	--	--
MgO (MAGNESIUM OXIDE)	.35	.62	.22	--	--	--
Na2O (SODIUM OXIDE)	1.52	1.54	1.69	--	--	--
K2O (POTASSIUM OXIDE)	6.87	2.51	5.61	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.67	.34	--	--	--	--
DOLOMITE	.24	.26	--	--	--	--
HYDROGEN/CARBON	.88	.87	--	--	--	--
OXYGEN/CARBON	.06	.07	--	--	--	--
R250	.62	.77	--	--	--	--
SILICA	.49	.65	--	--	--	--
SILICA/ALUMINA	1.68	1.44	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	1920	2010	--	--	--	--
SOFTENING TEMPERATURE (ST)	2030	2140	--	--	--	--
FLUID TEMPERATURE (FT)	2120	2250	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	.03	.03	--	--	--	--
MINERAL MATTER (PARR)	12.47	7.21	--	--	--	--

STATE: WEST VIRGINIA
COUNTY: HARRISON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 478

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.9	63.8	3.2	.14	1.00	14571	1.4
FLOAT 1.40	96.8	97.4	4.3	.19	1.03	14215	1.4
FLOAT 1.60	99.7	99.8	4.7	.24	1.07	14143	1.5
CUM(1-1/2" X 100M)	100.0	100.0	4.8	.26	1.10	14128	1.6
100M X 0	1.8	1.7	10.8	.59	1.35	13009	2.1
TOTAL(1-1/2" X 0)	100.0	100.0	4.9	.27	1.10	14108	1.6

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	76.5	78.4	3.4	.11	1.00	14481	1.4
FLOAT 1.40	96.4	97.1	4.2	.13	1.01	14235	1.4
FLOAT 1.60	99.4	99.5	4.7	.18	1.04	14156	1.5
CUM(3/8" X 100M)	100.0	100.0	4.8	.22	1.08	14137	1.5
100M X 0	5.3	5.2	6.6	.43	1.28	13802	1.9
TOTAL(3/8" X 0)	100.0	100.0	4.9	.23	1.09	14120	1.5

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.5	49.7	2.7	.09	.95	14710	1.3
FLOAT 1.40	93.1	94.4	3.9	.11	.98	14267	1.4
FLOAT 1.60	99.4	99.7	4.6	.22	1.02	14110	1.4
CUM(14M X 0)	100.0	100.0	4.8	.26	1.11	14072	1.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	59.8
3/8" X 14M	31.2
14M X 100M	7.2
100M X 0	1.8

MOISTURE, %

TOTAL	4.1
AS RECEIVED	2.6

STATE: WEST VIRGINIA
COUNTY: HARRISON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 478

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.60	1.70	--	--	--	--
ASH	4.87	4.52	5.00	4.60	40.41	40.37
VOLATILE MATTER	37.39	37.86	38.39	38.51	59.59	59.63
FIXED CARBON	55.14	55.92	56.61	56.89	40.41	40.37
BTU/LB	13677	13870	14042	14110	14781	14790

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	76.35	77.47	78.39	78.81	82.51	82.61
HYDROGEN	5.49	5.46	5.34	5.37	5.62	5.62
NITROGEN	1.80	1.82	1.85	1.85	1.95	1.94
SULFUR	1.07	.96	1.10	.98	1.16	1.03
OXYGEN	10.42	9.76	8.32	8.39	8.76	8.80
ASH	4.87	4.52	5.00	4.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.26	.19	.26	.20	.28	.21
SULFATIC	.02	.02	.03	.02	.03	.02
ORGANIC	.79	.75	.81	.83	.85	.80
TOTAL	1.07	.96	1.10	.98	1.16	1.03

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	44.78	46.97
Al2O3 (ALUMINUM OXIDE)	27.93	29.18
Fe2O3 (IRON OXIDE)	12.63	8.09
TiO2 (TITANIUM OXIDE)	1.51	1.36
CaO (CALCIUM OXIDE)	4.90	4.90
MgO (MAGNESIUM OXIDE)	.91	1.11
Na2O (SODIUM OXIDE)	1.25	--
K2O (POTASSIUM OXIDE)	1.37	1.49
SO3 (SULFITES)	3.50	3.87

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.28	--
DOLOMITE	.28	--
HYDROGEN/CARBON	.82	.82
OXYGEN/CARBON	.08	.08
R250	.81	.85
SILICA	.71	.77
SILICA/ALUMINA	1.60	1.61

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2470	2490
SOFTENING TEMPERATURE (ST)	2550	2640
FLUID TEMPERATURE (FT)	2660	2760

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.08	--
NA (SODIUM) (CALCULATED)	.05	--
MINERAL MATTER (BARR)	6.00	5.51

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSL)	6	6 1/2
HARDGROVE GRINDABILITY (HGI)	54	--

STATE: WEST VIRGINIA
COUNTY: HARRISON

BED: PITTSBURGH
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BED CODE: 36
SAMPLE NO. 479

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.1	66.9	4.1	.23	1.10	14511	1.5
FLOAT 1.40	92.0	94.3	5.6	.56	1.40	14261	2.0
FLOAT 1.60	97.4	98.8	6.4	.72	1.53	14115	2.2
CUM(1-1/2" X 100M)	100.0	100.0	7.5	1.01	1.89	13911	2.7
100M X 0	1.1	1.0	15.4	1.86	3.02	12495	4.8
TOTAL(1-1/2" X 0)	100.0	100.0	7.6	1.02	1.90	13895	2.7

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.3	68.6	3.6	.15	.96	14610	1.3
FLOAT 1.40	90.3	93.4	5.0	.32	1.12	14377	1.6
FLOAT 1.60	96.0	98.2	5.9	.46	1.26	14220	1.8
CUM(3/8" X 100M)	100.0	100.0	7.5	1.09	1.92	13902	2.8
100M X 0	4.1	4.1	8.3	1.43	2.49	13782	3.6
TOTAL(3/8" X 0)	100.0	100.0	7.5	1.10	1.94	13897	2.8

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	73.4	77.4	3.7	.11	.94	14623	1.3
FLOAT 1.40	90.0	93.6	4.8	.19	1.01	14426	1.4
FLOAT 1.60	95.7	98.3	5.8	.26	1.09	14260	1.5
CUM(14M X 0)	100.0	100.0	7.9	1.20	2.15	13876	3.1

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	72.4
3/8" X 14M	20.6
14M X 100M	5.9
100M X 0	1.1

--- MOISTURE, % ---

TOTAL	2.7
AS RECEIVED	1.6

STATE: WEST VIRGINIA
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ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	1.60	1.70	1.65	--	--	--	--
ASH	8.08	5.50	54.58	8.22	5.60	41.97	41.75
VOLATILE MATTER	37.91	38.74	21.74	38.53	39.41	58.03	58.25
FIXED CARBON	52.41	54.06	22.03	53.26	54.99	50.34	50.34
BTU/LB	13607	14048	5138	13829	14291	15066	15138

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	75.58	77.85	21.74	76.81	79.20	83.69	83.89
HYDROGEN	5.49	5.70	1.76	5.40	5.61	5.88	5.94
NITROGEN	1.54	1.60	.39	1.57	1.63	1.71	1.73
SULFUR	1.83	1.08	22.78	1.86	1.10	2.03	1.17
OXYGEN	7.47	8.26	--	6.14	6.86	6.69	7.27
ASH	8.08	5.50	54.58	8.22	5.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	1.08	.28	19.58	1.10	.28	1.20	.30
SULFATIC	.03	.03	.03	.03	.03	.03	.03
ORGANIC	.72	.78	3.18	.73	.79	.80	.84
TOTAL	1.83	1.08	22.78	1.86	1.10	2.03	1.17

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	47.30	49.92	26.58	INITIAL DEFORMATION (ID)	2070	2540
SiO2 (SILICON OXIDE)	23.93	29.89	10.27	SOFTENING TEMPERATURE (ST)	2200	2650
Al2O3 (ALUMINUM OXIDE)	19.49	9.83	56.92	FLUID TEMPERATURE (FT)	2320	2730
Fe2O3 (IRON OXIDE)	1.44	1.39	1.76	----- MISCELLANEOUS DATA, %		
TiO2 (TITANIUM OXIDE)	1.68	2.52	1.90	CL (CHLORINE) (ANALYZED)	RAW	FL 1.60
CaO (CALCIUM OXIDE)	.81	1.01	.20	NA (SODIUM) (CALCULATED)	.06	--
MgO (MAGNESIUM OXIDE)	1.36	1.45	.75	MINERAL MATTER (PARR)	.08	--
Na2O (SODIUM OXIDE)	1.39	.83	.11	9.90	6.65	68.39
K2O (POTASSIUM OXIDE)	.44	--	--	----- PHYSICAL PARAMETERS, INDEX		
SO3 (SULFITES)	--	--	--	FREE SWELLING (FSI)	RAW	FL 1.60

COAL UTILIZATION RATIOS

	RAW		SK 1.60
	RAW	FL 1.60	
BASE/ACID	.34	--	--
DOLOMITE	.10	--	--
HYDROGEN/CARBON	.85	--	--
OXYGEN/CARBON	.06	--	--
R250	.77	--	--
SILICA	.68	--	--
SILICA/ALUMINA	1.98	--	--

STATE: WEST VIRGINIA
 COUNTY: HARRISON
 BED: PITTSBURGH
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 36
 SAMPLE NO. 480

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.3	4.2	.98	14476	2.8
FLOAT 1.40	87.6	5.3	1.36	14275	3.4
FLOAT 1.60	93.4	6.2	1.59	14118	3.8
CUM(1-1/2" X 100M)	100.0	8.6	2.71	13497	6.3
100M X 0	1.6	15.8	4.61	11764	8.9
TOTAL(1-1/2" X 0)	100.0	8.7	2.74	13469	6.3

SAMPLE CRUSHED TO PASS 3/8"
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.1	3.8	.75	14533	2.6
FLOAT 1.40	86.8	4.9	.98	14330	2.9
FLOAT 1.60	92.6	5.8	1.23	14181	3.2
CUM(3/8" X 100M)	100.0	8.6	2.97	13467	6.1
100M X 0	5.5	11.6	3.58	12760	8.1
TOTAL(3/8" X 0)	100.0	8.8	3.00	13428	6.2

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.6	3.7	.39	14541	2.7
FLOAT 1.40	87.5	4.8	.57	14362	2.9
FLOAT 1.60	92.5	5.5	.75	14236	3.1
CUM(14M X 0)	100.0	8.6	2.67	13479	6.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	67.5
3/8" X 14M	24.2
14M X 100M	6.7
100M X 0	1.6

MOISTURE, %

TOTAL	2.2
AS RECEIVED	1.5

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ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.50	1.50 .80	--	--	--	--
ASH	8.81	5.42 48.01	8.94	5.50 48.40	--	--
VOLATILE MATTER	40.97	41.59 34.72	41.59	42.22 35.00	45.68	44.68 67.83
FIXED CARBON	48.72	51.50 16.47	49.46	52.28 16.60	54.32	55.33 32.17
BTU/LB	13226	14023 3981	13428	14236 4013	14747	15065 7777

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	73.74	78.30 20.73	74.86	79.49 20.90	82.21	84.11 40.50
HYDROGEN	5.49	5.82 1.48	5.40	5.74 1.40	5.93	6.07 2.71
NITROGEN	1.42	1.50 .40	1.44	1.53 .40	1.58	1.61 .78
SULFUR	3.71	1.98 24.94	3.77	2.01 25.14	4.14	2.13 48.72
OXYGEN	6.84	6.98 4.44	5.59	5.74 3.76	6.14	6.07 7.29
ASH	8.81	5.42 48.01	8.94	5.50 48.40	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.49	.75 23.53	2.52	.76 23.72	2.77	.80 45.96
SULFATIC	.09	.02 .53	.10	.02 .53	.10	.02 1.03
ORGANIC	1.13	1.21 .89	1.15	1.23 .89	1.26	1.30 1.73
TOTAL	3.71	1.98 24.94	3.77	2.01 25.14	4.14	2.13 48.72

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	31.73	44.39 12.48	--	--	--	--
SiO2 (SILICON OXIDE)	16.25	25.87 4.07	18.90	2090	--	--
Al2O3 (ALUMINUM OXIDE)	45.13	18.43 78.57	1970	2170	--	--
Fe2O3 (IRON OXIDE)	1.75	1.28 1.72	2070	2260	--	--
TiO2 (TITANIUM OXIDE)	1.69	3.14 .84	--	--	--	--
CaO (CALCIUM OXIDE)	1.55	1.37 .10	--	--	--	--
MgO (MAGNESIUM OXIDE)	1.36	--	--	--	--	--
Na2O (SODIUM OXIDE)	.72	1.31 .30	CL (CHLORINE) (ANALYZED)	--	--	--
K2O (POTASSIUM OXIDE)	.59	1.46 .37	NA (SODIUM) (CALCULATED)	--	--	--
SO3 (SULFITES)	--	--	MINERAL MATTER (FARR)	10.96	7.05	55.85

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (FARR)	10.96	7.05	55.85	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	5	5	5	5	5	5
HARDGROVE GRINDABILITY (HGI)	55	55	55	55	55	55

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.99	--	--	--	--	--
DOLomite	.05	--	--	--	--	--
HYDROGEN/CARBON	.87	--	--	--	--	--
OXYGEN/CARBON	.07	.05	--	--	--	--
R250	.51	.77	--	--	--	--
SILICA	.43	.67	--	--	--	--
SILICA/ALUMINA	1.95	1.72	--	--	--	--

BED CODE: 36
SAMPLE NO. 481

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

STATE: WEST VIRGINIA
COUNTY: HARRISON

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.3	3.8	.88	14642	3.0
FLOAT 1.40	87.8	5.3	1.84	14315	4.4
FLOAT 1.60	95.4	6.6	2.17	14179	4.9
CUM(1-1/2" X 100M)	100.0	8.4	3.23	13842	6.8
100M X 0	1.5	16.0	7.21	12390	14.3
TOTAL(1-1/2" X 0)	100.0	8.5	3.29	13820	6.9

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.6	3.6	.50	14723	2.5
FLOAT 1.40	85.9	5.0	1.01	14495	3.3
FLOAT 1.60	93.9	6.0	1.48	14309	4.0
CUM(3/8" X 100M)	100.0	8.4	2.96	13789	6.6
100M X 0	5.1	11.9	5.74	13168	11.5
TOTAL(3/8" X 0)	100.0	8.6	3.10	13757	6.9

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.7	3.3	.45	14786	2.5
FLOAT 1.40	87.3	4.4	.71	14592	2.8
FLOAT 1.60	92.8	5.2	.95	14460	3.3
CUM(14M X 0)	100.0	8.5	2.72	13830	6.9

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	65.1
3/8" X 14M	26.7
14M X 100M	6.7
100M X 0	1.5

--- MOISTURE, % ---

TOTAL AS RECEIVED	2.0
	1.3

STATE: WEST VIRGINIA
COUNTY: HARRISON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 481

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.30	1.30 1.30	--	--	--	--
ASH	8.59	5.03 50.83	8.70	5.10 51.50	--	--
VOLATILE MATTER	41.97	43.41 25.27	42.52	43.98 25.60	46.57	46.34 52.78
FIXED CARBON	48.15	50.26 22.60	48.78	50.92 22.90	53.43	53.66 47.22
BTU/LB	13620	14287 5582	13800	14475 5656	15115	15253 11661

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	74.90	79.44 19.64	75.88	80.49 19.90	83.12	84.81 41.03
HYDROGEN	5.44	5.76 1.53	5.37	5.69 1.40	5.88	6.00 2.89
NITROGEN	1.41	1.49 .39	1.43	1.51 .40	1.56	1.59 .82
SULFUR	4.24	2.30 32.19	4.29	2.33 32.62	4.70	2.45 67.25
OXYGEN	5.43	5.97 --	4.33	4.88 --	4.74	5.14 --
ASH	8.59	5.03 50.83	8.70	5.10 51.50	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.70	.84 22.68	2.73	.86 22.98	2.99	.90 47.38
SULFATIC	.01	.01 .01	.01	.01 .01	.01	.01 .02
ORGANIC	1.53	1.44 9.50	1.55	1.46 9.63	1.70	1.54 19.85
TOTAL	4.24	2.30 32.19	4.29	2.33 32.62	4.70	2.45 67.25

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	26.23	42.44 7.18	2.73	.86 22.98	2.99	.90 47.38
SiO2 (SILICON OXIDE)	13.13	22.86 2.04	2.73	.86 22.98	2.99	.90 47.38
Al2O3 (ALUMINUM OXIDE)	53.45	20.06 88.08	2.73	.86 22.98	2.99	.90 47.38
Fe2O3 (IRON OXIDE)	1.55	1.37 1.83	2.73	.86 22.98	2.99	.90 47.38
TiO2 (TITANIUM OXIDE)	2.24	3.92 .56	2.73	.86 22.98	2.99	.90 47.38
CaO (CALCIUM OXIDE)	.81	1.41 .10	2.73	.86 22.98	2.99	.90 47.38
MgO (MAGNESIUM OXIDE)	.93	1.40 .69	2.73	.86 22.98	2.99	.90 47.38
Na2O (SODIUM OXIDE)	.92	1.30 .26	2.73	.86 22.98	2.99	.90 47.38
K2O (POTASSIUM OXIDE)	2.06	3.55 .74	2.73	.86 22.98	2.99	.90 47.38
SO3 (SULFITES)			2.73	.86 22.98	2.99	.90 47.38

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	1.43	.42	2.73	.86 22.98	2.99	.90 47.38
DOLOMITE	.05	.19	2.73	.86 22.98	2.99	.90 47.38
HYDROGEN/CARBON	.85	.85	2.73	.86 22.98	2.99	.90 47.38
OXYGEN/CARBON	.06	.05	2.73	.86 22.98	2.99	.90 47.38
R250	.41	.73	2.73	.86 22.98	2.99	.90 47.38
SILICA	.32	.63	2.73	.86 22.98	2.99	.90 47.38
SILICA/ALUMINA	2.00	1.86	2.73	.86 22.98	2.99	.90 47.38

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING	8	1/2 8	2.73	.86 22.98	2.99	.90 47.38
HARDGROVE GRINDABILITY (HGI)	58	--	2.73	.86 22.98	2.99	.90 47.38

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	1900	1890	2.73	.86 22.98	2.99	.90 47.38
SOFTENING TEMPERATURE (ST)	1990	2010	2.73	.86 22.98	2.99	.90 47.38
FLUID TEMPERATURE (FT)	2070	2120	2.73	.86 22.98	2.99	.90 47.38

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	.05	--	2.73	.86 22.98	2.99	.90 47.38
NA (SODIUM) (CALCULATED)	.06	.05	2.73	.86 22.98	2.99	.90 47.38
MINERAL MATTER (FARR)	10.75	6.79	2.73	.86 22.98	2.99	.90 47.38

STATE: WEST VIRGINIA
COUNTY: HARRISON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 482

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.4	4.0	.39	14066	4.9
FLOAT 1.40	87.5	5.3	.79	13804	4.4
FLOAT 1.60	93.6	6.2	1.11	13616	4.7
CUM(1-1/2" X 100M)	100.0	9.1	2.37	12944	6.8
100M X 0	1.6	14.0	2.57	12471	6.9
TOTAL(1-1/2" X 0)	100.0	9.2	2.37	12937	6.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	67.2	3.7	.23	14122	3.0
FLOAT 1.40	87.8	4.9	.47	13907	3.3
FLOAT 1.60	92.8	5.6	.75	13754	3.8
CUM(3/8" X 100M)	100.0	8.9	2.23	13174	6.1
100M X 0	6.2	9.9	2.23	13184	6.3
TOTAL(3/8" X 0)	100.0	9.0	2.23	13174	6.1

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.4	3.5	.20	14668	2.9
FLOAT 1.40	88.3	4.6	.34	14493	3.0
FLOAT 1.60	92.6	5.3	.56	14378	3.4
CUM(14M X 0)	100.0	9.1	2.18	13683	6.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	68.2
3/8" X 14M	23.2
14M X 100M	7.0
100M X 0	1.6

MOISTURE, %

TOTAL	1.5
AS RECEIVED	.9

STATE: WEST VIRGINIA
COUNTY: HARRISON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE:
SAMPLE NO. 482

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.90					
ASH	9.41	5.05 58.37	9.50	5.10 58.90		
VOLATILE MATTER	40.70	41.63 29.73	41.07	42.05 30.00	45.38	44.31 72.99
FIXED CARBON	48.98	52.33 11.00	49.43	52.85 11.10	54.62	55.69 27.01
BTU/LB	12742	14265 4679	12858	14409 4722	14208	15183 11488

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	76.28	78.42	76.97	79.21	85.05	83.47
HYDROGEN	5.34	5.26	5.29	5.20	5.84	5.48
NITROGEN	1.32	1.40	1.33	1.42	1.47	1.49
SULFUR	3.76	2.20 24.21	3.79	2.22 24.43	4.19	2.34 59.43
OXYGEN	3.89	7.67	3.12	6.85	3.45	7.22
ASH	9.41	5.05 58.37	9.50	5.10 58.90		

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.02	.53 20.02	2.03	.53 20.21	2.25	.56 49.16
SULFATIC	.00	.00	.00	.00	.00	.00
ORGANIC	1.74	1.67 4.18	1.76	1.69 4.22	1.94	1.78 10.27
TOTAL	3.76	2.20 24.21	3.79	2.22 24.43	4.19	2.34 59.43

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	27.27	41.34 17.90				
SiO2 (SILICON OXIDE)	17.72	27.15 6.03				
Al2O3 (ALUMINUM OXIDE)	38.03	17.73 56.33				
Fe2O3 (IRON OXIDE)	.33	.10 .53				
TiO2 (TITANIUM OXIDE)	3.81	5.04 12.87				
CaO (CALCIUM OXIDE)	.50	.83				
MgO (MAGNESIUM OXIDE)	.67	--				
Na2O (SODIUM OXIDE)	.77	1.20 .19				
K2O (POTASSIUM OXIDE)	6.65	5.55				
SO3 (SULFITES)						

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)						
SOFTENING TEMPERATURE (ST)						
FLUID TEMPERATURE (FT)						

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)						
NA (SODIUM) (CALCULATED)						
MINERAL MATTER (PARR)						

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)						
HARDGROVE GRINDABILITY (HGI)						

STATE: WEST VIRGINIA
COUNTY: HARRISON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 483

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.0	4.0	.48	14418	2.6
FLOAT 1.40	85.4	6.3	1.54	13961	4.1
FLOAT 1.60	97.1	7.6	1.98	13703	4.8
CUM(1-1/2" X 100M)	100.0	8.8	2.48	13464	5.6
100M X 0	.4	14.6	3.71	12312	8.4
TOTAL(1-1/2" X 0)	100.0	8.8	2.48	13460	5.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.0	3.8	.31	14458	2.3
FLOAT 1.40	84.9	6.3	1.31	13961	3.6
FLOAT 1.60	94.3	7.5	1.67	13723	4.4
CUM(3/8" X 100M)	100.0	9.4	2.70	13345	5.8
100M X 0	1.2	12.8	3.57	12670	7.8
TOTAL(3/8" X 0)	100.0	9.4	2.71	13337	5.8

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.5	3.8	.31	14458	2.2
FLOAT 1.40	82.8	4.7	.41	14279	2.3
FLOAT 1.60	91.7	5.8	.90	14060	2.9
CUM(14M X 0)	100.0	9.3	2.89	13365	5.9

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
3/8" X 14M ---
14M X 100M ---
100M X 0 ---

--- MOISTURE, % ---
TOTAL 2.6
AS RECEIVED 1.2

STATE: WEST VIRGINIA
COUNTY: HARRISON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 483

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.20	1.30	--	--	--	--
ASH	8.82	5.53	8.93	5.60	45.83	45.76
VOLATILE MATTER	41.24	42.64	41.74	43.20	54.17	54.24
FIXED CARBON	48.74	50.53	49.33	51.20	14756	14936
BTU/LB	13278	13917	13439	14100	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.91	2.00	3.96	2.03	4.34	2.15
OXYGEN	--	--	--	--	--	--
ASH	8.82	5.53	8.93	5.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.64	.80	2.67	.81	2.93	.86
SULFATIC	.05	.03	.06	.03	.06	.03
ORGANIC	1.22	1.17	1.23	1.19	1.35	1.26
TOTAL	3.91	2.00	3.96	2.03	4.34	2.15

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES (SILICON OXIDE)	--	--	--	--
AL2O3 (ALUMINUM OXIDE)	--	--	1940	2130
FE2O3 (IRON OXIDE)	--	--	1980	2180
TiO2 (TITANIUM OXIDE)	--	--	2020	2250
CaO (CALCIUM OXIDE)	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--
SO3 (SULFITES)	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--
MINERAL MATTER (PARR)	11.82	7.16	66.39	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	8 1/2	8 1/2	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED	
	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

BED CODE: 36
SAMPLE NO. 484

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

STATE: WEST VIRGINIA
COUNTY: HARRISON

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.8	3.6	.46	14635	3.1
FLOAT 1.40	92.0	4.7	1.29	14424	4.0
FLOAT 1.60	95.1	5.0	1.48	14372	4.3
CUM(1-1/2" X 100M)	100.0	7.1	2.53	13931	6.1
100M X 0	1.9	14.0	2.98	12716	6.6
TOTAL(1-1/2" X 0)	100.0	7.2	2.54	13908	6.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.0	3.5	.67	14698	3.0
FLOAT 1.40	90.7	4.4	1.28	14510	3.8
FLOAT 1.60	94.6	4.8	1.55	14437	4.2
CUM(3/8" X 100M)	100.0	7.3	2.80	13933	6.3
100M X 0	5.3	10.0	2.93	13461	6.9
TOTAL(3/8" X 0)	100.0	7.4	2.81	13908	6.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.6	3.4	.62	14711	2.9
FLOAT 1.40	88.7	4.2	.97	14566	3.4
FLOAT 1.60	94.5	4.7	1.30	14461	3.9
CUM(14M X 0)	100.0	7.4	2.60	13966	6.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	67.8
3/8" X 14M	23.8
14M X 100M	6.5
100M X 0	1.9

MOISTURE, %
TOTAL AS RECEIVED
3.0
1.8

STATE: WEST VIRGINIA
COUNTY: HARRISON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 484

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	1.80	1.80	--	--	--	--
ASH	7.17	4.62	7.30	4.70	45.34	45.30
VOLATILE MATTER	41.27	42.39	42.03	43.17	54.66	54.70
FIXED CARBON	49.76	51.19	50.67	52.13	46.65	53.35
BTU/LB	13729	14201	13981	14461	15082	15174

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	75.04	78.00	76.42	79.43	82.44	83.35
HYDROGEN	5.55	5.75	5.44	5.66	5.87	5.93
NITROGEN	1.20	1.25	1.23	1.27	1.32	1.34
SULFUR	4.23	2.66	4.31	2.71	4.64	2.84
OXYGEN	6.81	7.72	5.31	6.23	5.72	6.54
ASH	7.17	4.62	7.30	4.70	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	2.69	1.69	2.74	1.28	2.96	1.34
SULFATIC	.02	.02	.03	.02	.03	.02
ORGANIC	1.51	1.38	1.54	1.41	1.66	1.48
TOTAL	4.23	2.66	4.31	2.71	4.64	2.84

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
OXIDES	26.97	32.12	26.97	32.12	26.97	32.12
SiO2 (SILICON OXIDE)	17.28	21.72	17.28	21.72	17.28	21.72
Al2O3 (ALUMINUM OXIDE)	46.97	35.30	46.97	35.30	46.97	35.30
Fe2O3 (IRON OXIDE)	1.67	1.49	1.67	1.49	1.67	1.49
TiO2 (TITANIUM OXIDE)	2.98	4.11	2.98	4.11	2.98	4.11
CaO (CALCIUM OXIDE)	1.02	1.49	1.02	1.49	1.02	1.49
MgO (MAGNESIUM OXIDE)	1.25	.71	1.25	.71	1.25	.71
Na2O (SODIUM OXIDE)	1.15	1.41	1.15	1.41	1.15	1.41
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	1.15	--	1.15	--	1.15	--
DOLOMITE	.08	--	.08	--	.08	--
HYDROGEN/CARBON	.85	--	.85	--	.85	--
OXYGEN/CARBON	.05	--	.05	--	.05	--
R250	.47	--	.47	--	.47	--
SILICA	.35	--	.35	--	.35	--
SILICA/ALUMINA	1.56	--	1.56	--	1.56	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
INITIAL DEFORMATION (ID)	2000	2030	2000	2030	2000	2030
SOFTENING TEMPERATURE (ST)	2090	2120	2090	2120	2090	2120
FLUID TEMPERATURE (FT)	2180	2240	2180	2240	2180	2240

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	.02	--	.02	--	.02	--
NA (SODIUM) (CALCULATED)	.07	--	.07	--	.07	--
MINERAL MATTER (FARR)	10.25	6.57	10.25	6.57	10.25	6.57

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	8	1/2	8	1/2	8	1/2
HARDGROVE GRINDABILITY (HGI)	57	53	57	53	57	53

STATE: WEST VIRGINIA
 COUNTY: HARRISON
 BED: PITTSBURGH
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 36
 SAMPLE NO. 485

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.6	4.0	.70	14446	3.2
FLOAT 1.40	87.1	5.6	1.33	14194	4.0
FLOAT 1.60	93.2	6.3	1.58	14063	4.5
CUM(1-1/2" X 100M)	100.0	9.2	2.29	13412	6.2
100M X 0	1.9	34.1	3.92	7790	15.2
TOTAL(1-1/2" X 0)	100.0	9.7	2.32	13305	6.3

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.6	3.9	.49	14511	2.8
FLOAT 1.40	86.0	5.3	1.01	14243	3.7
FLOAT 1.60	92.6	6.1	1.34	14090	4.3
CUM(3/8" X 100M)	100.0	9.3	2.12	13371	6.5
100M X 0	5.7	17.1	3.68	11607	9.5
TOTAL(3/8" X 0)	100.0	9.7	2.21	13270	6.7

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.4	3.8	.38	14536	2.6
FLOAT 1.40	82.9	4.9	.72	14339	3.0
FLOAT 1.60	90.7	5.9	1.04	14169	3.6
CUM(14M X 0)	100.0	10.0	2.35	13229	6.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	65.6
3/8" X 14M	25.1
14M X 100M	7.4
100M X 0	1.9

--- MOISTURE, % ---

TOTAL	2.2
AS RECEIVED	1.4

STATE: WEST VIRGINIA		BED: PITTSBURGH		BED CODE: 36	
COUNTY: HARRISON		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 485	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
MOISTURE ASH VOLATILE MATTER FIXED CARBON	RAW	AS RECEIVED FL 1.60 SK 1.60	RAW	MOISTURE FREE FL 1.60 SK 1.60	MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	1.40	1.20 .70	--	--	--
	10.16	5.60 50.64	10.30	5.66 51.00	--
	39.37	40.95 26.22	39.93	41.45 26.40	44.51 43.93 53.88
	49.08	52.25 22.44	49.77	52.89 22.60	55.49 56.07 46.12
BTU/LB	13000	14034 3948	13185	14205 3976	14699 15058 8114
----- ULTIMATE ANALYSIS, % -----					
CARBON HYDROGEN NITROGEN SULFUR OXYGEN ASH	RAW	AS RECEIVED FL 1.60 SK 1.60	RAW	MOISTURE FREE FL 1.60 SK 1.60	MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	71.24	76.84 22.03	72.25	77.78 22.19	80.55 82.45 45.29
	5.08	5.41 1.96	4.99	5.34 1.90	5.57 5.66 3.88
	1.29	1.38 .50	1.31	1.40 .50	1.46 1.48 1.02
	4.59	2.53 23.47	4.66	2.56 23.64	5.19 2.71 48.24
7.64	8.24 1.39	6.49	7.26 .77	7.23 7.70 1.58	
10.16	5.60 50.64	10.30	5.66 51.00	--	
----- SULFUR FORMS ANALYSIS, % -----					
PYRITIC SULFATIC ORGANIC TOTAL	RAW	AS RECEIVED FL 1.60 SK 1.60	RAW	MOISTURE FREE FL 1.60 SK 1.60	MOISTURE AND ASH FREE RAW FL 1.60 SK 1.60
	2.37	1.13 15.02	2.41	1.14 15.13	2.68 1.21 30.87
	.13	.02 .24	.13	.02 .24	.14 .02 .49
	2.09	1.38 8.21	2.12	1.40 8.27	2.36 1.48 16.88
	4.59	2.53 23.47	4.66	2.56 23.64	5.19 2.71 48.24
----- MINERAL ANALYSIS OF ASH, % -----					
OXIDES SiO2 (SILICON OXIDE) AL2O3 (ALUMINUM OXIDE) Fe2O3 (IRON OXIDE) TiO2 (TITANIUM OXIDE) CaO (CALCIUM OXIDE) MgO (MAGNESIUM OXIDE) Na2O (SODIUM OXIDE) K2O (POTASSIUM OXIDE) SO3 (SULFITES)	RAW	FL 1.60 SK 1.60	FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)		
	26.26	38.07 23.78	---		
	12.29	21.26 8.82	---		
	53.44	30.39 59.91	---		
	1.55	1.40 1.50	---		
	1.68	2.24 1.68	---		
	.71	1.11 .30	---		
	1.01	-- --	---		
	.63	1.11 .69	---		
	.94	.96 1.17	---		
----- COAL UTILIZATION RATIOS -----					
BASE/ACID DOLOMITE HYDROGEN/CARBON OXYGEN/CARBON R250 SILICA SILICA/ALUMINA	RAW	FL 1.60	PHYSICAL PARAMETERS, INDEX		
	1.43	--	---		
	.04	--	---		
	.83	.82	---		
	.07	.07	---		
----- FUSIBILITY OF ASH, DEGREES F -----					
PYRITIC SULFATIC ORGANIC TOTAL	RAW	FL 1.60 SK 1.60	FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)		
	2.37	1.13 15.02	---		
	.13	.02 .24	---		
	2.09	1.38 8.21	---		
	4.59	2.53 23.47	---		
----- MISCELLANEOUS DATA, % -----					
CL (CHLORINE) (ANALYZED) NA (SODIUM) (CALCULATED) MINERAL MATTER (PARR)	RAW	FL 1.60 SK 1.60	---		
	.04	--	---		
	.08	--	---		
	13.69	7.52	---		
	---	---	---		
----- PHYSICAL PARAMETERS, INDEX -----					
FREE SWELLING (FSI) HARDGROVE GRINDABILITY (HGI)	RAW	FL 1.60 SK 1.60	---		
	8	8	---		
	60	55	---		
	---	---	---		
	---	---	---		

STATE: WEST VIRGINIA
 COUNTY: HARRISON
 BED: PITTSBURGH
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 36
 SAMPLE NO. 486

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC, %	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.0	4.2	.42	2.93	14821	4.0
FLOAT 1.40	83.2	5.9	1.00	3.44	14504	4.7
FLOAT 1.60	92.3	6.9	1.43	3.87	14317	5.4
CUM(1-1/2" X 100M)	100.0	9.8	2.76	5.13	13777	7.4
100M X 0	.5	13.1	2.52	5.37	13162	8.2
TOTAL(1-1/2" X 0)	100.0	9.8	2.76	5.13	13774	7.5

SAMPLE CRUSHED TO PASS 3/8"
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC, %	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.2	4.0	.41	2.99	14858	4.0
FLOAT 1.40	86.1	5.8	.88	3.41	14523	4.7
FLOAT 1.60	93.3	6.6	1.32	3.81	14373	5.3
CUM(3/8" X 100M)	100.0	9.1	2.64	5.04	13907	7.2
100M X 0	1.2	12.5	3.27	6.07	13273	9.1
TOTAL(3/8" X 0)	100.0	9.1	2.65	5.05	13900	7.3

SAMPLE CRUSHED TO PASS 14M
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	ASH, %	PYRITIC, %	SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.4	3.7	.35	2.79	14914	3.7
FLOAT 1.40	85.3	6.5	.91	3.33	14392	4.6
FLOAT 1.60	94.1	6.9	1.24	3.57	14317	5.0
CUM(14M X 0)	100.0	9.2	2.53	4.78	13889	6.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
 3/8" X 14M
 14M X 100M
 100M X 0

MOISTURE, %

TOTAL
 AS RECEIVED
 2.4
 1.0

STATE: WEST VIRGINIA		BED: PITTSBURGH		BED CODE: 36	
COUNTY: HARRISON		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 486	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	1.00	1.10 .80	--	--	--
ASH	9.01	6.55 46.03	9.10	6.62 46.40	--
VOLATILE MATTER	43.36	44.31 --	43.80	44.80 --	48.18 47.98
FIXED CARBON	46.63	48.04 --	47.10	48.57 --	51.82 52.02
BTU/LB	13315	13882 --	13450	14036 --	14796 15032
----- ULTIMATE ANALYSIS, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	--	-- --	--	--	--
HYDROGEN	--	-- --	--	--	--
NITROGEN	--	-- --	--	--	--
SULFUR	4.73	3.32 23.95	4.78	3.36 24.14	5.25 3.60 45.04
OXYGEN	--	-- --	--	--	--
ASH	9.01	6.55 46.03	9.10	6.62 46.40	--
----- SULFUR FORMS ANALYSIS, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	2.55	1.10 22.92	2.58	1.12 23.10	2.84 1.20 43.11
SULFATIC	.14	.08 .21	.15	.08 .21	.16 .09 .39
ORGANIC	2.03	2.14 .82	2.05	2.16 .83	2.26 2.32 1.55
TOTAL	4.73	3.32 23.95	4.78	3.36 24.14	5.25 3.60 45.04
----- MINERAL ANALYSIS OF ASH, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	--	-- --	--	--	--
SiO2 (SILICON OXIDE)	--	-- --	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	-- --	--	--	--
Fe2O3 (IRON OXIDE)	--	-- --	--	--	--
TiO2 (TITANIUM OXIDE)	--	-- --	--	--	--
CaO (CALCIUM OXIDE)	--	-- --	--	--	--
MgO (MAGNESIUM OXIDE)	--	-- --	--	--	--
Na2O (SODIUM OXIDE)	--	-- --	--	--	--
K2O (POTASSIUM OXIDE)	--	-- --	--	--	--
SO3 (SULFITES)	--	-- --	--	--	--
----- COAL UTILIZATION RATIOS -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
BASE/ACID	--	-- --	--	--	--
DOLomite	--	-- --	--	--	--
HYDROGEN/CARBON	--	-- --	--	--	--
OXYGEN/CARBON	--	-- --	--	--	--
R250	--	-- --	--	--	--
SILICA	--	-- --	--	--	--
SILICA/ALUMINA	--	-- --	--	--	--
----- FUSIBILITY OF ASH, DEGREES F -----					
(IN OXIDIZING ATMOSPHERE)					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	-- --	--	--	--
SOFTENING TEMPERATURE (ST)	--	-- --	--	--	--
FLUID TEMPERATURE (FT)	--	-- --	--	--	--
----- MISCELLANEOUS DATA, % -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	-- --	--	--	--
NA (SODIUM) (CALCULATED)	--	-- --	--	--	--
MINERAL MATTER (PARR)	--	-- --	--	--	--
FREE SWELLING (FSL)	--	-- --	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	-- --	--	--	--
----- PHYSICAL PARAMETERS, INDEX -----					
	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
FREE SWELLING (FSL)	--	-- --	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	-- --	--	--	--

STATE: WEST VIRGINIA
COUNTY: HARRISON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 487

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	57.7	62.8	4.2	.53	14802	2.1
FLOAT 1.40	87.4	93.6	5.4	1.05	14558	2.7
FLOAT 1.60	90.7	96.7	5.8	1.24	14484	3.0
CUM(1-1/2" X 100M)	100.0	100.0	10.4	3.97	13590	7.4
100M X 0	1.3	.9	30.4	5.61	9624	14.1
TOTAL(1-1/2" X 0)	100.0	100.0	10.7	3.99	13538	7.5

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	64.3	70.2	4.0	.30	14674	2.0
FLOAT 1.40	86.2	93.1	5.0	.58	14517	2.3
FLOAT 1.60	89.4	96.0	5.4	.77	14447	2.5
CUM(3/8" X 100M)	100.0	100.0	10.7	4.00	13448	7.7
100M X 0	6.8	6.5	14.0	3.84	12805	8.0
TOTAL(3/8" X 0)	100.0	100.0	10.9	3.99	13404	7.7

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	56.2	62.2	3.4	.26	14802	1.9
FLOAT 1.40	86.5	94.1	4.8	.45	14556	2.1
FLOAT 1.60	89.3	96.7	5.2	.59	14487	2.3
CUM(14M X 0)	100.0	100.0	10.9	4.03	13376	7.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	65.1
3/8" X 14M	27.2
14M X 100M	6.4
100M X 0	1.3

MOISTURE, %

TOTAL AS RECEIVED	2.5
	1.5

STATE: WEST VIRGINIA
COUNTY: HARRISON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 487

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.50	1.40 1.40	--	--	--	--
ASH	10.34	5.13 58.37	10.50	5.20 59.20	--	--
VOLATILE MATTER	39.12	40.80 24.55	39.72	41.38 24.90	44.38	43.65 61.03
FIXED CARBON	49.03	52.67 15.68	49.78	53.42 15.90	55.62	56.35 38.97
BTU/LB	13234	14284 3977	13436	14487 4034	15012	15281 9887

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	72.32	79.11 11.62	73.42	80.23 11.78	82.03	84.63 28.87
HYDROGEN	5.37	5.79 1.12	5.29	5.72 .98	5.91	6.03 2.41
NITROGEN	1.41	1.55 .16	1.43	1.57 .16	1.60	1.66 .40
SULFUR	4.96	1.52 30.23	5.04	1.55 30.66	5.63	1.63 75.15
OXYGEN	5.60	6.90 --	4.33	5.74 --	4.84	6.05 --
ASH	10.34	5.13 58.37	10.50	5.20 59.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	4.03	.64 29.05	4.09	.65 29.47	4.57	.68 72.22
SULFATIC	.02	.02 .03	.03	.02 .03	.03	.02 .07
ORGANIC	.91	.86 1.15	.92	.88 1.17	1.03	.92 2.86
TOTAL	4.96	1.52 30.23	5.04	1.55 30.66	5.63	1.63 75.15

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	27.27	46.88 15.28				
SiO2 (SILICON OXIDE)	16.22	29.79 6.29			1880	2340
Al2O3 (ALUMINUM OXIDE)	47.47	13.58 71.87			1970	2470
Fe2O3 (IRON OXIDE)	.77	1.53 .13			2070	2590
TiO2 (TITANIUM OXIDE)	3.61	3.50 3.86				
CaO (CALCIUM OXIDE)	.60	1.01 .27				
MgO (MAGNESIUM OXIDE)	.22	--				
Na2O (SODIUM OXIDE)	.82	1.29 .48				
K2O (POTASSIUM OXIDE)	2.84	1.81 1.65				
SO3 (SULFITES)						

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	1.19	--				
DOLomite	.08	--				
HYDROGEN/CARBON	.85	.86				
OXYGEN/CARBON	.04	.05				
R250	.46	.82				
SILICA	.35	.73				
SILICA/ALUMINA	1.68	1.57				

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)					9	8 1/2
HARDGROVE GRINDABILITY (HGI)					57	--

STATE: WEST VIRGINIA
COUNTY: HARRISON

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 488

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.1	38.3	4.3	.72	14604	3.2
FLOAT 1.40	83.4	88.4	6.7	1.61	14183	4.4
FLOAT 1.60	91.1	95.5	7.6	2.04	14025	5.0
CUM(1-1/2" X 100M)	100.0	100.0	11.3	4.53	13375	9.2
100M X 0	.7	.6	17.5	7.00	12287	15.0
TOTAL(1-1/2" X 0)	100.0	100.0	11.3	4.55	13368	9.2

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.5	39.0	3.9	.35	14674	2.7
FLOAT 1.40	79.1	84.5	6.2	1.20	14271	3.9
FLOAT 1.60	87.1	92.0	7.1	1.68	14113	4.6
CUM(3/8" X 100M)	100.0	100.0	11.4	4.91	13358	9.8
100M X 0	1.0	.9	17.9	7.65	12217	16.4
TOTAL(3/8" X 0)	100.0	100.0	11.5	4.94	13346	9.9

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.3	58.0	3.5	.30	14745	2.7
FLOAT 1.40	79.3	86.3	5.0	.63	14481	3.0
FLOAT 1.60	87.6	94.4	5.8	.98	14341	3.5
CUM(14M X 0)	100.0	100.0	11.7	4.69	13305	9.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" --
3/8" X 14M --
14M X 100M --
100M X 0 --

MOISTURE, %
TOTAL 2.5
AS RECEIVED 1.1

STATE: WEST VIRGINIA
COUNTY: HARRISON
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 488

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.10	1.20	.70	--	--	--	--	--	--
ASH	11.67	5.73	50.74	11.80	5.80	51.10	--	--	--
VOLATILE MATTER	40.45	42.88	--	40.90	43.40	--	46.37	46.07	--
FIXED CARBON	46.78	50.19	--	47.30	50.80	--	53.63	53.93	--
BTU/LB	12817	14010	--	12960	14180	--	14694	15053	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	6.61	2.46	32.82	6.68	2.49	33.05	7.57	2.64	67.59
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	11.67	5.73	50.74	11.80	5.80	51.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.98	.96	30.68	5.04	.97	30.90	5.71	1.03	63.19
SULFATIC	.06	.03	.09	.06	.03	.09	.07	.03	.18
ORGANIC	1.56	1.47	2.05	1.58	1.49	2.06	1.79	1.58	4.22
TOTAL	6.61	2.46	32.82	6.68	2.49	33.05	7.57	2.64	67.59

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PAR)	--	--	--	--	--	--	16.42	7.63	73.37

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--

STATE: WEST VIRGINIA
COUNTY: LEWIS

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 489

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	52.4	59.3	3.5	.73	14508	2.2
FLOAT 1.40	82.8	92.6	4.5	1.13	14344	2.8
FLOAT 1.60	86.5	96.2	5.0	1.38	14256	3.1
CUM(1-1/2" X 100M)	100.0	100.0	13.8	3.34	12821	7.1
100M X 0	2.7	1.4	49.4	7.57	6866	25.8
TOTAL(1-1/2" X 0)	100.0	100.0	14.8	3.45	12660	7.4

----- SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	62.8	70.6	3.3	.30	14467	2.0
FLOAT 1.40	82.1	91.6	4.1	.64	14357	2.4
FLOAT 1.60	86.1	95.4	4.6	.91	14268	2.7
CUM(3/8" X 100M)	100.0	100.0	12.9	3.58	12875	7.1
100M X 0	8.5	5.1	44.6	7.41	7661	21.8
TOTAL(3/8" X 0)	100.0	100.0	15.6	3.91	12432	7.9

----- SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	58.8	66.9	3.1	.30	14493	1.8
FLOAT 1.40	80.7	91.1	3.9	.44	14385	2.0
FLOAT 1.60	85.4	95.7	4.5	.65	14286	2.3
CUM(14M X 0)	100.0	100.0	13.9	3.43	12743	6.8

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.0
3/8" X 14M	15.8
14M X 100M	5.5
100M X 0	2.7

----- MOISTURE, % -----

TOTAL	3.5
AS RECEIVED	2.4

STATE: WEST VIRGINIA
COUNTY: LEWIS

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 489

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.40	2.30	1.60	--	--	--	--	--	--
ASH	14.11	4.59	66.03	14.46	4.70	67.10	--	--	--
VOLATILE MATTER	39.07	40.87	30.31	40.03	41.83	30.80	46.80	43.90	93.62
FIXED CARBON	44.42	52.24	2.07	45.51	53.47	2.10	53.20	56.10	6.38
BTU/LB	12357	13929	3866	12661	14257	3929	14800	14960	11942

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	69.88	79.15	18.99	71.60	81.02	19.30	83.70	85.01	58.66
HYDROGEN	5.35	6.00	1.65	5.21	5.88	1.50	6.09	6.17	4.56
NITROGEN	1.22	1.39	.30	1.25	1.42	.30	1.46	1.49	.91
SULFUR	4.07	1.64	18.05	4.17	1.68	18.34	4.88	1.76	55.74
OXYGEN	5.37	7.22	--	3.31	5.30	--	3.87	5.56	--
ASH	14.11	4.59	66.03	14.46	4.70	67.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.16	.63	17.44	3.24	.65	17.72	3.78	.68	53.87
SULFATIC	.02	.02	.05	.03	.02	.05	.03	.02	.16
ORGANIC	.89	.99	.56	.91	1.01	.57	1.06	1.06	1.72
TOTAL	4.07	1.64	18.05	4.17	1.68	18.34	4.88	1.76	55.74

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			SK 1.60		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	17.47	34.73	18.09			
SiO2 (SILICON OXIDE)	11.69	26.59	9.63			
AL2O3 (ALUMINUM OXIDE)	30.03	15.87	39.18			
FE2O3 (IRON OXIDE)	.53	1.22	.33			
TiO2 (TITANIUM OXIDE)	19.87	9.24	21.97			
CaO (CALCIUM OXIDE)	.50	.99	.33			
MgO (MAGNESIUM OXIDE)	.19	.58	.08			
Na2O (SODIUM OXIDE)	.67	1.48	.34			
K2O (POTASSIUM OXIDE)	16.39	9.26	6.64			
SO3 (SULFITES)						

COAL UTILIZATION RATIOS

	AS RECEIVED			SK 1.60		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	1.73	.45				
DOLOMITE	.40	.36				
HYDROGEN/CARBON	.87	.87				
OXYGEN/CARBON	.06	.05				
R250	.37	.71				
SILICA	.26	.58				
SILICA/ALUMINA	1.49	1.31				

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW			SK 1.60		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2090	2230	--			
SOFTENING TEMPERATURE (ST)	2220	2310	--			
FLUID TEMPERATURE (FT)	2310	2400	--			
----- MISCELLANEOUS DATA, % -----						
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60			
NA (SODIUM) (CALCULATED)	.01	--	--			
MINERAL MATTER (PARR)	.02	.02	.04			
	16.51	6.00	73.24			

PHYSICAL PARAMETERS, INDEX

	RAW			SK 1.60		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	8	--			
HARDGROVE GRINDABILITY (HGI)	53	--	--			

STATE: WEST VIRGINIA
COUNTY: LEWIS

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 490

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.8	60.9	4.1	.68	1.63	14183	2.3
FLOAT 1.40	92.0	95.0	5.4	.89	1.88	13910	2.7
FLOAT 1.60	96.3	98.7	6.0	1.05	2.03	13806	2.9
CUM(1-1/2" X 100M)	100.0	100.0	8.0	1.45	2.43	13466	3.6
100M X 0	1.7	1.2	29.6	3.07	3.68	9759	7.5
TOTAL(1-1/2" X 0)	100.0	100.0	8.4	1.48	2.45	13403	3.7

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.6	46.4	3.6	.55	1.52	14399	2.1
FLOAT 1.40	91.6	94.6	5.1	.75	1.77	13981	2.5
FLOAT 1.60	96.0	98.4	5.6	.89	1.91	13879	2.8
CUM(3/8" X 100M)	100.0	100.0	7.6	1.31	2.35	13535	3.5
100M X 0	5.1	4.4	18.3	2.73	3.60	11711	6.1
TOTAL(3/8" X 0)	100.0	100.0	8.1	1.38	2.41	13442	3.6

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.1	57.6	3.5	.53	1.39	14383	1.9
FLOAT 1.40	90.0	93.4	4.7	.69	1.59	14028	2.3
FLOAT 1.60	95.7	98.4	5.4	.83	1.72	13898	2.5
CUM(14M X 0)	100.0	100.0	7.6	1.35	2.30	13515	3.4

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	65.9
3/8" X 14M	26.9
14M X 100M	5.5
100M X 0	1.7

----- MOISTURE, % -----

TOTAL	3.7
AS RECEIVED	2.2

STATE: WEST VIRGINIA
COUNTY: LEWIS

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 490

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.20	1.90	1.90	--	--	--	--	--	--
ASH	7.73	5.40	57.71	7.90	5.50	58.83	--	--	--
VOLATILE MATTER	39.61	40.60	21.26	40.50	41.38	21.67	43.98	43.79	52.64
FIXED CARBON	50.46	52.11	19.13	51.59	53.12	19.50	56.02	56.21	47.36
BTU/LB	13174	13620	4636	13470	13883	4725	14626	14691	11476

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	73.53	75.86	21.88	75.18	77.33	22.30	81.64	81.83	54.16
HYDROGEN	5.16	5.29	1.98	5.03	5.18	1.80	5.46	5.48	4.37
NITROGEN	1.45	1.49	.49	1.48	1.52	.50	1.61	1.61	1.21
SULFUR	2.33	1.74	14.92	2.38	1.77	15.21	2.58	1.87	36.94
OXYGEN	9.80	10.22	3.03	8.02	8.70	1.37	8.71	9.20	3.32
ASH	7.73	5.40	57.71	7.90	5.50	58.83	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.29	.77	12.68	1.32	.78	12.92	1.43	.83	31.39
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	1.03	.96	2.23	1.05	.98	2.28	1.14	1.04	5.53
TOTAL	2.33	1.74	14.92	2.38	1.77	15.21	2.58	1.87	36.94

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	31.99	35.63	19.87
Al2O3 (ALUMINUM OXIDE)	18.85	22.90	9.61
Fe2O3 (IRON OXIDE)	34.63	23.57	63.11
TiO2 (TITANIUM OXIDE)	1.27	1.14	1.51
CaO (CALCIUM OXIDE)	4.90	6.44	1.68
MgO (MAGNESIUM OXIDE)	.81	1.21	.30
Na2O (SODIUM OXIDE)	.34	.51	.17
K2O (POTASSIUM OXIDE)	1.43	1.64	.77
SO3 (SULFITES)	4.89	6.64	1.53

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.81	.56
DOLOMITE	.14	.23
HYDROGEN/CARBON	.80	.80
OXYGEN/CARBON	.08	.08
R250	.56	.66
SILICA	.44	.54
SILICA/ALUMINA	1.70	1.56

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1860	1940	--
SOFTENING TEMPERATURE (ST)	1950	2050	--
FLUID TEMPERATURE (FT)	2040	2180	--
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.03	--	--
MINERAL MATTER (PARR)	.02	.02	.07
	9.85	6.91	71.90

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7 1/2	7 1/2	--
HARDGROVE GRINDABILITY (HGI)	53	--	--

STATE: WEST VIRGINIA
COUNTY: MARION

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 491

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.3	3.4	.03	14539	.9
FLOAT 1.40	94.3	4.8	.05	14258	1.0
FLOAT 1.60	98.0	5.4	.05	14151	1.1
CUM(1-1/2" X 100M)	100.0	6.1	.09	13992	1.1
100M X 0	1.4	14.0	.84	12643	3.6
TOTAL(1-1/2" X 0)	100.0	6.2	.10	13973	1.2

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.4	3.1	.03	14518	1.0
FLOAT 1.40	93.4	4.6	.05	14276	1.0
FLOAT 1.60	96.6	5.1	.06	14190	1.0
CUM(3/8" X 100M)	100.0	6.3	.14	13937	1.1
100M X 0	4.7	8.7	.43	13581	1.9
TOTAL(3/8" X 0)	100.0	6.4	.15	13921	1.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.8	2.9	.03	14603	.9
FLOAT 1.40	92.6	4.2	.04	14363	1.0
FLOAT 1.60	96.3	4.9	.05	14260	1.0
CUM(14M X 0)	100.0	6.4	.09	13945	1.1

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	64.3
3/8" X 14M	27.1
14M X 100M	7.2
100M X 0	1.4

----- MOISTURE, % -----

TOTAL
AS RECEIVED
2.3
1.6

STATE: WEST VIRGINIA
COUNTY: MARION

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 491

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.60	1.60	1.60	--	--	--	--	--	--
ASH	6.59	4.72	46.50	6.70	4.80	47.26	--	--	--
VOLATILE MATTER	35.37	35.47	33.20	35.95	36.05	33.74	38.53	37.87	63.98
FIXED CARBON	56.44	58.20	18.70	57.35	59.15	19.00	61.47	62.13	36.02
BTU/LB	13890	14152	6646	14115	14382	6755	15129	15107	12807

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	76.82	78.78	29.12	78.07	80.06	29.59	83.68	84.09	56.11
HYDROGEN	5.04	5.19	1.58	4.94	5.09	1.43	5.30	5.35	2.71
NITROGEN	1.46	1.50	.41	1.48	1.53	.42	1.59	1.61	.80
SULFUR	.86	.64	2.23	.88	.65	2.27	.94	.68	4.30
OXYGEN	9.23	9.17	20.15	7.93	7.88	19.04	8.50	8.27	36.09
ASH	6.59	4.72	46.50	6.70	4.80	47.26	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.12	.04	1.22	.13	.05	1.24	.14	.05	2.36
SULFATIC	.00	.00	.00	.00	.00	.00	.00	.00	.00
ORGANIC	.74	.59	1.01	.75	.60	1.02	.81	.63	1.94
TOTAL	.86	.64	2.23	.88	.65	2.27	.94	.68	4.30

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	50.09	50.14	27.27	50.09	50.14	27.27	50.09	50.14	27.27
SiO2 (SILICON OXIDE)	50.09	50.14	27.27	50.09	50.14	27.27	50.09	50.14	27.27
Al2O3 (ALUMINUM OXIDE)	25.02	25.02	29.59	25.02	25.02	29.59	25.02	25.02	29.59
Fe2O3 (IRON OXIDE)	6.32	6.32	15.16	6.32	6.32	15.16	6.32	6.32	15.16
TiO2 (TITANIUM OXIDE)	1.17	1.17	.43	1.17	1.17	.43	1.17	1.17	.43
CaO (CALCIUM OXIDE)	8.72	8.72	33.30	8.72	8.72	33.30	8.72	8.72	33.30
MgO (MAGNESIUM OXIDE)	1.19	1.19	2.42	1.19	1.19	2.42	1.19	1.19	2.42
Na2O (SODIUM OXIDE)	1.09	1.09	--	1.09	1.09	--	1.09	1.09	--
K2O (POTASSIUM OXIDE)	1.43	1.43	.75	1.43	1.43	.75	1.43	1.43	.75
SO3 (SULFITES)	3.86	3.86	4.58	3.86	3.86	4.58	3.86	3.86	4.58
COAL UTILIZATION RATIOS									
BASE/ACID	.25	.25	--	.25	.25	--	.25	.25	--
DOLomite	.53	.53	--	.53	.53	--	.53	.53	--
HYDROGEN/CARBON	.76	.76	.76	.76	.76	.76	.76	.76	.76
OXYGEN/CARBON	.07	.07	.07	.07	.07	.07	.07	.07	.07
R250	.83	.83	.88	.83	.83	.88	.83	.83	.88
SILICA	.76	.76	.81	.76	.76	.81	.76	.76	.81
SILICA/ALUMINA	2.00	2.00	1.69	2.00	2.00	1.69	2.00	2.00	1.69
PHYSICAL PARAMETERS, INDEX									
FREE SWELLING (FSI)	7	7	1/2	7	7	1/2	7	7	1/2
HARDGROVE GRINDABILITY (HGI)	55	55	--	55	55	--	55	55	--

STATE: WEST VIRGINIA
COUNTY: MARION

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 492

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.7	66.8	4.1	.40	1.93	14592	2.6
FLOAT 1.40	86.2	87.6	5.4	.55	2.10	14363	2.9
FLOAT 1.60	90.2	90.9	6.1	.65	2.19	14239	3.1
CUM(1-1/2" X 100M)	100.0	100.0	6.7	2.44	3.90	14133	5.5
10CM X 0	5.7	5.4	11.6	1.87	3.82	13268	5.8
TOTAL(1-1/2" X 0)	100.0	100.0	7.0	2.41	3.90	14084	5.5

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.4	68.3	4.3	.55	2.04	14557	2.8
FLOAT 1.40	86.7	88.0	5.4	.65	2.10	14363	2.9
FLOAT 1.60	90.6	91.3	6.0	.74	2.17	14257	3.0
CUM(3/8" X 100M)	100.0	100.0	6.6	2.39	3.80	14151	5.4
100M X 0	5.2	4.9	10.6	1.99	3.78	13445	5.6
TOTAL(3/8" X 0)	100.0	100.0	6.8	2.37	3.80	14114	5.4

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.1	67.2	4.0	.39	1.90	14610	2.6
FLOAT 1.40	86.8	88.9	4.7	.47	1.97	14486	2.7
FLOAT 1.60	91.0	91.8	5.9	.55	2.15	14274	3.0
CUM(14M X 0)	100.0	100.0	6.6	1.62	3.46	14151	4.9

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

--- MOISTURE, % ---

TOTAL AS RECEIVED	2.3 .9
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STATE: WEST VIRGINIA
COUNTY: MARION

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 492

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	.90	1.00	--	--	--	--
ASH	6.69	5.76	6.75	5.82	--	--
VOLATILE MATTER	40.19	40.23	40.55	40.64	43.49	43.15
FIXED CARBON	52.22	53.01	52.70	53.54	56.51	56.85
BTU/LB	13428	14089	13550	14231	14531	15111

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.32	2.18	3.35	2.21	3.59	2.34
OXYGEN	--	--	--	--	--	--
ASH	6.69	5.76	6.75	5.82	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.90	.49	1.92	.50	2.06	.53
SULFATIC	.01	.01	.02	.01	.02	.01
ORGANIC	1.40	1.68	1.41	1.70	1.51	1.81
TOTAL	3.32	2.18	3.35	2.21	3.59	2.34

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2130	2350
SOFTENING TEMPERATURE (ST)	2180	2540
FLUID TEMPERATURE (FT)	2250	2660

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	8.53	7.50

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	8 1/2	8 1/2
HARDGROVE GRINDABILITY (HGI)	--	--

STATE: WEST VIRGINIA
COUNTY: MARION

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 493

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.2	4.5	.34	14522	2.1
FLOAT 1.40	87.8	5.7	.54	14310	2.5
FLOAT 1.60	92.7	6.5	.66	14168	2.7
FLOAT 1.90	94.9	7.2	.72	14045	2.8
CUM(1-1/2" X 100M)	100.0	10.6	1.17	13445	3.5
100M X 0	.3	14.4	2.17	12774	5.3
TOTAL(1-1/2" X 0)	100.0	10.6	1.17	13443	3.5

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.2	3.8	.24	14645	2.0
FLOAT 1.40	88.1	5.0	.42	14433	2.3
FLOAT 1.60	92.3	5.7	.53	14310	2.5
FLOAT 1.90	94.9	7.2	.72	14045	2.8
CUM(3/8" X 100M)	100.0	10.3	1.17	13498	3.5
100M X 0	.4	15.1	2.63	12650	6.1
TOTAL(3/8" X 0)	100.0	10.3	1.18	13494	3.5

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.6	3.1	.16	14769	1.9
FLOAT 1.40	87.1	4.2	.26	14575	2.1
FLOAT 1.60	90.8	4.9	.32	14451	2.2
FLOAT 1.90	94.9	7.2	.72	14045	2.8
CUM(14M X 0)	100.0	10.5	1.22	13462	3.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	1.8
3/8" X 14M	1.2
14M X 100M	
100M X 0	
.3	

TOTAL
AS RECEIVED

STATE: WEST VIRGINIA
COUNTY: MARION
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 493

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.20	--	--	--	--	--
ASH	9.96	--	10.08	--	--	--
VOLATILE MATTER	37.50	--	37.96	--	42.21	--
FIXED CARBON	51.34	--	51.96	--	57.79	--
BTU/LB	13589	--	13754	--	15296	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.33	--	2.36	--	2.62	--
OXYGEN	--	--	--	--	--	--
ASH	9.96	--	10.08	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.12	--	1.13	--	1.26	--
SULFATIC	.03	--	.03	--	.03	--
ORGANIC	1.19	--	1.20	--	1.33	--
TOTAL	2.33	--	2.36	--	2.62	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60		RAW	FL 1.60 SK 1.60
OXIDES			INITIAL DEFORMATION (ID)	--	--
SiO2 (SILICON OXIDE)	--	--	SOFTENING TEMPERATURE (ST)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	FLUID TEMPERATURE (FT)	--	--
Fe2O3 (IRON OXIDE)	--	--			
TiO2 (TITANIUM OXIDE)	--	--	MISCELLANEOUS DATA, %		
CaO (CALCIUM OXIDE)	--	--	CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
MgO (MAGNESIUM OXIDE)	--	--	NA (SODIUM) (CALCULATED)	--	--
Na2O (SODIUM OXIDE)	--	--	MINERAL MATTER (PARR)	12.18	--
K2O (POTASSIUM OXIDE)	--	--			
SO3 (SULFITES)	--	--			

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

COAL UTILIZATION RATIOS

	RAW	FL 1.60		RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	PHYSICAL PARAMETERS, INDEX		
DOLOMITE	--	--	FREE SWELLING (FSI)	--	--
HYDROGEN/CARBON	--	--	HARDGROVE GRINDABILITY (HGI)	--	--
OXYGEN/CARBON	--	--			
R250	--	--			
SILICA	--	--			
SILICA/ALUMINA	--	--			

STATE: WEST VIRGINIA
COUNTY: MARION

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 494

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.7	4.2	.36	14575	2.9
FLOAT 1.40	86.2	5.5	.72	14345	3.4
FLOAT 1.60	90.2	6.3	.91	14204	3.6
CUM(1-1/2" X 100M)	100.0	11.0	1.01	13374	4.0
100M X 0	1.2	16.2	4.77	12456	9.8
TOTAL(1-1/2" X 0)	100.0	11.1	1.06	13363	4.1

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.4	4.1	.35	14592	2.8
FLOAT 1.40	86.7	5.2	.50	14398	3.1
FLOAT 1.60	90.6	5.9	.67	14274	3.4
CUM(3/8" X 100M)	100.0	11.0	.90	13374	3.9
100M X 0	2.4	13.9	3.74	12862	7.8
TOTAL(3/8" X 0)	100.0	11.1	.97	13362	4.0

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.1	4.0	.16	14610	2.7
FLOAT 1.40	86.8	4.7	.32	14486	3.0
FLOAT 1.60	91.0	5.9	.53	14274	3.2
CUM(14M X 0)	100.0	11.0	1.37	13374	4.5

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

----- MOISTURE, % -----

TOTAL	2.3
AS RECEIVED	.9

STATE: WEST VIRGINIA
COUNTY: MARION

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 494

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.90	1.00	.80	--	--	--	--	--	--
ASH	11.10	5.61	59.58	11.20	5.66	60.06	--	--	--
VOLATILE MATTER	38.59	39.43	--	38.94	39.83	--	43.85	42.22	--
FIXED CARBON	49.41	53.96	--	49.86	54.51	--	56.15	57.78	--
BTU/LB	13912	14162	--	14038	14305	--	15809	15164	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.68	2.03	9.98	2.71	2.05	10.06	3.05	2.18	25.20
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	11.10	5.61	59.58	11.20	5.66	60.06	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.18	.49	9.78	1.19	.49	9.86	1.34	.52	24.70
SULFATIC	.01	.00	.01	.01	.00	.01	.01	.00	.03
ORGANIC	1.50	1.55	.19	1.51	1.56	.19	1.70	1.66	.47
TOTAL	2.68	2.03	9.98	2.71	2.05	10.06	3.05	2.18	25.20

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLomite	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1950	2350	--
SOFTENING TEMPERATURE (ST)	2000	2450	--
FLUID TEMPERATURE (FT)	2050	2650	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	13.59	7.24	70.40

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8 1/2	8 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: WEST VIRGINIA
COUNTY: MARION

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 495

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	75.9	78.9	4.7	.58	14598	2.3
FLOAT 1.40	91.2	93.7	5.7	.87	14432	2.7
FLOAT 1.60	96.6	98.1	6.7	1.06	14274	3.0
CUM(1-1/2" X 100M)	100.0	100.0	7.9	1.81	14049	4.1
100M X 0	1.3	1.2	13.8	3.28	12985	6.8
TOTAL(1-1/2" X 0)	100.0	100.0	8.0	1.83	14035	4.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	79.1	82.5	4.4	.53	14659	2.0
FLOAT 1.40	91.7	94.6	5.4	.69	14496	2.2
FLOAT 1.60	96.1	98.2	6.2	.84	14359	2.4
CUM(3/8" X 100M)	100.0	100.0	7.8	1.83	14058	4.0
100M X 0	4.2	4.1	9.3	3.05	13804	5.8
TOTAL(3/8" X 0)	100.0	100.0	7.9	1.88	14047	4.1

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	72.0	75.8	3.8	.34	14783	1.8
FLOAT 1.40	90.6	94.2	4.9	.48	14603	1.9
FLOAT 1.60	95.4	98.2	5.8	.59	14452	2.1
CUM(14M X 0)	100.0	100.0	7.9	1.88	14038	4.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	71.6
3/8" X 14M	21.2
14M X 100M	5.9
100M X 0	1.3

MOISTURE, %

TOTAL	2.2
AS RECEIVED	1.5

STATE: WEST VIRGINIA
COUNTY: MARION

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 495

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.50	1.20	1.20	--	--	--
ASH	7.98	5.93	51.77	8.10	6.00	52.40
VOLATILE MATTER	38.42	39.22	24.21	39.00	39.70	24.50
FIXED CARBON	52.11	53.65	22.82	52.90	54.30	23.10
BTU/LB	13946	14295	5884	14158	14468	5956
					15406	15392
						12512

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	76.16	78.69	19.52	77.32	79.65	19.76
HYDROGEN	5.50	5.65	1.65	5.42	5.58	1.54
NITROGEN	1.85	1.90	.56	1.87	1.93	.57
SULFUR	2.82	1.43	28.21	2.86	1.45	28.55
OXYGEN	5.70	6.39	--	4.43	5.39	--
ASH	7.98	5.93	51.77	8.10	6.00	52.40

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.89	.60	25.46	1.92	.61	25.77
SULFATIC	.05	.03	.07	.05	.03	.07
ORGANIC	.88	.80	2.68	.89	.81	2.71
TOTAL	2.82	1.43	28.21	2.86	1.45	28.55

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	40.02	51.29	18.54
Al2O3 (ALUMINUM OXIDE)	20.31	26.17	5.78
Fe2O3 (IRON OXIDE)	31.53	13.15	73.21
TiO2 (TITANIUM OXIDE)	1.55	1.42	1.44
CaO (CALCIUM OXIDE)	2.24	2.94	.28
MgO (MAGNESIUM OXIDE)	.91	1.21	.10
Na2O (SODIUM OXIDE)	1.08	--	--
K2O (POTASSIUM OXIDE)	1.07	1.26	.41
SO3 (SULFITES)	1.79	2.01	.38

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.60	--
DOLOMITE	.09	--
HYDROGEN/CARBON	.84	.84
OXYGEN/CARBON	.04	.05
R250	.64	.83
SILICA	.54	.75
SILICA/ALUMINA	1.97	1.96

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1840	2370	--
SOFTENING TEMPERATURE (ST)	2000	2500	--
FLUID TEMPERATURE (FT)	2150	2630	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	.11	--	--
NA (SODIUM) (CALCULATED)	.06	--	--
MINERAL MATTER (PARR)	10.32	7.28	70.75

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7	1/2	8
HARDGROVE GRINDABILITY (HGI)	54	--	--

STATE: WEST VIRGINIA
COUNTY: MARION

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 496

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.0	6.2	.49	14221	2.6
FLOAT 1.40	86.3	7.0	.89	14080	3.1
FLOAT 1.60	92.8	8.1	1.09	13886	3.6
FLOAT 1.90	94.4	8.5	1.21	13815	3.8
CUM(1-1/2" X 100M)	100.0	12.3	2.03	13145	5.1
100M X 0	.2	21.7	2.51	11485	6.6
TOTAL(1-1/2" X 0)	100.0	12.3	2.03	13141	5.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.4	3.6	.20	14680	2.3
FLOAT 1.40	85.6	7.8	.95	13939	3.5
FLOAT 1.60	92.7	9.1	1.38	13709	4.1
FLOAT 1.90	94.4	8.5	1.21	13815	3.8
CUM(3/8" X 100M)	100.0	13.0	2.21	13021	5.5
100M X 0	.8	17.3	2.15	12262	5.8
TOTAL(3/8" X 0)	100.0	13.0	2.21	13015	5.5

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.3	4.3	.24	14557	2.3
FLOAT 1.40	84.4	6.1	.47	14239	2.7
FLOAT 1.60	90.1	7.1	.69	14063	3.1
FLOAT 1.90	94.4	8.5	1.21	13815	3.8
CUM(14M X 0)	100.0	12.8	2.00	13056	5.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	1.9
3/8" X 14M	1.3
14M X 100M	
100M X 0	

TOTAL
AS RECEIVED

STATE: WEST VIRGINIA

COUNTY: MARION

BED: PITTSBURGH

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36

SAMPLE NO. 496

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

MOISTURE 1.30

ASH 13.03

VOLATILE MATTER 38.10

FIXED CARBON 47.57

BTU/LB 13013

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

CARBON

HYDROGEN

NITROGEN

SULFUR 3.43

OXYGEN

ASH 13.03

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

MOISTURE FREE

RAW FL 1.60 SK 1.60

MOISTURE AND ASH FREE

RAW FL 1.60 SK 1.60

PYRITIC 2.17

SULFATIC .04

ORGANIC 1.22

TOTAL 3.43

MINERAL ANALYSIS OF ASH, %

RAW FL 1.60 SK 1.60

OXIDES

(SILICON OXIDE)

AL2O3 (ALUMINUM OXIDE)

FE2O3 (IRON OXIDE)

TiO2 (TITANIUM OXIDE)

CaO (CALCIUM OXIDE)

MGO (MAGNESIUM OXIDE)

(SODIUM OXIDE)

Na2O (POTASSIUM OXIDE)

K2O (SULFITES)

SO3

INITIAL DEFORMATION (ID)

SOFTENING TEMPERATURE (ST)

FLUID TEMPERATURE (FT)

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

16.17

COAL UTILIZATION RATIOS

RAW FL 1.60

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

RAW FL 1.60 SK 1.60

2.53

.05

1.43

4.01

STATE: WEST VIRGINIA

COUNTY: MARSHALL

BED: PITTSBURGH

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36

SAMPLE NO. 497

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.9	4.0	.75	14301	3.4
FLOAT 1.40	77.2	6.4	1.65	13907	4.8
FLOAT 1.60	89.7	8.2	2.11	13611	5.5
CUM(1-1/2" X 100M)	100.0	12.7	2.33	12871	6.0
100M X 0	.8	15.2	3.41	12460	8.1
TOTAL(1-1/2" X 0)	100.0	12.7	2.34	12867	6.0

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.3	3.6	.55	14367	3.3
FLOAT 1.40	76.4	5.9	1.38	13989	4.6
FLOAT 1.60	89.1	7.7	1.95	13693	5.4
CUM(3/8" X 100M)	100.0	12.6	2.39	12887	6.3
100M X 0	1.6	15.8	3.43	12361	8.6
TOTAL(3/8" X 0)	100.0	12.7	2.41	12879	6.3

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.0	3.2	.42	14433	3.1
FLOAT 1.40	77.5	5.6	.85	14038	4.1
FLOAT 1.60	88.5	7.5	1.54	13726	4.9
CUM(14M X 0)	100.0	12.9	2.40	12838	6.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--	MOISTURE, %	TOTAL AS RECEIVED
3/8" X 14M	--		
14M X 100M	--		
100M X 0	--		

STATE: WEST VIRGINIA
COUNTY: MARSHALL

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 497

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
MOISTURE	1.30	1.50	--	--	--	--
ASH	12.24	7.09	12.40	7.20	--	--
VOLATILE MATTER	39.38	41.13	39.90	41.76	45.55	44.99
FIXED CARBON	47.08	50.28	47.70	51.04	54.45	55.01
BTU/LB	12752	13569	12920	13775	14749	14844

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	4.02	3.20	4.08	3.25	4.65	3.50
OXYGEN	--	--	--	--	--	--
ASH	12.24	7.09	12.40	7.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
PYRITIC	2.46	1.48	2.49	1.50	2.84	1.62
SULFATIC	.01	.00	.02	.03	.02	.00
ORGANIC	1.55	1.72	1.57	1.75	1.79	1.89
TOTAL	4.02	3.20	4.08	3.25	4.65	3.50

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLomite	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: WEST VIRGINIA
COUNTY: MARSHALL
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 498

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.0	3.2	36	14368	5.0
FLOAT 1.40	81.4	5.0	1.14	14069	6.0
FLOAT 1.60	94.6	6.8	1.85	13771	7.0
CUM(1-1/2" X 100M)	100.0	9.0	2.06	13407	7.4
100M X 0	1.6	8.7	1.46	13456	4.5
TOTAL(1-1/2" X 0)	100.0	9.0	2.05	13407	7.3

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.7	3.5	38	14318	5.0
FLOAT 1.40	83.3	5.1	1.95	14053	5.7
FLOAT 1.60	93.3	6.4	1.52	13837	6.5
CUM(3/8" X 100M)	100.0	9.1	1.97	13390	7.2
100M X 0	2.2	9.5	2.24	13324	6.6
TOTAL(3/8" X 0)	100.0	9.1	1.98	13389	7.2

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.8	2.9	36	14417	4.9
FLOAT 1.40	84.3	4.5	1.77	14152	5.4
FLOAT 1.60	93.1	5.6	1.27	13970	6.2
CUM(14M X 0)	100.0	9.1	1.98	13390	7.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

MOISTURE, %

TOTAL 2.5
AS RECEIVED 1.1

STATE: WEST VIRGINIA

COUNTY: MARSHALL

BED: PITTSBURGH

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36

SAMPLE NO. 498

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW

FL 1.60

SK 1.60

1.10

1.10

.90

9.00

5.54

53.59

42.43

44.01

--

47.47

49.35

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13243

13816

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MOISTURE

ASH

VOLATILE MATTER

FIXED CARBON

BTU/LB

RAW

FL 1.60

SK 1.60

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5.60

54.07

47.19

52.81

14730

14799

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

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4.73

4.18

12.74

9.00

5.54

53.59

CARBON

HYDROGEN

NITROGEN

SULFUR

OXYGEN

ASH

RAW

FL 1.60

SK 1.60

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4.23

12.86

5.26

4.48

28.00

54.07

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

2.01

1.17

11.46

.00

.00

.00

2.72

3.02

1.29

4.73

4.18

12.74

PYRITIC

SULFATIC

ORGANIC

TOTAL

RAW

FL 1.60

SK 1.60

2.03

1.18

11.56

.00

.00

.00

2.75

3.05

1.30

4.78

4.23

12.86

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

2.23

1.25

25.17

.00

.00

.00

3.03

3.23

2.83

5.26

4.48

28.00

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

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STATE: WEST VIRGINIA
 COUNTY: MONONGALIA
 BED: PITTSBURGH
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 36
 SAMPLE NO. 499

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	51.5	4.8	.31	14448	1.7
FLOAT 1.40	92.3	7.1	.57	14042	2.1
FLOAT 1.60	97.1	7.8	.65	13919	2.2
CUM(1-1/2" X 100M)	100.0	8.7	.91	13761	2.6
100M X 0	.9	11.7	1.84	13232	4.8
TOTAL(1-1/2" X 0)	100.0	8.7	.92	13756	2.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	58.3	5.3	.31	14360	1.6
FLOAT 1.40	91.2	7.1	.48	14042	1.9
FLOAT 1.60	96.4	7.9	.58	13901	2.0
CUM(3/8" X 100M)	100.0	9.4	.98	13637	2.7
100M X 0	2.5	10.6	2.21	13426	4.8
TOTAL(3/8" X 0)	100.0	9.4	1.01	13632	2.7

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	59.7	3.7	.09	14641	1.5
FLOAT 1.40	90.0	6.3	.21	14183	1.6
FLOAT 1.60	96.0	7.2	.24	14025	1.8
CUM(14M X 0)	100.0	8.9	.87	13725	2.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
 3/8" X 14M
 14M X 100M
 100M X 0

--- MOISTURE, % ---

TOTAL
 AS RECEIVED
 2.3
 .9

STATE: WEST VIRGINIA BED: PITTSBURGH BED CODE: 36
COUNTY: MONONGALIA RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 499

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.90	1.00	.90	--	--	--	--	--	--
ASH	9.02	6.93	47.96	9.10	7.00	48.40	--	--	--
VOLATILE MATTER	37.26	37.52	--	37.60	37.90	--	41.36	40.75	--
FIXED CARBON	52.82	54.55	--	53.30	55.10	--	58.64	59.25	--
BTU/LB	13567	13919	--	13690	14060	--	15061	15118	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.66	1.12	16.61	1.67	1.13	16.76	1.84	1.22	32.48
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	9.02	6.93	47.96	9.10	7.00	48.40	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.83	.24	15.85	.84	.24	15.99	.92	.26	30.99
SULFATIC	.02	.01	.03	.02	.01	.03	.02	.01	.06
ORGANIC	.81	.87	.73	.81	.88	.74	.90	.95	1.43
TOTAL	1.66	1.12	16.61	1.67	1.13	16.76	1.84	1.22	32.48

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID		
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2190	2780	--
SOFTENING TEMPERATURE (ST)	2250	2840	--
FLUID TEMPERATURE (FT)	2410	2910+	--
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (FARR)	10.75	8.18	61.49

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8 1/2	9	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: WEST VIRGINIA
COUNTY: MONONGALIA

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 500

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	57.3	60.0	4.8	.42	14416	2.2
FLOAT 1.40	91.3	93.6	6.6	.71	14105	2.7
FLOAT 1.60	96.7	98.2	7.4	.87	13967	2.9
CUM(1-1/2" X 100M)	100.0	100.0	8.6	1.30	13760	3.6
100M X 0	1.2	1.1	13.7	2.97	12880	6.2
TOTAL(1-1/2" X 0)	100.0	100.0	8.7	1.32	13749	3.6

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	63.8	67.1	4.5	.23	14467	2.1
FLOAT 1.40	90.6	93.3	6.2	.51	14174	2.5
FLOAT 1.60	96.0	97.9	7.0	.67	14036	2.8
CUM(3/8" X 100M)	100.0	100.0	8.6	1.21	13760	3.5
100M X 0	2.0	1.9	12.3	3.07	13122	6.6
TOTAL(3/8" X 0)	100.0	100.0	8.7	1.25	13747	3.6

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	61.3	65.0	3.7	.19	14606	2.0
FLOAT 1.40	89.2	92.3	5.7	.38	14260	2.3
FLOAT 1.60	95.5	97.3	7.0	.60	14036	2.6
CUM(14M X 0)	100.0	100.0	8.5	1.22	13777	3.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"
3/8" X 14M
14M X 100M
100M X 0

MOISTURE, %

TOTAL
AS RECEIVED 2.3
.9

STATE: WEST VIRGINIA
COUNTY: MONONGALIA

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 500

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.90	.90	.60	--	--	--
ASH	8.72	6.66	40.75	8.80	6.72	41.00
VOLATILE MATTER	36.96	37.71	--	37.30	38.05	--
FIXED CARBON	53.41	54.73	--	53.90	55.23	--
BTU/LB	13715	14044	--	13840	14172	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.19	1.65	15.06	2.21	1.67	15.15
OXYGEN	--	--	--	--	--	--
ASH	8.72	6.66	40.75	8.80	6.72	41.00

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.13	.54	14.29	1.14	.54	14.38
SULFATIC	.00	.00	.01	.01	.01	.01
ORGANIC	1.06	1.11	.76	1.07	1.13	.76
TOTAL	2.19	1.65	15.06	2.21	1.67	15.15

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

STATE: WEST VIRGINIA
 COUNTY: MONONGALIA
 BED: PITTSBURGH
 RANK: HIGH VOLATILE A BITUMINOUS
 BED CODE: 36
 SAMPLE NO. 501

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)									
PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU			
FLOAT 1.30	65.8	4.6	.44	1.61	14450	2.2			
FLOAT 1.40	88.5	5.9	.69	1.84	14229	2.6			
FLOAT 1.60	92.7	6.7	.80	1.94	14092	2.8			
FLOAT 1.90	95.6	7.5	.87	2.00	13956	2.9			
CUM(1-1/2" X 100M)	100.0	9.4	1.20	2.30	13632	3.4			
100M X 0	2.1	9.6	1.40	2.50	13596	3.7			
TOTAL(1-1/2" X 0)	100.0	9.4	1.20	2.30	13631	3.4			

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU			
FLOAT 1.30	68.5	4.3	.49	1.73	14502	2.4			
FLOAT 1.40	86.4	5.3	.73	1.92	14331	2.7			
FLOAT 1.60	90.3	6.0	.85	2.02	14212	2.8			
FLOAT 1.90	95.6	7.5	.87	2.00	13956	2.9			
CUM(3/8" X 100M)	100.0	9.8	1.36	2.47	13564	3.6			
100M X 0	3.9	9.7	1.42	2.53	13576	3.7			
TOTAL(3/8" X 0)	100.0	9.8	1.36	2.47	13564	3.6			

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU			
FLOAT 1.30	55.9	3.8	.41	1.46	14587	2.0			
FLOAT 1.40	87.6	5.4	.63	1.63	14314	2.3			
FLOAT 1.60	93.8	6.4	.81	1.82	14143	2.6			
FLOAT 1.90	95.6	7.5	.87	2.00	13956	2.9			
CUM(14M X 0)	100.0	9.6	1.29	2.48	13598	3.6			

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %		MOISTURE, %	
SAMPLE CRUSHED TO PASS 1-1/2"			
1-1/2" X 3/8"	--		
3/8" X 14M	--		
14M X 100M	--		
100M X 0	2.1		
TOTAL AS RECEIVED		3.0	1.6

STATE: WEST VIRGINIA
COUNTY: MONONGALIA
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 501

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	1.60	--	--	--	--	--
ASH	9.74	--	9.90	--	--	--
VOLATILE MATTER	37.10	--	37.70	--	41.84	--
FIXED CARBON	51.56	--	52.40	--	58.16	--
BTU/LB	13630	--	13852	--	15374	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.30	--	2.34	--	2.60	--
OXYGEN	--	--	--	--	--	--
ASH	9.74	--	9.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	1.33	--	1.35	--	1.50	--
SULFATIC	.01	--	.01	--	.01	--
ORGANIC	.96	--	.98	--	1.09	--
TOTAL	2.30	--	2.34	--	2.60	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO ₂ (SILICON OXIDE)	--	--	--
Al ₂ O ₃ (ALUMINUM OXIDE)	--	--	--
Fe ₂ O ₃ (IRON OXIDE)	--	--	--
TiO ₂ (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na ₂ O (SODIUM OXIDE)	--	--	--
K ₂ O (POTASSIUM OXIDE)	--	--	--
SO ₃ (SULFITES)	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	11.98	--	--

COAL UTILIZATION RATIOS

RAW FL 1.60

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: WEST VIRGINIA
COUNTY: MONONGALIA

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 502

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.8	5.1	.43	14313	3.6
FLOAT 1.40	87.6	7.1	.74	13968	4.1
FLOAT 1.60	94.6	8.1	.97	13755	4.5
CUM(1-1/2" X 100M)	100.0	10.7	1.61	13347	5.6
100M X 0	.8	18.3	3.30	12036	10.7
TOTAL(1-1/2" X 0)	100.0	10.8	1.62	13336	5.6

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.9	4.7	.35	14382	3.7
FLOAT 1.40	86.3	6.5	.60	14071	4.0
FLOAT 1.60	93.3	7.6	.83	13882	4.4
CUM(3/8" X 100M)	100.0	10.9	1.68	13312	5.8
100M X 0	2.1	15.3	2.75	12553	8.7
TOTAL(3/8" X 0)	100.0	11.0	1.70	13296	5.9

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.5	4.4	.24	14434	3.5
FLOAT 1.40	86.0	6.3	.35	14106	3.7
FLOAT 1.60	93.1	7.3	.57	13933	4.0
CUM(14M X 0)	100.0	10.7	1.44	13347	5.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--	MOISTURE, %	2.3
3/8" X 14M	--		
14M X 100M	--		
100M X 0	--		

TOTAL
AS RECEIVED

2.3
.9

STATE: WEST VIRGINIA
COUNTY: MONONGALIA

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE:
SAMPLE NO. 502

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	RAW	AS RECEIVED	SK 1.60	RAW	MOISTURE FREE	SK 1.60	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE
		FL 1.60	SK 1.60		FL 1.60	SK 1.60		FL 1.60	SK 1.60	
MOISTURE	.90	.80	.70	--	--	--	--	--	--	--
ASH	10.60	6.95	56.20	10.70	7.01	56.60	--	--	--	--
VOLATILE MATTER	38.95	39.73	--	39.30	40.05	--	44.01	43.07	--	--
FIXED CARBON	49.55	52.52	--	50.00	52.94	--	55.99	56.93	--	--
BTU/LB	13438	14011	--	13560	14124	--	15185	15188	--	--

ULTIMATE ANALYSIS, %

	RAW	AS RECEIVED	SK 1.60	RAW	MOISTURE FREE	SK 1.60	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE
		FL 1.60	SK 1.60		FL 1.60	SK 1.60		FL 1.60	SK 1.60	
CARBON	--	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--	--
SULFUR	3.36	2.52	13.99	3.39	2.54	14.09	3.79	2.73	32.47	--
OXYGEN	--	--	--	--	--	--	--	--	--	--
ASH	10.60	6.95	56.20	10.70	7.01	56.60	--	--	--	--

SULFUR FORMS ANALYSIS, %

	RAW	AS RECEIVED	SK 1.60	RAW	MOISTURE FREE	SK 1.60	RAW	FL 1.60	SK 1.60	MOISTURE AND ASH FREE
		FL 1.60	SK 1.60		FL 1.60	SK 1.60		FL 1.60	SK 1.60	
PYRITIC	1.42	.53	11.78	1.43	.53	11.86	1.60	.57	27.33	--
SULFATIC	.10	.06	.06	.10	.06	.06	.11	.06	.15	--
ORGANIC	1.84	1.93	2.15	1.86	1.95	2.17	2.08	2.10	4.99	--
TOTAL	3.36	2.52	13.99	3.39	2.54	14.09	3.79	2.73	32.47	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES									
SiO2 (SILICON OXIDE)	--	--	--	--	--	--	2090	2560	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--	2140	2610	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--	2340	2670	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--	--	--	--
COAL UTILIZATION RATIOS									
	RAW	FL 1.60					RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--	--	--	--
R250	--	--	--	--	--	--	--	--	--
SILICA	--	--	--	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--	--	--	--
PHYSICAL PARAMETERS, INDEX									
FREE SWELLING (FSI)	--	--	--	--	--	--	8 1/2	9	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--	--	--	--
FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)									
MISCELLANEOUS DATA, %									
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--	13.03	8.97	63.95

STATE: WEST VIRGINIA
COUNTY: MONONGALIA

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 503

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	73.1	4.1	.61	14574	2.8
FLOAT 1.40	90.4	5.1	.74	14406	3.1
FLOAT 1.60	95.4	5.9	.86	14271	3.3
CUM(1-1/2" X 100M)	100.0	8.1	1.26	13927	4.1
100M X 0	1.3	12.2	2.21	13204	5.5
TOTAL(1-1/2" X 0)	100.0	8.2	1.27	13918	4.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	74.4	3.9	.32	14603	2.8
FLOAT 1.40	90.8	4.8	.43	14447	2.9
FLOAT 1.60	94.7	5.4	.54	14348	3.1
CUM(3/8" X 100M)	100.0	7.9	1.11	13935	4.1
100M X 0	5.0	9.5	2.05	13709	5.2
TOTAL(3/8" X 0)	100.0	8.0	1.16	13924	4.1

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	68.7	3.4	.34	14643	2.7
FLOAT 1.40	88.2	4.5	.41	14462	2.8
FLOAT 1.60	93.9	5.5	.56	14310	3.0
CUM(14M X 0)	100.0	8.7	1.28	13778	4.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	66.7
3/8" X 14M	26.1
14M X 100M	5.9
100M X 0	1.3

MOISTURE, %

TOTAL	1.9
AS RECEIVED	1.3

STATE: WEST VIRGINIA
COUNTY: MONONGALIA
BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 36
SAMPLE NO. 503

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.30	1.00	1.00	--	--	--	--	--	--
ASH	8.29	5.35	58.31	8.40	5.40	58.90	--	--	--
VOLATILE MATTER	39.94	41.02	24.26	40.47	41.43	24.50	44.18	43.80	59.61
FIXED CARBON	50.47	52.64	16.43	51.13	53.17	16.60	55.82	56.20	40.39
BTU/LB	13713	14227	5361	13894	14371	5415	15168	15191	13175

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	75.85	78.35	25.19	76.85	79.15	25.45	83.90	83.66	61.92
HYDROGEN	5.28	5.47	1.61	5.20	5.41	1.52	5.68	5.72	3.69
NITROGEN	1.31	1.37	.35	1.32	1.38	.36	1.44	1.46	.87
SULFUR	2.79	2.03	13.75	2.83	2.05	13.89	3.09	2.17	33.79
OXYGEN	6.48	7.44	--	5.40	6.62	--	5.89	6.99	--
ASH	8.29	5.35	58.31	8.40	5.40	58.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.28	.57	11.02	1.30	.58	11.13	1.42	.61	27.07
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	1.50	1.45	2.72	1.52	1.46	2.75	1.66	1.54	6.69
TOTAL	2.79	2.03	13.75	2.83	2.05	13.89	3.09	2.17	33.79

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	41.36	48.83	27.29
Al2O3 (ALUMINUM OXIDE)	20.26	27.41	6.68
Fe2O3 (IRON OXIDE)	20.72	11.43	40.58
TiO2 (TITANIUM OXIDE)	1.22	1.14	1.08
CaO (CALCIUM OXIDE)	6.89	3.42	12.89
MgO (MAGNESIUM OXIDE)	1.13	1.33	1.62
Na2O (SODIUM OXIDE)	.80	--	--
K2O (POTASSIUM OXIDE)	1.25	1.45	1.04
SO3 (SULFITES)	4.95	3.29	6.97

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.49	--
DOLomite	.26	--
HYDROGEN/CARBON	.81	.82
OXYGEN/CARBON	.05	.06
R250	.69	.84
SILICA	.59	.75
SILICA/ALUMINA	2.04	1.78

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2010	2500	--
SOFTENING TEMPERATURE (ST)	2140	2590	--
FLUID TEMPERATURE (FT)	2260	2670	--
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.10	--	--
MINERAL MATTER (PARR)	.05	--	--
	10.63	6.96	71.19

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	8 1/2	--
HARDGROVE GRINDABILITY (HGI)	60	--	--

STATE: WEST VIRGINIA BED: PITTSBURGH BED CODE: 36
COUNTY: OHIO RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 504

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.8	3.5	.48	14308	2.7
FLOAT 1.40	83.0	5.3	1.22	14001	3.8
FLOAT 1.60	94.0	6.8	1.80	13746	4.7
CUM(1-1/2" X 100M)	100.0	9.0	2.09	13371	5.1
100M X 0	.8	12.1	3.96	12843	7.8
TOTAL(1-1/2" X 0)	100.0	9.0	2.10	13367	5.2

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.0	3.6	.48	14291	2.8
FLOAT 1.40	85.0	5.2	1.05	14018	3.6
FLOAT 1.60	93.7	6.4	1.55	13814	4.3
CUM(3/8" X 100M)	100.0	9.0	2.10	13371	5.2
100M X 0	3.7	11.4	2.96	12962	6.0
TOTAL(3/8" X 0)	100.0	9.1	2.13	13356	5.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.6	3.0	.33	14393	2.7
FLOAT 1.40	83.8	4.4	.74	14154	3.1
FLOAT 1.60	92.4	5.7	1.27	13933	3.8
CUM(14M X 0)	100.0	9.3	2.24	13320	5.4

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" --
3/8" X 14M --
14M X 100M --
100M X 0 --

----- MOISTURE, % -----

TOTAL 2.7
AS RECEIVED 1.3

STATE: WEST VIRGINIA
COUNTY: OHIO

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 504

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.30	1.50	.80	--	--	--
ASH	9.18	5.52	50.54	9.30	5.60	50.95
VOLATILE MATTER	38.59	39.99	--	39.10	40.60	--
FIXED CARBON	50.93	52.99	--	51.60	53.80	--
BTU/LB	13147	13741	--	13320	13950	--
				14686	14778	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	3.51	2.57	14.91	3.56	2.61	15.03
OXYGEN	--	--	--	--	--	--
ASH	9.18	5.52	50.54	9.30	5.60	50.95

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.21	1.19	13.92	2.24	1.21	14.03
SULFATIC	.00	.00	.00	.00	.00	.00
ORGANIC	1.30	1.38	.99	1.32	1.40	1.00
TOTAL	3.51	2.57	14.91	3.56	2.61	15.03

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

RAW FL 1.60

BASE/ACID
DOLOMITE
HYDROGEN/CARBON
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2010	2090	--
SOFTENING TEMPERATURE (ST)	2060	2140	--
FLUID TEMPERATURE (FT)	2130	2260	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	12.00	7.48	63.29

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7 1/2	7 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: WEST VIRGINIA
COUNTY: OHIO

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 505

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.9	43.2	3.6	.58	1.99	14297	2.8
FLOAT 1.40	84.0	88.8	5.6	1.25	2.68	13957	3.8
FLOAT 1.60	91.3	95.5	6.4	1.62	3.06	13821	4.4
CUM(1-1/2" X 100M)	100.0	100.0	10.0	2.38	3.78	13208	5.7
100M X 0	.8	.7	15.3	4.40	6.11	12306	9.9
TOTAL(1-1/2" X 0)	100.0	100.0	10.0	2.40	3.80	13201	5.8

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.1	50.3	3.4	.39	1.89	14331	2.6
FLOAT 1.40	82.2	87.7	5.2	.95	2.48	14025	3.5
FLOAT 1.60	90.3	95.1	6.3	1.37	2.90	13838	4.2
CUM(3/8" X 100M)	100.0	100.0	10.4	2.24	3.74	13140	5.7
100M X 0	2.4	2.3	14.9	5.29	6.97	12374	11.3
TOTAL(3/8" X 0)	100.0	100.0	10.5	2.31	3.82	13122	5.8

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.9	53.0	2.8	.24	1.77	14434	2.5
FLOAT 1.40	78.1	84.5	4.6	.71	2.17	14127	3.1
FLOAT 1.60	87.8	93.5	5.9	1.10	2.59	13906	3.7
CUM(14M X 0)	100.0	100.0	10.9	2.50	3.96	13055	6.1

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
3/8" X 14M ---
14M X 100M ---
100M X 0 ---

--- MOISTURE, % ---

TOTAL 2.8
AS RECEIVED 1.4

STATE: WEST VIRGINIA
COUNTY: OHIO

BED: PITTSBURGH
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 36
SAMPLE NO. 505

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.40	1.50	.90	--	--	--	--	--	--
ASH	10.25	5.61	48.32	10.40	5.70	48.76	--	--	--
VOLATILE MATTER	37.67	40.29	--	38.20	40.90	--	42.63	43.37	--
FIXED CARBON	50.68	52.60	--	51.40	53.40	--	57.37	56.63	--
BTU/LB	12956	13731	--	13140	13940	--	14665	14783	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.88	2.47	13.72	3.94	2.51	13.84	4.39	2.66	27.02
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	10.25	5.61	48.32	10.40	5.70	48.76	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.47	1.05	12.46	2.51	1.07	12.58	2.80	1.13	24.54
SULFATIC	.05	.03	.08	.06	.03	.08	.06	.03	.16
ORGANIC	1.35	1.39	1.18	1.37	1.41	1.19	1.53	1.50	2.32
TOTAL	3.88	2.47	13.72	3.94	2.51	13.84	4.39	2.66	27.02

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1940	2020	--
SOFTENING TEMPERATURE (ST)	1980	2070	--
FLUID TEMPERATURE (FT)	2020	2140	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	13.40	7.54	60.27

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	8	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: WEST VIRGINIA BED: POWELLTON BED CODE: 170
COUNTY: LOGAN RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 506

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	64.6	2.1	.02	14989	.9
FLOAT 1.40	78.4	3.0	.07	14826	1.0
FLOAT 1.60	83.9	4.2	.10	14608	1.0
CUM(1-1/2" X 100M)	100.0	15.2	.17	12616	1.2
100M X 0	.6	15.1	.72	12634	2.2
TOTAL(1-1/2" X 0)	100.0	15.2	.17	12616	1.2

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	66.4	1.7	.01	15061	.9
FLOAT 1.40	79.6	2.6	.04	14898	1.0
FLOAT 1.60	83.9	3.4	.08	14753	1.1
CUM(3/8" X 100M)	100.0	14.4	.16	12761	1.3
100M X 0	.6	18.8	.58	11964	2.0
TOTAL(3/8" X 0)	100.0	14.4	.16	12756	1.3

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	53.3	1.3	.01	15134	.9
FLOAT 1.40	73.2	2.5	.03	14916	1.0
FLOAT 1.60	83.8	4.3	.07	14590	1.0
CUM(14M X 0)	100.0	15.1	.19	12634	1.3

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---	MOISTURE, %	---
3/8" X 14M	---	TOTAL	2.6
14M X 100M	---	AS RECEIVED	1.0
100M X 0	---		

STATE: WEST VIRGINIA

COUNTY: LOGAN

BED: POWELLTON

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 170

SAMPLE NO. 506

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW

FL 1.60

SK 1.60

MOISTURE

1.00

1.20

1.20

ASH

14.75

4.08

67.68

VOLATILE MATTER

28.70

31.68

13.04

FIXED CARBON

55.54

63.04

18.08

BTU/LB

12587

14410

2920

RAW

FL 1.60

SK 1.60

MOISTURE FREE

68.50

13.20

18.30

MOISTURE AND ASH FREE

34.07

33.45

41.90

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

65.93

66.55

58.10

14940

15213

9383

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

CARBON

NITROGEN

SULFUR

.85

.77

1.14

OXYGEN

ASH

14.75

4.08

67.68

RAW

FL 1.60

SK 1.60

MOISTURE FREE

.78

1.15

68.50

MOISTURE AND ASH FREE

1.01

.81

3.66

1.01

.81

3.66

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

PYRITIC

.19

.07

.88

SULFATIC

.00

.00

.00

ORGANIC

.65

.70

.25

TOTAL

.85

.77

1.14

RAW

FL 1.60

SK 1.60

MOISTURE FREE

.07

.00

.71

MOISTURE AND ASH FREE

.23

.01

.81

.07

.00

.81

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

OXIDES

SiO2

AL2O3

Fe2O3

TiO2

CaO

MgO

Na2O

.62

K2O

SO3

RAW

FL 1.60

SK 1.60

INITIAL DEFORMATION (ID)

SOFTENING TEMPERATURE (ST)

FLUID TEMPERATURE (FT)

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

8

9

1

COAL UTILIZATION RATIOS

AS RECEIVED

RAW

FL 1.60

SK 1.60

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

2780

2790

2790

2880

2910+

2900

2910+

2910+

2910+

.07

16.82

4.89

76.19

FUSIBILITY OF ASH, DEGREES F

(IN OXIDIZING ATMOSPHERE)

AS RECEIVED

RAW

FL 1.60

SK 1.60

INITIAL DEFORMATION (ID)

SOFTENING TEMPERATURE (ST)

FLUID TEMPERATURE (FT)

MISCELLANEOUS DATA, %

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

PHYSICAL PARAMETERS, INDEX

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

8

9

1

RAW

FL 1.60

SK 1.60

MOISTURE AND ASH FREE

.23

.07

2.83

.01

.00

.02

.77

.74

.81

1.01

.81

3.66

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33
SAMPLE NO. 507

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.0	3.3	.15	14691	1.3
FLOAT 1.40	91.9	5.4	.45	14348	1.9
FLOAT 1.60	96.5	6.1	.57	14225	2.1
CUM(1-1/2" X 100M)	100.0	7.4	1.01	13997	2.8
100M X 0	1.5	14.0	2.29	12831	5.5
TOTAL(1-1/2" X 0)	100.0	7.5	1.03	13979	2.8

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.0	3.1	.17	14736	1.3
FLOAT 1.40	90.7	5.1	.36	14413	1.8
FLOAT 1.60	96.0	5.9	.48	14268	2.0
CUM(3/8" X 100M)	100.0	7.6	1.09	13976	3.0
100M X 0	4.1	10.1	1.83	13520	4.2
TOTAL(3/8" X 0)	100.0	7.7	1.12	13957	3.1

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.0	2.8	.15	14795	1.3
FLOAT 1.40	88.6	4.8	.30	14476	1.7
FLOAT 1.60	94.9	5.7	.42	14310	1.9
CUM(14M X 0)	100.0	8.0	1.05	13898	3.1

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	56.8
3/8" X 14M	34.5
14M X 100M	7.2
100M X 0	1.5

----- MOISTURE, % -----

TOTAL	2.3
AS RECEIVED	1.4

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33
SAMPLE NO. 507

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.40	1.20	1.20	--	--	--	--	--	--
ASH	7.59	5.73	51.77	7.70	5.80	52.40	--	--	--
VOLATILE MATTER	34.70	35.37	21.04	35.20	35.80	21.30	39.13	38.01	44.75
FIXED CARBON	56.30	57.70	25.98	57.10	58.40	26.30	61.87	61.99	55.25
BTU/LB	13749	14123	5968	13944	14295	6041	15107	15175	12691

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	76.95	78.99	28.85	78.04	79.95	29.20	84.55	84.88	61.34
HYDROGEN	5.14	5.26	2.01	5.05	5.19	1.90	5.47	5.51	3.99
NITROGEN	1.42	1.46	.49	1.44	1.48	.50	1.55	1.57	1.05
SULFUR	1.86	1.30	15.17	1.89	1.32	15.35	2.04	1.40	32.25
OXYGEN	7.04	7.26	1.71	5.88	6.27	.65	6.37	6.65	1.36
ASH	7.59	5.73	51.77	7.70	5.80	52.40	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.95	.46	11.36	.96	.46	11.50	1.04	.49	24.15
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.90	.84	3.80	.92	.85	3.85	.99	.90	8.08
TOTAL	1.86	1.30	15.17	1.89	1.32	15.35	2.04	1.40	32.25

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES						
SiO2 (SILICON OXIDE)	45.22	52.07	24.97			
Al2O3 (ALUMINUM OXIDE)	21.49	25.69	9.87			
Fe2O3 (IRON OXIDE)	23.00	12.54	50.87			
TiO2 (TITANIUM OXIDE)	1.24	1.21	1.32			
CaO (CALCIUM OXIDE)	3.36	2.10	5.04			
MgO (MAGNESIUM OXIDE)	1.01	1.31	.91			
Na2O (SODIUM OXIDE)	.35	--	--			
K2O (POTASSIUM OXIDE)	1.94	2.29	.92			
SO3 (SULFITES)	2.23	1.91	3.95			

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.44	--
DOLOMITE	.15	--
HYDROGEN/CARBON	.78	--
OXYGEN/CARBON	.06	--
R250	.72	.84
SILICA	.62	.77
SILICA/ALUMINA	2.10	2.03

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	MISCELLANEOUS DATA, %			PHYSICAL PARAMETERS, INDEX		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2260	2360	--			
SOFTENING TEMPERATURE (ST)	2370	2500	--			
FLUID TEMPERATURE (FT)	2450	2610	--			
CL (CHLORINE) (ANALYZED)	.06	--	--			
NA (SODIUM) (CALCULATED)	.02	--	--			
MINERAL MATTER (PARR)	9.13	6.99	59.59			

FREE SWELLING (FSI)

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	--
HARDGROVE GRINDABILITY (HGI)	59	--	--

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33
SAMPLE NO. 508

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.1	64.9	3.1	.50	14838	1.5
FLOAT 1.40	93.1	95.2	5.1	.69	14518	1.9
FLOAT 1.60	98.4	99.8	5.8	1.23	14391	2.1
CUM(1-1/2" X 100M)	100.0	100.0	6.4	1.23	14193	2.7
100M X 0	1.1	1.0	13.4	2.95	12781	6.4
TOTAL(1-1/2" X 0)	100.0	100.0	6.5	1.25	14177	2.7

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.0	66.6	2.9	.38	14781	1.4
FLOAT 1.40	92.1	94.0	4.8	.73	14490	1.8
FLOAT 1.60	97.7	98.8	5.6	1.22	14360	1.9
CUM(3/8" X 100M)	100.0	100.0	6.5	1.22	14198	2.7
100M X 0	3.9	3.6	10.9	2.73	13286	5.3
TOTAL(3/8" X 0)	100.0	100.0	6.7	1.28	14162	2.8

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.3	66.4	2.7	.44	14879	1.4
FLOAT 1.40	89.9	92.5	4.4	.56	14586	1.7
FLOAT 1.60	97.2	98.8	5.5	.69	14402	1.9
CUM(14M X 0)	100.0	100.0	6.6	1.32	14174	2.8

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	66.5
3/8" X 14M	27.3
14M X 100M	5.1
100M X 0	1.1

----- MOISTURE, % -----

TOTAL	2.9
AS RECEIVED	2.0

STATE: WEST VIRGINIA

COUNTY: BARBOUR

BED: REDSTONE

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33

SAMPLE NO. 508

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW FL 1.60 SK 1.60

2.00 1.80 1.80 1.80

6.57 5.40 45.74 45.74

35.71 36.10 25.26 25.26

55.72 56.70 27.20 27.20

13876 14143 5959 5959

MOISTURE

RAW FL 1.60 SK 1.60

39.05 38.90 48.15 48.15

60.95 61.10 51.85 51.85

ASH

RAW FL 1.60 SK 1.60

15176 15240 11359 11359

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

77.30 78.26 78.26 78.26

5.51 5.40 5.40 5.40

1.47 1.47 1.47 1.47

1.93 1.19 24.12 24.12

7.22 8.27 8.27 8.27

6.57 5.40 45.74 45.74

CARBON

RAW FL 1.60 SK 1.60

84.54 84.33 84.33 84.33

5.79 5.61 5.61 5.61

1.61 1.59 1.59 1.59

2.11 1.29 45.98 45.98

5.95 7.19 7.19 7.19

ASH

RAW FL 1.60 SK 1.60

46.58 46.58 46.58 46.58

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW FL 1.60 SK 1.60

1.26 .61 22.77 22.77

.01 .01 .01 .01

.66 .57 1.34 1.34

1.93 1.19 24.12 24.12

PYRITIC

RAW FL 1.60 SK 1.60

1.38 .66 43.41 43.41

.01 .01 .01 .01

1.36 .67 2.55 2.55

SULFATIC

RAW FL 1.60 SK 1.60

2.11 1.29 45.98 45.98

ORGANIC

RAW FL 1.60 SK 1.60

2.11 1.29 45.98 45.98

TOTAL

RAW FL 1.60 SK 1.60

2.11 1.29 45.98 45.98

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW FL 1.60 SK 1.60

43.66 48.99 42.13 42.13

24.34 26.75 26.75 26.75

22.98 13.56 62.94 62.94

1.28 1.26 1.70 1.70

2.86 2.38 1.74 1.74

.42 .95 .34 .34

.62 .78 .78 .78

1.73 1.99 1.07 1.07

1.64 2.08 1.07 1.07

OXIDES

RAW FL 1.60 SK 1.60

2180 2370 2370 2370

2330 2480 2480 2480

2470 2610 2610 2610

SiO2 (SILICON OXIDE)

RAW FL 1.60 SK 1.60

2180 2370 2370 2370

2330 2480 2480 2480

2470 2610 2610 2610

Al2O3 (ALUMINUM OXIDE)

RAW FL 1.60 SK 1.60

2180 2370 2370 2370

2330 2480 2480 2480

2470 2610 2610 2610

Fe2O3 (IRON OXIDE)

RAW FL 1.60 SK 1.60

2180 2370 2370 2370

2330 2480 2480 2480

2470 2610 2610 2610

TiO2 (TITANIUM OXIDE)

RAW FL 1.60 SK 1.60

2180 2370 2370 2370

2330 2480 2480 2480

2470 2610 2610 2610

CaO (CALCIUM OXIDE)

RAW FL 1.60 SK 1.60

2180 2370 2370 2370

2330 2480 2480 2480

2470 2610 2610 2610

MgO (MAGNESIUM OXIDE)

RAW FL 1.60 SK 1.60

2180 2370 2370 2370

2330 2480 2480 2480

2470 2610 2610 2610

Na2O (SODIUM OXIDE)

RAW FL 1.60 SK 1.60

2180 2370 2370 2370

2330 2480 2480 2480

2470 2610 2610 2610

K2O (POTASSIUM OXIDE)

RAW FL 1.60 SK 1.60

2180 2370 2370 2370

2330 2480 2480 2480

2470 2610 2610 2610

SO3 (SULFITES)

RAW FL 1.60 SK 1.60

2180 2370 2370 2370

2330 2480 2480 2480

2470 2610 2610 2610

COAL UTILIZATION RATIOS

AS RECEIVED

RAW FL 1.60

.41 .41 .41 .41

.11 .11 .11 .11

.82 .80 .80 .80

.05 .06 .06 .06

.72 .83 .83 .83

.62 .75 .75 .75

1.79 1.83 1.83 1.83

BASE/ACID

RAW FL 1.60

8.32 6.61 6.61 6.61

DOLOMITE

RAW FL 1.60

8.32 6.61 6.61 6.61

HYDROGEN/CARBON

RAW FL 1.60

8.32 6.61 6.61 6.61

OXYGEN/CARBON

RAW FL 1.60

8.32 6.61 6.61 6.61

R250

RAW FL 1.60

8.32 6.61 6.61 6.61

SILICA

RAW FL 1.60

8.32 6.61 6.61 6.61

SILICA/ALUMINA

RAW FL 1.60

8.32 6.61 6.61 6.61

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33
SAMPLE NO. 509

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.8	48.3	3.8	.75	1.41	14630	1.9
FLOAT 1.40	89.6	92.4	5.7	1.02	1.70	14293	2.4
FLOAT 1.60	96.4	98.3	6.6	1.15	1.83	14127	2.6
CUM(1-1/2" X 100M)	100.0	100.0	8.1	1.50	2.19	13861	3.2
100M X 0	1.2	1.0	20.0	3.13	5.87	11687	10.0
TOTAL(1-1/2" X 0)	100.0	100.0	8.2	1.52	2.23	13835	3.2

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.8	52.7	3.3	.44	1.12	14688	1.5
FLOAT 1.40	88.0	91.1	5.1	.74	1.42	14372	2.0
FLOAT 1.60	95.7	97.8	6.1	.88	1.57	14192	2.2
CUM(3/8" X 100M)	100.0	100.0	7.8	1.40	2.13	13882	3.1
100M X 0	3.9	3.6	13.6	2.68	3.82	12848	5.9
TOTAL(3/8" X 0)	100.0	100.0	8.0	1.45	2.20	13841	3.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.0	57.5	3.1	.44	1.10	14759	1.5
FLOAT 1.40	87.1	90.9	4.8	.55	1.25	14455	1.7
FLOAT 1.60	95.1	97.9	5.9	.71	1.40	14252	2.0
CUM(14M X 0)	100.0	100.0	8.1	1.44	2.25	13849	3.2

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	69.2
3/8" X 14M	24.7
14M X 100M	4.9
100M X 0	1.2

----- MOISTURE, % -----

TOTAL	3.1
AS RECEIVED	2.0

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33
SAMPLE NO. 509

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.00	1.80	--	--	--	--
ASH	8.33	5.89	8.50	6.00	39.20	39.08
VOLATILE MATTER	35.15	36.07	35.87	36.73	60.80	60.92
FIXED CARBON	54.52	56.24	55.63	57.27	150.69	151.46
BTU/LB	13513	13981	13789	14237	5877	12243

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	75.63	78.05	77.17	79.48	84.34	84.55
HYDROGEN	5.38	5.54	5.26	5.44	5.75	5.79
NITROGEN	1.44	1.50	1.47	1.53	1.61	1.62
SULFUR	2.28	1.39	2.33	1.42	2.55	1.51
OXYGEN	6.94	7.62	5.27	6.13	5.76	6.52
ASH	8.33	5.89	8.50	6.00	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.35	.63	1.38	.64	1.51	.68
SULFATIC	.01	.01	.01	.01	.01	.02
ORGANIC	.92	.76	.94	.77	1.03	.82
TOTAL	2.28	1.39	2.33	1.42	2.55	1.51

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	40.96	46.54	35.52	35.52	2170	2510
SiO2 (SILICON OXIDE)	25.93	31.76	15.73	15.73	2280	2600
AL2O3 (ALUMINUM OXIDE)	25.91	15.52	43.22	43.22	2400	2720
FE2O3 (IRON OXIDE)	.11	1.31	.72	.72	--	--
TiO2 (TITANIUM OXIDE)	4.13	1.64	.93	.93	--	--
CaO (CALCIUM OXIDE)	.48	.40	.50	.50	--	--
MgO (MAGNESIUM OXIDE)	.32	--	--	--	--	--
Na2O (SODIUM OXIDE)	1.73	1.89	1.30	1.30	RAW	FL 1.60 SK 1.60
K2O (POTASSIUM OXIDE)	.90	.41	.37	.37	.03	--
SO3 (SULFITES)	--	--	--	--	.02	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.49	--	--	--	10.46	7.26
DOLOMITE	.14	--	--	--	--	--
HYDROGEN/CARBON	.82	.82	--	--	--	--
OXYGEN/CARBON	.05	.06	--	--	9	9
R250	.69	.82	--	--	64	--
SILICA	.57	.73	--	--	--	--
SILICA/ALUMINA	1.58	1.47	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33
SAMPLE NO. 510

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	67.6	3.2	.73	14804	2.2
FLOAT 1.40	95.1	4.3	.87	14607	2.6
FLOAT 1.60	97.1	4.6	.93	14559	2.7
CUM(1-1/2" X 100M)	100.0	6.4	1.54	14265	3.6
100M X 0	1.0	13.6	2.78	13017	6.4
TOTAL(1-1/2" X 0)	100.0	6.5	1.55	14253	3.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	72.3	3.0	.58	14874	1.9
FLOAT 1.40	92.9	3.9	.86	14697	2.3
FLOAT 1.60	96.1	4.4	.97	14620	2.4
CUM(3/8" X 100M)	100.0	6.6	1.81	14244	3.6
100M X 0	6.7	8.1	1.83	13965	4.0
TOTAL(3/8" X 0)	100.0	6.7	1.81	14226	3.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	73.9	2.6	.38	14903	1.7
FLOAT 1.40	91.8	3.5	.57	14752	1.9
FLOAT 1.60	95.8	4.0	.73	14662	2.1
CUM(14M X 0)	100.0	6.4	1.77	14247	3.6

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	65.4
3/8" X 14M	27.8
14M X 100M	5.8
100M X 0	1.0

--- MOISTURE, % ---

TOTAL	2.3
AS RECEIVED	1.6

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33
SAMPLE NO. 510

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.60	1.70	1.70	--	--	--
ASH	6.40	4.03	61.04	6.50	4.10	62.10
VOLATILE MATTER	38.27	38.64	29.39	38.90	39.30	29.90
FIXED CARBON	53.73	55.63	7.86	54.60	56.60	8.00
BTU/LB	14004	14398	4578	14232	14647	4657
				15221	15273	12289

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	77.41	79.97	--	78.67	81.35	--
HYDROGEN	5.39	5.79	--	5.30	5.70	--
NITROGEN	1.47	1.47	--	1.50	1.50	--
SULFUR	2.36	1.69	25.41	2.40	1.72	25.85
OXYGEN	6.98	7.05	--	5.64	5.63	--
ASH	6.40	4.03	61.04	6.50	4.10	62.10

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRLTIC	1.60	.77	25.06	1.63	.78	25.49
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.75	.91	.34	.76	.93	.34
TOTAL	2.36	1.69	25.41	2.40	1.72	25.85

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	23.03	34.29	5.82	1.74	.81	67.26
SiO2 (SILICON OXIDE)	18.21	28.19	5.10	.01	.01	.03
Al2O3 (ALUMINUM OXIDE)	33.32	19.30	54.59	.81	.97	.91
Fe2O3 (IRON OXIDE)	1.30	1.49	1.12	2.56	1.79	68.19
TiO2 (TITANIUM OXIDE)	12.79	6.72	23.24			
CaO (CALCIUM OXIDE)	.81	1.82	.36			
MgO (MAGNESIUM OXIDE)	.73	--	--			
Na2O (SODIUM OXIDE)	1.07	1.64	.23			
K2O (POTASSIUM OXIDE)	9.09	5.40	10.75			
SO3 (SULFITES)						

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	1.15	--				
DOLOMITE	.28	--				
HYDROGEN/CARBON	.81	--				
OXYGEN/CARBON	.05	.84				
R250	.47	.71				
SILICA	.33	.56				
SILICA/ALUMINA	1.26	1.22				

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING	8	--				
HARDGROVE GRINDABILITY (HGI)	60	--				

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
INITIAL DEFORMATION (ID)	2010	--				
SOFTENING TEMPERATURE (ST)	2100	--				
FLUID TEMPERATURE (FT)	2210	--				

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	.06	--				
NA (SODIUM) (CALCULATED)	.04	--				
MINERAL MATTER (PARR)	8.34	5.42				

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33
SAMPLE NO. 511

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	42.1	47.0	3.1	.84	1.54	14752	2.1
FLOAT 1.40	77.8	84.1	5.9	1.20	2.06	14294	2.9
FLOAT 1.60	89.9	95.2	7.8	1.50	2.35	13992	3.4
CUM(1-1/2" X 100M)	100.0	100.0	12.1	3.14	4.37	13217	6.6
100M X 0	1.2	1.0	23.7	3.11	4.63	11274	8.2
TOTAL(1-1/2" X 0)	100.0	100.0	12.2	3.14	4.37	13194	6.6

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	46.0	51.7	3.1	.64	1.55	14790	2.1
FLOAT 1.40	78.5	85.6	5.6	.95	2.05	14348	2.9
FLOAT 1.60	89.0	95.2	7.3	1.14	2.25	14075	3.2
CUM(3/8" X 100M)	100.0	100.0	12.3	3.09	4.41	13155	6.7
100M X 0	4.9	4.5	18.6	3.48	4.91	12142	8.1
TOTAL(3/8" X 0)	100.0	100.0	12.6	3.11	4.43	13115	6.8

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	SULFUR, % PYRITIC	TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	46.9	52.4	2.8	.58	1.46	14828	2.0
FLOAT 1.40	77.9	84.6	5.2	.93	1.92	14432	2.7
FLOAT 1.60	90.0	95.8	7.0	1.14	2.15	14135	3.0
CUM(14M X 0)	100.0	100.0	12.0	3.23	4.26	13282	6.4

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	58.2
3/8" X 14M	32.9
14M X 100M	7.7
100M X 0	1.2

----- MOISTURE, % -----

TOTAL	2.7
AS RECEIVED	1.7

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33
SAMPLE NO. 511

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.70	1.80	--	--	--	--
ASH	12.27	7.07	55.97	57.00	--	--
VOLATILE MATTER	35.07	36.31	24.45	24.90	40.76	39.85
FIXED CARBON	50.97	54.82	17.77	18.10	59.24	60.15
BTU/LB	12985	13850	5507	5608	15093	15198
						13042

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	71.70	76.68	72.94	78.09	83.34	84.15
HYDROGEN	5.03	5.50	4.92	5.40	5.62	5.82
NITROGEN	1.18	1.37	1.21	1.40	1.38	1.51
SULFUR	4.32	2.03	4.39	2.07	5.02	2.23
OXYGEN	5.50	7.33	4.06	5.84	4.64	6.29
ASH	12.27	7.07	12.48	7.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	3.26	1.06	3.32	1.08	3.79	1.16
SULFATIC	.02	.01	.03	.04	.03	.01
ORGANIC	1.03	.96	1.05	.98	1.20	1.06
TOTAL	4.32	2.03	4.39	2.07	5.02	2.23

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	28.80	50.47
Al2O3 (ALUMINUM OXIDE)	15.21	22.28
Fe2O3 (IRON OXIDE)	35.76	17.19
TiO2 (TITANIUM OXIDE)	1.04	1.09
CaO (CALCIUM OXIDE)	9.66	3.92
MgO (MAGNESIUM OXIDE)	.61	.81
Na2O (SODIUM OXIDE)	.13	--
K2O (POTASSIUM OXIDE)	1.26	1.96
SO3 (SULFITES)	8.81	3.15

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	1.05	--
DOLOMITE	.22	--
HYDROGEN/CARBON	.81	.83
OXYGEN/CARBON	.04	.06
R250	.49	.78
SILICA	.38	.70
SILICA/ALUMINA	1.89	2.27

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60
INITIAL DEFORMATION (ID)	1900	2010
SOFTENING TEMPERATURE (ST)	1980	2090
FLUID TEMPERATURE (FT)	2090	2230

MISCELLANEOUS DATA, %

	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	.07	--
NA (SODIUM) (CALCULATED)	.01	--
MINERAL MATTER (FARR)	15.89	8.91
		74.36

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60
FREE SWELLING (FSI)	8 1/2	8 1/2
HARDGROVE GRINDABILITY (HGI)	65	--

STATE: WEST VIRGINIA
COUNTY: HARRISON

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33
SAMPLE NO. 512

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.9	3.6	.09	14553	1.4
FLOAT 1.40	84.2	6.4	.17	14114	1.5
FLOAT 1.60	90.2	7.2	.38	13989	1.9
CUM(1-1/2" X 100M)	100.0	14.4	.84	12789	2.6
100M X 0	.8	20.1	2.77	11830	7.1
TOTAL(1-1/2" X 0)	100.0	14.4	.86	12782	2.7

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.4	3.3	.08	14649	1.3
FLOAT 1.40	83.9	6.4	.19	14148	1.5
FLOAT 1.60	90.2	7.2	.34	14012	1.8
CUM(3/8" X 100M)	100.0	13.9	.78	12884	2.6
100M X 0	5.3	19.0	1.97	12016	5.2
TOTAL(3/8" X 0)	100.0	14.2	.84	12838	2.7

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.0	3.1	.09	14728	1.2
FLOAT 1.40	81.1	6.0	.18	14248	1.5
FLOAT 1.60	90.0	7.3	.31	14022	1.7
CUM(14M X 0)	100.0	14.1	.91	12861	2.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	71.9
3/8" X 14M	22.2
14M X 100M	5.1
100M X 0	.8

MOISTURE, %

TOTAL	3.7
AS RECEIVED	2.2

STATE: WEST VIRGINIA	BED: REDSTONE	BED CODE: 33
COUNTY: HARRISON	RANK: HIGH VOLATILE A BITUMINOUS	SAMPLE NO. 512
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	2.20 1.90 1.90	-- --
ASH	13.20 7.26 75.05	13.50 7.40 76.50
VOLATILE MATTER	32.94 35.04 12.36	33.68 35.72 12.60
FIXED CARBON	51.66 55.80 10.69	52.82 56.88 10.90
BTU/LB	12666 13741 2247	12951 14007 2291
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	70.73 76.15 12.23	72.32 77.63 12.47
HYDROGEN	5.39 5.75 1.68	5.26 5.65 1.50
NITROGEN	1.42 1.52 1.39	1.45 1.55 .40
SULFUR	1.53 1.15 6.35	1.57 1.17 6.48
OXYGEN	7.73 8.17 4.29	5.90 6.61 2.66
ASH	13.20 7.26 75.05	13.50 7.40 76.50
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	.89 .33 6.19	.91 .34 6.31
SULFATIC	.02 .02 .03	.03 .02 .03
ORGANIC	.62 .79 .13	.63 .81 .14
TOTAL	1.53 1.15 6.35	1.57 1.17 6.48
----- MINERAL ANALYSIS OF ASH, % -----		
	AS RECEIVED	MOISTURE AND ASH FREE
	RAW FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
OXIDES	55.27 56.07 54.88	1.06 .37 26.85
SiO2 (SILICON OXIDE)	27.46 29.92 22.95	.03 .02 .13
Al2O3 (ALUMINUM OXIDE)	11.25 8.43 12.62	.73 .87 .57
Fe2O3 (IRON OXIDE)	1.26 .15 .88	1.81 1.26 27.55
TiO2 (TITANIUM OXIDE)	1.46 7.13 1.86	6.82 7.14 11.30
CaO (CALCIUM OXIDE)	.82 .42 1.05	-- --
MgO (MAGNESIUM OXIDE)	.09 -- --	
Na2O (SODIUM OXIDE)	2.18 1.87 2.47	
K2O (POTASSIUM OXIDE)	.12 .01 .52	
SO3 (SULFITES)		
----- COAL UTILIZATION RATIOS -----		
	RAW FL 1.60	
BASE/ACID	.19 --	
DOLomite	.14 --	
HYDROGEN/CARBON	.87 .87	
OXYGEN/CARBON	.06 .06	
R250	.87 .85	
SILICA	.80 .77	
SILICA/ALUMINA	2.01 1.87	
----- FUSIBILITY OF ASH, DEGREES F -----		
	(IN OXIDIZING ATMOSPHERE)	
	RAW FL 1.60 SK 1.60	
INITIAL DEFORMATION (ID)	2550 2780	
SOFTENING TEMPERATURE (ST)	2650 2910+	
FLUID TEMPERATURE (FT)	2770 2910+	
----- MISCELLANEOUS DATA, % -----		
	RAW FL 1.60 SK 1.60	
CL (CHLORINE) (ANALYZED)	.02 --	
NA (SODIUM) (CALCULATED)	.01 --	
MINERAL MATTER (PARR)	15.44 8.63	
----- PHYSICAL PARAMETERS, INDEX -----		
	RAW FL 1.60 SK 1.60	
FREE SWELLING (FSI)	8 1/2 8 1/2	
HARDGROVE GRINDABILITY (HGI)	55 --	

STATE: WEST VIRGINIA
COUNTY: LEWIS

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33
SAMPLE NO. 513

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.6	3.7	.67	14437	2.1
FLOAT 1.40	94.6	5.7	1.17	14136	2.9
FLOAT 1.60	96.7	5.9	1.27	14099	3.1
CUM(1-1/2" X 100M)	100.0	7.6	1.95	13798	4.1
100M X 0	.9	18.1	5.10	11937	9.6
TOTAL(1-1/2" X 0)	100.0	7.7	1.98	13781	4.2

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.6	3.7	.55	14462	1.9
FLOAT 1.40	92.9	5.3	.93	14195	2.5
FLOAT 1.60	96.3	5.6	1.10	14139	2.7
CUM(3/8" X 100M)	100.0	7.4	1.91	13800	4.0
100M X 0	3.7	11.7	3.33	13048	6.5
TOTAL(3/8" X 0)	100.0	7.6	1.96	13772	4.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.9	3.4	.41	14411	1.8
FLOAT 1.40	91.5	5.0	.66	14192	2.2
FLOAT 1.60	94.7	5.3	.83	14133	2.4
CUM(14M X 0)	100.0	8.1	1.94	13641	4.5

RAW COAL SIZE AND MOISTURE ANALYSES

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	69.4	TOTAL AS RECEIVED
3/8" X 14M	24.5	
14M X 100M	5.2	
100M X 0	.9	

MOISTURE, %

3.5
2.4

STATE: WEST VIRGINIA
COUNTY: LEWIS
BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 33
SAMPLE NO. 513

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	2.40	2.20	--	--	--	--
ASH	7.59	5.18	7.78	5.30	--	--
VOLATILE MATTER	40.64	41.35	41.64	42.28	45.15	44.64
FIXED CARBON	49.37	51.27	50.58	52.42	54.84	55.35
BTU/LB	13360	13822	13689	14133	14843	14924

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	74.91	77.59	76.75	79.33	83.23	83.77
HYDROGEN	5.90	5.82	5.77	5.70	6.26	6.02
NITROGEN	1.26	1.30	1.29	1.33	1.40	1.40
SULFUR	2.55	1.58	2.61	1.62	2.83	1.71
OXYGEN	7.79	8.52	5.80	6.72	6.29	7.09
ASH	7.59	5.18	7.78	5.30	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.72	.89	1.76	.91	1.91	.96
SULFATIC	.09	.01	.09	.01	.10	.01
ORGANIC	.74	.68	.75	.70	.82	.74
TOTAL	2.55	1.58	2.61	1.62	2.83	1.71

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	28.98	38.35
Al2O3 (ALUMINUM OXIDE)	20.36	28.28
Fe2O3 (IRON OXIDE)	30.88	20.30
TiO2 (TITANIUM OXIDE)	.87	1.33
CaO (CALCIUM OXIDE)	8.12	4.48
MgO (MAGNESIUM OXIDE)	1.03	1.23
Na2O (SODIUM OXIDE)	.16	.19
K2O (POTASSIUM OXIDE)	1.11	1.59
SO3 (SULFITES)	6.03	2.90

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.82	.41
DOLOMITE	.22	.21
HYDROGEN/CARBON	.90	.86
OXYGEN/CARBON	.06	.06
R250	.56	.73
SILICA	.42	.60
SILICA/ALUMINA	1.42	1.36

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2000	1990
SOFTENING TEMPERATURE (ST)	2100	2120
FLUID TEMPERATURE (FT)	2220	2240
----- MISCELLANEOUS DATA, % -----		
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	.01	.01
	9.67	6.62

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	5	5 1/2
HARDGROVE GRINDABILITY (HGI)	51	--

STATE: WEST VIRGINIA
COUNTY: LEWIS

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

L&D CODE: 33
SAMPLE NO. 514

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.2	2.9	4.1	.41	1.65	14563	2.3
FLOAT 1.40	28.8	34.9	9.7	1.80	2.98	13556	4.4
FLOAT 1.60	91.1	94.6	22.0	1.84	2.79	11627	4.8
CUM(1-1/2" X 100M)	100.0	100.0	24.6	2.16	3.07	11200	5.5
100M X 0	1.1	1.1	26.1	2.42	3.46	10959	6.3
TOTAL(1-1/2" X 0)	100.0	100.0	24.6	2.16	3.07	11197	5.5

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	7.7	10.1	4.0	.30	1.66	14486	2.3
FLOAT 1.40	34.5	42.7	8.9	1.02	2.26	13702	3.3
FLOAT 1.60	83.2	89.7	19.8	1.37	2.42	11950	4.1
CUM(3/8" X 100M)	100.0	100.0	25.1	2.12	3.10	11083	5.6
100M X 0	6.0	6.0	24.9	1.92	2.89	11150	5.2
TOTAL(3/8" X 0)	100.0	100.0	25.1	2.11	3.09	11087	5.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	12.8	16.6	3.9	.35	1.63	14503	2.2
FLOAT 1.40	41.3	51.5	7.4	.67	1.87	13943	2.7
FLOAT 1.60	73.3	83.9	14.4	1.00	2.05	12804	3.2
CUM(14M X 0)	100.0	100.0	24.6	2.21	3.12	11181	5.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.5
3/8" X 14M	16.6
14M X 100M	4.8
100M X 0	1.1

MOISTURE, %

TOTAL AS RECEIVED	2.3
	1.6

STATE: WEST VIRGINIA
COUNTY: LEWIS

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33
SAMPLE NO. 514

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.60	1.40	--	--	--	--
ASH	24.90	14.77	25.30	14.98	45.42	52.31
VOLATILE MATTER	33.38	37.07	33.93	37.60	54.58	47.69
FIXED CARBON	40.12	46.75	40.77	47.43		
BTU/LB	10900	12540	11078	12718	14829	14191

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	60.47	69.69	61.45	70.68	82.26	83.13
HYDROGEN	4.56	5.17	4.45	5.09	5.96	5.99
NITROGEN	.91	1.07	.93	1.08	1.24	1.10
SULFUR	2.89	2.01	2.94	2.04	3.94	2.40
OXYGEN	6.27	7.29	4.93	6.13	6.60	7.21
ASH	24.90	14.77	25.30	14.98	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	2.16	.96	2.20	.97	2.95	1.14
SULFATIC	.02	.01	.02	.01	.03	.01
ORGANIC	.71	1.05	.72	1.06	.96	1.12
TOTAL	2.89	2.01	2.94	2.04	3.94	2.40

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	59.23	59.23	59.23	56.21		
SiO2 (SILICON OXIDE)	18.48	22.25	16.27	16.27	2320	2360
Al2O3 (ALUMINUM OXIDE)	11.15	8.58	16.77	16.77	2410	2440
Fe2O3 (IRON OXIDE)	1.20	1.63	.75	.75	2500	2530
TiO2 (TITANIUM OXIDE)	3.39	1.96	5.51	5.51		
CaO (CALCIUM OXIDE)	.86	.96	.70	.70		
MgO (MAGNESIUM OXIDE)	.35	--	--	--		
Na2O (SODIUM OXIDE)	2.53	2.94	1.90	1.90		
K2O (POTASSIUM OXIDE)	1.89	1.25	1.18	1.18		
SO3 (SULFITES)						

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.23	--	--	--	--	--
DOLOMITE	.23	--	--	--	--	--
HYDROGEN/CARBON	.87	.86				
OXYGEN/CARBON	.06	.07				
R250	.84	.89				
SILICA	.79	.84				
SILICA/ALUMINA	3.21	2.66				

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	7	1/2				
HARDGROVE GRINDABILITY (HGI)	56					

STATE: WEST VIRGINIA
COUNTY: LEWIS

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33
SAMPLE NO. 515

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.6	3.8	.76	14630	3.0
FLOAT 1.40	92.2	5.7	1.63	14332	4.2
FLOAT 1.60	94.5	6.0	1.74	14282	4.3
CUM(1-1/2" X 100M)	100.0	8.4	2.40	13834	5.5
100M X 0	.9	16.4	2.68	12365	7.8
TOTAL(1-1/2" X 0)	100.0	8.5	2.40	13821	5.5

SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.8	3.7	.61	14605	2.8
FLOAT 1.40	90.9	5.5	1.30	14317	3.9
FLOAT 1.60	95.0	5.8	1.50	14251	4.2
CUM(3/8" X 100M)	100.0	8.0	2.21	13858	5.4
100M X 0	3.9	12.2	2.21	13116	6.4
TOTAL(3/8" X 0)	100.0	8.2	2.21	13829	5.4

SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.2	3.2	.61	14665	2.7
FLOAT 1.40	88.3	4.9	1.15	14397	3.5
FLOAT 1.60	94.1	5.6	1.49	14287	4.0
CUM(14M X 0)	100.0	8.4	2.31	13785	5.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	66.6
3/8" X 14M	27.2
14M X 100M	5.3
100M X 0	.9

MOISTURE, %

TOTAL	3.3
AS RECEIVED	2.0

STATE: WEST VIRGINIA
COUNTY: LEWIS

BED: REDSTONE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 33
SAMPLE NO. 515

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.00	1.90	1.90	--	--	--	--	--	--
ASH	8.13	5.49	52.48	8.30	5.60	53.50	--	--	--
VOLATILE MATTER	39.41	40.30	25.21	40.22	41.08	25.70	43.86	43.52	55.27
FIXED CARBON	50.45	52.30	20.40	51.48	53.32	20.80	56.14	56.48	44.73
BTU/LB	13524	14015	5622	13800	14287	5730	15049	15134	12324

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	74.32	76.73	26.71	75.83	78.22	27.23	82.70	82.86	58.56
HYDROGEN	5.45	5.61	2.52	5.33	5.50	2.36	5.81	5.83	5.07
NITROGEN	1.16	1.20	.46	1.18	1.22	.47	1.29	1.30	1.01
SULFUR	3.76	2.83	16.13	3.84	2.88	16.44	4.19	3.05	35.36
OXYGEN	7.18	8.14	--	5.51	6.58	--	6.01	6.97	--
ASH	8.13	5.49	52.48	8.30	5.60	53.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.37	1.49	14.22	2.42	1.52	14.50	2.64	1.61	31.18
SULFATIC	.01	.01	.02	.02	.01	.02	.02	.01	.04
ORGANIC	1.37	1.32	1.89	1.40	1.35	1.92	1.53	1.43	4.14
TOTAL	3.76	2.83	16.13	3.84	2.88	16.44	4.19	3.05	35.36

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO ₂ (SILICON OXIDE)	29.06	28.34	27.99
Al ₂ O ₃ (ALUMINUM OXIDE)	19.41	25.09	12.81
Fe ₂ O ₃ (IRON OXIDE)	36.22	32.83	44.80
TiO ₂ (TITANIUM OXIDE)	1.31	1.34	1.65
CaO (CALCIUM OXIDE)	4.76	5.18	5.96
MgO (MAGNESIUM OXIDE)	1.21	1.41	.61
Na ₂ O (SODIUM OXIDE)	.59	--	--
K ₂ O (POTASSIUM OXIDE)	1.48	1.60	1.36
SO ₃ (SULFITES)	4.39	4.84	3.22

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.89	--
DOLOMITE	.13	--
HYDROGEN/CARBON	.84	.84
OXYGEN/CARBON	.05	.06
R250	.54	.58
SILICA	.41	.42
SILICA/ALUMINA	1.50	1.13

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2150	2020	--
SOFTENING TEMPERATURE (ST)	2300	2170	--
FLUID TEMPERATURE (FT)	2460	2330	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	.03	--	--
NA (SODIUM) (CALCULATED)	.04	--	--
MINERAL MATTER (PARR)	11.07	7.63	66.82

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7	7 1/2	--
HARDGROVE GRINDABILITY (HGI)	61	--	--

STATE: WEST VIRGINIA
COUNTY: HARRISON

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 516

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	14.8	5.6	.54	14062	3.0
FLOAT 1.40	81.1	8.6	1.26	13546	4.0
FLOAT 1.60	89.6	9.5	1.44	13386	4.3
CUM(1-1/2" X 100M)	100.0	14.4	1.59	12572	4.6
100M X 0	2.5	24.1	1.42	10948	4.8
TOTAL(1-1/2" X 0)	100.0	14.6	1.59	12532	4.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	17.3	5.1	.44	14214	3.1
FLOAT 1.40	79.3	8.2	.97	13654	4.0
FLOAT 1.60	90.3	9.3	1.29	13460	4.4
CUM(3/8" X 100M)	100.0	13.7	1.50	12732	4.8
100M X 0	6.5	21.2	1.22	11438	4.7
TOTAL(3/8" X 0)	100.0	14.2	1.48	12648	4.8

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	18.3	4.6	.54	14344	3.1
FLOAT 1.40	70.4	7.3	.99	13765	3.7
FLOAT 1.60	89.2	9.4	1.32	13388	4.2
CUM(14M X 0)	100.0	14.4	1.60	12549	4.8

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	63.1
3/8" X 14M	26.8
14M X 100M	7.6
100M X 0	2.5

--- MOISTURE, % ---
TOTAL
AS RECEIVED
5.0
3.0

STATE: WEST VIRGINIA
COUNTY: HARRISON
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 516

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.00	2.80	1.20	--	--	--
ASH	13.77	9.23	55.33	14.20	9.50	56.00
VOLATILE MATTER	36.33	38.35	19.27	37.45	39.45	19.50
FIXED CARBON	46.90	49.62	24.21	48.35	51.05	24.50
BTU/LB	12201	12999	5518	12579	13373	5585
					14661	14777
						12694

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	67.06	71.47	30.88	69.14	73.53	31.25
HYDROGEN	5.04	5.28	2.70	4.86	5.11	2.60
NITROGEN	1.31	1.40	.59	1.35	1.44	.60
SULFUR	2.96	2.94	4.58	3.05	3.02	4.63
OXYGEN	9.85	9.69	5.92	7.41	7.41	4.92
ASH	13.77	9.23	55.33	14.20	9.50	56.00

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.43	1.15	4.25	1.48	1.19	4.30
SULFATIC	.02	.01	.02	.02	.01	.02
ORGANIC	1.50	1.77	.31	1.55	1.82	.32
TOTAL	2.96	2.94	4.58	3.05	3.02	4.63

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	48.31	45.96	51.96
Al2O3 (ALUMINUM OXIDE)	22.01	21.71	22.08
Fe2O3 (IRON OXIDE)	19.34	22.76	15.67
TiO2 (TITANIUM OXIDE)	1.26	1.34	.92
CaO (CALCIUM OXIDE)	2.52	3.08	1.26
MgO (MAGNESIUM OXIDE)	1.66	1.68	1.66
Na2O (SODIUM OXIDE)	.71	--	--
K2O (POTASSIUM OXIDE)	3.03	2.06	2.70
SO3 (SULFITES)	1.21	1.24	.39

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.38	--
DOLomite	.15	--
HYDROGEN/CARBON	.84	.83
OXYGEN/CARBON	.08	.08
R250	.76	.72
SILICA	.67	.63
SILICA/ALUMINA	2.19	2.12

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1870	1860	--
SOFTENING TEMPERATURE (ST)	2000	2010	--
FLUID TEMPERATURE (FT)	2090	2080	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.02	--	--
MINERAL MATTER (PARR)	.07	--	--
	17.01	11.92	63.03

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	8 1/2	--
HARDGROVE GRINDABILITY (HGI)	56	52	--

STATE: WEST VIRGINIA
COUNTY: HARRISON

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 517

CUMULATIVE WASHABILITY DATA (DRY BASIS)

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	12.3	4.8	.66	14379	3.0
FLOAT 1.40	78.7	8.4	1.22	13797	4.0
FLOAT 1.60	87.4	9.7	1.27	13593	3.9
CUM(1-1/2" X 100M)	100.0	14.7	1.40	12446	4.5
100M X 0	1.9	29.1	1.31	9486	5.4
TOTAL(1-1/2" X 0)	100.0	15.0	1.40	12390	4.5

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	18.9	4.3	.64	14379	3.0
FLOAT 1.40	77.0	8.1	1.07	13849	3.9
FLOAT 1.60	87.0	9.9	1.14	13578	3.9
CUM(3/8" X 100M)	100.0	15.0	1.26	12417	4.4
100M X 0	6.9	23.8	1.06	10589	5.3
TOTAL(3/8" X 0)	100.0	15.6	1.25	12291	4.5

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	27.2	4.4	.61	14520	3.1
FLOAT 1.40	72.5	7.5	.94	14009	3.7
FLOAT 1.60	86.3	9.4	1.10	13706	4.0
CUM(14M X 0)	100.0	15.4	1.34	12430	4.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	71.1
3/8" X 14M	20.9
14M X 100M	6.1
100M X 0	1.9

MOISTURE, %
TOTAL AS RECEIVED
2.9
1.8

STATE: WEST VIRGINIA
COUNTY: HARRISON

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 517

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.80	1.90	1.40	--	--	--
ASH	15.81	9.42	52.36	16.10	9.60	53.10
VOLATILE MATTER	40.53	40.88	38.26	41.27	41.68	38.80
FIXED CARBON	41.86	47.80	7.99	42.63	48.72	8.10
BTU/LB	12105	13415	4339	12327	13675	4401
					14692	15128
						9384

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	67.86	74.45	28.95	69.10	75.89	29.36
HYDROGEN	5.02	5.52	2.03	4.90	5.41	1.90
NITROGEN	1.27	1.41	.39	1.29	1.44	.40
SULFUR	3.01	2.55	3.73	3.07	2.60	3.78
OXYGEN	7.04	6.64	12.54	5.54	5.05	11.46
ASH	15.81	9.42	52.36	16.10	9.60	53.10

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.43	1.06	3.09	1.46	1.08	3.14
SULFATIC	.02	.01	.01	.03	.01	.01
ORGANIC	1.55	1.48	.62	1.58	1.51	.63
TOTAL	3.01	2.55	3.73	3.07	2.60	3.78

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	26.58	39.21	17.77
SiO2 (SILICON OXIDE)	12.51	18.69	7.31
Al2O3 (ALUMINUM OXIDE)	10.09	14.98	7.87
Fe2O3 (IRON OXIDE)	.87	1.24	.48
TiO2 (TITANIUM OXIDE)	22.40	8.40	40.43
CaO (CALCIUM OXIDE)	6.26	4.44	10.24
MgO (MAGNESIUM OXIDE)	1.08	--	--
Na2O (SODIUM OXIDE)	1.78	2.95	1.27
K2O (POTASSIUM OXIDE)	19.89	9.26	11.56
SO3 (SULFITES)			

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	1.04	--
DOLOMITE	.69	--
HYDROGEN/CARBON	.85	.86
OXYGEN/CARBON	.06	.05
R250	.55	.71
SILICA	.41	.57
SILICA/ALUMINA	2.12	2.10

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2100	2070	--
SOFTENING TEMPERATURE (ST)	2190	2190	--
FLUID TEMPERATURE (FT)	2230	2240	--
MISCELLANEOUS DATA, %			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.04	--	--
MINERAL MATTER (PARR)	.13	--	--
	19.15	11.80	60.92

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	--
HARDGROVE GRINDABILITY (HGI)	55	--	--

BED CODE:	29
SAMPLE NO.	518

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL) -----

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL) -----

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

RAW COAL SIZE AND MOISTURE ANALYSES

----- MOISTURE, %

TOTAL	1.6
AS RECEIVED	1.2

STATE: WEST VIRGINIA
COUNTY: MARION
BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 29
SAMPLE NO. 518

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.19	1.00	.90	--	--	--	--	--	--
ASH	20.26	9.60	66.89	20.50	9.70	67.50	--	--	--
VOLATILE MATTER	35.92	40.04	18.43	36.35	40.45	18.60	45.73	44.79	57.23
FIXED CARBON	42.63	49.36	13.77	43.15	49.85	13.90	54.27	55.21	42.77
BTU/LB	11625	13445	3937	11765	13580	3973	14798	15039	12223

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	63.12	73.56	21.22	63.88	74.30	21.41	80.35	82.28	65.88
HYDROGEN	4.57	5.13	2.08	4.49	5.07	2.00	5.65	5.62	6.15
NITROGEN	1.13	1.30	.40	1.15	1.31	.40	1.44	1.46	1.23
SULFUR	4.33	3.55	7.59	4.38	3.59	7.66	5.51	3.98	23.57
OXYGEN	6.59	6.85	1.82	5.60	6.02	1.03	7.05	6.67	3.17
ASH	20.26	9.60	66.89	20.50	9.70	67.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.33	1.33	6.57	2.36	1.34	6.63	2.97	1.48	20.41
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.03
ORGANIC	1.99	2.22	1.01	2.01	2.24	1.02	2.53	2.48	3.13
TOTAL	4.33	3.55	7.59	4.38	3.59	7.66	5.51	3.98	23.57

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	48.03	46.57	49.48
Al2O3 (ALUMINUM OXIDE)	23.50	24.50	24.27
Fe2O3 (IRON OXIDE)	16.18	17.00	15.44
TiO2 (TITANIUM OXIDE)	1.13	1.31	.75
CaO (CALCIUM OXIDE)	2.94	2.24	2.94
MgO (MAGNESIUM OXIDE)	1.11	1.21	1.52
Na2O (SODIUM OXIDE)	1.04	--	--
K2O (POTASSIUM OXIDE)	2.45	2.12	2.88
SO3 (SULFITES)	2.26	2.37	2.24

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.33	--
DOLOMITE	.17	--
HYDROGEN/CARBON	.84	.82
OXYGEN/CARBON	.07	.06
R250	.79	.79
SILICA	.70	.70
SILICA/ALUMINA	2.04	1.90

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2240	2420	--
SOFTENING TEMPERATURE (ST)	2350	2550	--
FLUID TEMPERATURE (FT)	2460	2640	--
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.03	--	--
MINERAL MATTER (FARR)	.16	--	--
	24.55	12.45	77.11

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	--
HARDGROVE GRINDABILITY (HGI)	55	--	--

STATE: WEST VIRGINIA		BED: SEWICKLEY		BED CODE: 29	
COUNTY: MONONGALIA		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 519	
CUMULATIVE WASHABILITY DATA (DRY BASIS)					
----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.7	4.4	.50	14553	3.5
FLOAT 1.40	74.7	7.9	1.20	13938	4.4
FLOAT 1.60	92.9	10.4	1.78	13499	5.3
CUM(1-1/2" X 100M)	100.0	13.3	2.84	12990	7.0
100M X 0	.5	17.8	4.05	12200	10.1
TOTAL(1-1/2" X 0)	100.0	13.3	2.85	12986	7.0
----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.4	4.0	.34	14623	3.2
FLOAT 1.40	72.9	7.0	.82	14096	3.9
FLOAT 1.60	85.7	9.0	1.26	13745	4.6
CUM(3/8" X 100M)	100.0	14.6	3.05	12761	7.5
100M X 0	.9	16.7	3.60	12393	8.8
TOTAL(3/8" X 0)	100.0	14.6	3.05	12758	7.5
----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.9	3.5	.25	14711	3.0
FLOAT 1.40	75.5	6.6	.63	14166	3.5
FLOAT 1.60	89.2	8.9	1.03	13762	3.8
CUM(14M X 0)	100.0	13.4	2.88	12972	6.8
RAW COAL SIZE AND MOISTURE ANALYSES					
----- SIZE DISTRIBUTION, % -----					
SAMPLE CRUSHED TO PASS 1-1/2"					
1-1/2" X 3/8"	--	MOISTURE, %			
3/8" X 14M	--	TOTAL			
14M X 100M	--	AS RECEIVED			
100M X 0	--	2.3			
		.9			

STATE: WEST VIRGINIA
COUNTY: MONONGALIA

BED: SEWICKLEY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 29
SAMPLE NO. 519

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

MOISTURE FREE

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

MOISTURE

90

1.10

1.00

--

--

--

ASH

12.78

8.70

49.10

12.90

8.80

49.60

44.20

42.87

VOLATILE MATTER

38.15

38.67

--

38.50

39.10

--

55.80

57.13

FIXED CARBON

48.16

51.53

--

48.60

52.10

--

14994

15110

BTU/LB

12942

13628

--

13060

13780

--

ULTIMATE ANALYSIS, %

AS RECEIVED

MOISTURE FREE

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

CARBON

--

--

--

--

--

--

HYDROGEN

--

--

--

--

--

--

NITROGEN

--

--

--

--

--

--

SULFUR

4.40

2.84

18.93

2.87

19.12

5.10

3.15

OXYGEN

--

--

--

--

--

--

ASH

12.78

8.70

49.10

8.80

49.60

--

--

SULFUR FORMS ANALYSIS, %

AS RECEIVED

MOISTURE FREE

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

PYRITIC

2.76

.96

17.98

2.78

.97

18.16

3.19

1.06

SULFATIC

.03

.02

.04

.03

.02

.04

.03

.02

ORGANIC

1.62

1.86

.91

1.63

1.88

.92

1.83

2.06

TOTAL

4.40

2.84

18.93

4.44

2.87

19.12

5.10

3.15

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

MOISTURE FREE

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

OXIDES

--

--

--

--

--

--

SiO2 (SILICON OXIDE)

--

--

--

--

--

--

Al2O3 (ALUMINUM OXIDE)

--

--

--

--

--

--

Fe2O3 (IRON OXIDE)

--

--

--

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--

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TiO2 (TITANIUM OXIDE)

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CaO (CALCIUM OXIDE)

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MgO (MAGNESIUM OXIDE)

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Na2O (SODIUM OXIDE)

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--

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K2O (POTASSIUM OXIDE)

--

--

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--

SO3 (SULFITES)

--

--

--

--

--

--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

AS RECEIVED

MOISTURE FREE

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

INITIAL DEFORMATION (ID)

--

--

--

2080

2520

SOFTENING TEMPERATURE (ST)

--

--

--

2140

2570

FLUID TEMPERATURE (FT)

--

--

--

2360

2620

MISCELLANEOUS DATA, %

AS RECEIVED

MOISTURE FREE

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

CL (CHLORINE) (ANALYZED)

--

--

--

--

--

--

NA (SODIUM) (CALCULATED)

--

--

--

--

--

--

MINERAL MATTER (PARR)

16.37

11.08

64.08

PHYSICAL PARAMETERS, INDEX

AS RECEIVED

MOISTURE FREE

MOISTURE AND ASH FREE

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

RAW

FL 1.60

SK 1.60

FREE SWELLING (FSI)

--

--

--

8 1/2

9

HARDGROVE GRINDABILITY (HGI)

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--

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STATE: WEST VIRGINIA		BED: STOCKTON		BED CODE: 103	
COUNTY: LOGAN		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 520	
CUMULATIVE WASHABILITY DATA (DRY BASIS)					
----- SAMPLE CRUSHED TO PASS 1-1/2" -----					
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	24.4	29.2	3.3	14710	1.1
FLOAT 1.40	66.4	76.3	6.5	14148	1.1
FLOAT 1.60	86.1	93.8	10.7	13411	1.1
CUM(1-1/2" X 100M)	100.0	100.0	17.0	12304	1.2
100M X 0	.9	.9	.25	11778	2.4
TOTAL(1-1/2" X 0)	100.0	100.0	.05	12300	1.2
----- SAMPLE CRUSHED TO PASS 3/8" -----					
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	29.8	35.7	2.9	14780	1.1
FLOAT 1.40	66.7	77.0	5.9	14253	1.1
FLOAT 1.60	83.3	92.1	9.4	13639	1.1
CUM(3/8" X 100M)	100.0	100.0	16.8	12340	1.1
100M X 0	3.8	3.7	.08	12146	1.7
TOTAL(3/8" X 0)	100.0	100.0	.09	12332	1.1
----- SAMPLE CRUSHED TO PASS 14M -----					
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)					
PRODUCT	RECOVERY, %	ASH, %	SULFUR, %	HEATING VALUE	SO2 EMISSION
	WEIGHT		PYRITIC	BTU/LB	LB/MM BTU
FLOAT 1.30	30.6	36.9	2.7	14815	1.1
FLOAT 1.40	64.6	75.2	5.6	14306	1.1
FLOAT 1.60	83.5	92.8	9.3	13656	1.1
CUM(14M X 0)	100.0	100.0	17.1	12287	1.1
RAW COAL SIZE AND MOISTURE ANALYSES					
----- SIZE DISTRIBUTION, % -----					
SAMPLE CRUSHED TO PASS 1-1/2"					
1-1/2" X 3/8"	79.0	TOTAL		4.8	
3/8" X 14M	15.5	AS RECEIVED		1.9	
14M X 100M	4.6				
100M X 0	.9				

STATE: WEST VIRGINIA
COUNTY: LOGAN

BED: STOCKTON
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 103
SAMPLE NO. 520

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.90	1.40 1.40	--	--	--	--
ASH	16.19	8.80 54.23	16.50	8.93 55.00	--	--
VOLATILE MATTER	30.91	33.57 18.44	31.51	34.05 18.70	37.73	37.38 41.56
FIXED CARBON	51.01	56.23 25.93	51.99	57.03 26.30	62.27	62.62 58.44
BTU/LB	12164	13371 5788	12400	13561 5870	14850	14890 13044

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	69.07	75.98 34.22	70.40	77.06 34.71	84.31	84.62 77.13
HYDROGEN	4.62	4.98 2.62	4.50	4.89 2.50	5.39	5.37 5.56
NITROGEN	1.37	1.48 .79	1.40	1.50 .80	1.68	1.64 1.78
SULFUR	.65	.72 .45	.66	.73 .46	.80	.80 1.02
OXYGEN	8.10	8.04 7.69	6.53	6.89 6.53	7.82	7.57 14.52
ASH	16.19	8.80 54.23	16.50	8.93 55.00	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.07	.06 .13	.07	.06 .13	.08	.07 .29
SULFATIC	.08	.06 .10	.08	.06 .10	.10	.07 .22
ORGANIC	.51	.60 .22	.52	.61 .23	.62	.57 .50
TOTAL	.65	.72 .45	.66	.73 .46	.80	.80 1.02

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	.77	.76	--	--	--	--
OXYGEN/CARBON	.07	.07	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

FREE SWELLING	RAW	FL 1.60 SK 1.60
HARDGROVE GRINDABILITY (HGI)	5 1/2	6 1/2
	45	45

STATE: WEST VIRGINIA
COUNTY: GRANT

BED: UPPER FREEPORT
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 521

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	7.3	2.8	11.6	.13	15105	1.1
FLOAT 1.40	42.0	8.4	62.4	.49	14111	1.7
FLOAT 1.60	61.8	12.1	87.6	.80	13454	2.3
FLOAT 1.90	72.2	16.9	95.8	.96	12602	2.7
CUM(1-1/2" X 100M)	100.0	34.4	100.0	1.81	9495	5.1
100M X 0	.4	21.6	.5	2.16	11767	5.1
TOTAL(1-1/2" X 0)	100.0	34.3	100.0	1.81	9504	5.1

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	11.2	2.8	18.1	.12	15105	1.1
FLOAT 1.40	42.8	7.3	65.6	.39	14306	1.5
FLOAT 1.60	61.1	11.6	88.6	.60	13543	1.9
FLOAT 1.90	72.2	16.9	95.8	.56	12602	2.7
CUM(3/8" X 100M)	100.0	35.3	100.0	1.75	9335	5.1
100M X 0	1.2	27.2	1.4	2.19	10773	5.7
TOTAL(3/8" X 0)	100.0	35.2	100.0	1.76	9352	5.1

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.7	2.7	16.8	.11	15123	1.0
FLOAT 1.40	37.8	6.4	56.7	.30	14466	1.4
FLOAT 1.60	60.8	12.6	84.3	.60	13365	1.9
FLOAT 1.90	72.2	16.9	95.8	.96	12602	2.7
CUM(14M X 0)	100.0	33.6	100.0	1.83	9637	5.0

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.4

TOTAL AS RECEIVED 1.0 .7

----- MOISTURE, %

STATE: WEST VIRGINIA	BED: UPPER FREEPORT	BED CODE: 71
COUNTY: GRANT	RANK: LOW VOLATILE BITUMINOUS	SAMPLE NO. 521
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M		
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----		
	AS RECEIVED	MOISTURE FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
MOISTURE	70	---
ASH	33.17	---
VOLATILE MATTER	15.65	23.66
FIXED CARBON	50.48	76.34
BTU/LB	9994	15111
----- ULTIMATE ANALYSIS, % -----		
	AS RECEIVED	MOISTURE FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
CARBON	---	---
HYDROGEN	---	---
NITROGEN	---	---
SULFUR	2.23	3.38
OXYGEN	---	---
ASH	33.17	---
----- SULFUR FORMS ANALYSIS, % -----		
	AS RECEIVED	MOISTURE FREE
RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
PYRITIC	1.88	1.89
SULFATIC	.02	.02
ORGANIC	.34	.34
TOTAL	2.23	2.25
----- MINERAL ANALYSIS OF ASH, % -----		
	RAW	FL 1.60 SK 1.60
OXIDES	---	---
SiO2 (SILICON OXIDE)	---	---
Al2O3 (ALUMINUM OXIDE)	---	---
Fe2O3 (IRON OXIDE)	---	---
TiO2 (TITANIUM OXIDE)	---	---
CaO (CALCIUM OXIDE)	---	---
MgO (MAGNESIUM OXIDE)	---	---
Na2O (SODIUM OXIDE)	---	---
K2O (POTASSIUM OXIDE)	---	---
SO3 (SULFITES)	---	---
----- COAL UTILIZATION RATIOS -----		
	RAW	FL 1.60
BASE/ACID	---	---
DOLomite	---	---
HYDROGEN/CARBON	---	---
OXYGEN/CARBON	---	---
R250	---	---
SILICA	---	---
SILICA/ALUMINA	---	---
----- FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE) -----		
	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	---	---
SOFTENING TEMPERATURE (ST)	---	---
FLUID TEMPERATURE (FT)	---	---
----- MISCELLANEOUS DATA, % -----		
	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	---	---
NA (SODIUM) (CALCULATED)	---	---
MINERAL MATTER (PARR)	37.31	---
----- PHYSICAL PARAMETERS, INDEX -----		
	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	---	---
HARDGROVE GRINDABILITY (HGI)	---	---

STATE: WEST VIRGINIA
COUNTY: GRANT

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 522

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	4.3	7.2	2.6	.27	15202	1.6
FLOAT 1.40	40.7	63.1	8.8	.93	14117	2.6
FLOAT 1.60	57.8	86.8	11.3	1.63	13680	3.6
CUM(1-1/2" X 100M)	100.0	100.0	37.4	2.35	9112	6.2
100M X 0	1.6	2.3	15.9	2.55	12875	5.8
TOTAL(1-1/2" X 0)	100.0	100.0	37.1	2.35	9172	6.2

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.6	16.3	3.0	.30	15132	1.5
FLOAT 1.40	36.3	58.1	7.9	.79	14275	2.2
FLOAT 1.60	54.6	84.0	11.1	1.33	13715	3.0
CUM(3/8" X 100M)	100.0	100.0	38.5	2.44	8920	6.9
100M X 0	6.5	9.2	17.6	2.57	12577	5.4
TOTAL(3/8" X 0)	100.0	100.0	37.1	2.45	9157	6.8

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	7.9	13.1	2.1	.10	15290	1.3
FLOAT 1.40	37.2	57.8	7.5	.51	14345	1.8
FLOAT 1.60	54.3	80.8	10.9	.80	13750	2.3
CUM(14M X 0)	100.0	100.0	36.7	2.39	9235	6.3

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	61.9
3/8" X 14M	28.1
14M X 100M	8.4
100M X 0	1.6

----- MOISTURE, % -----

TOTAL
AS RECEIVED
3.3
2.0

STATE: WEST VIRGINIA
COUNTY: GRANT

BED: UPPER FREPPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 522

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	2.00	80	38.17	11.34	28.39	24.39
ASH	37.40	11.25	17.56	21.62	71.60	75.61
VOLATILE MATTER	17.21	21.45	44.27	67.04	14336	15490
FIXED CARBON	43.39	66.50		18.30		11688
BTU/LB	8687	13624	8864	13734		

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	49.90	77.69	50.92	78.32	82.35	88.33
HYDROGEN	3.36	4.46	3.20	4.41	5.18	4.97
NITROGEN	.90	1.32	.91	1.33	1.48	1.50
SULFUR	2.76	1.57	2.82	1.58	4.56	1.78
OXYGEN	5.67	3.71	3.98	3.02	6.43	3.41
ASH	37.40	11.25	38.17	11.34		

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	2.50	.87	2.55	.88	4.12	.99
SULFATIC	.05	.04	.06	.04	.09	.23
ORGANIC	.21	.66	.21	.66	.34	.75
TOTAL	2.76	1.57	2.82	1.58	4.56	1.78

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60
OXIDES				
SiO2 (SILICON OXIDE)	--	--	2910+	2910+
Al2O3 (ALUMINUM OXIDE)	--	--	2910+	2910+
Fe2O3 (IRON OXIDE)	--	--	2910+	2910+
TiO2 (TITANIUM OXIDE)	--	--	2910+	2910+
CaO (CALCIUM OXIDE)	--	--		
MgO (MAGNESIUM OXIDE)	--	--		
Na2O (SODIUM OXIDE)	.30	.40		
K2O (POTASSIUM OXIDE)	--	--		
SO3 (SULFITES)	--	--		

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60
BASE/ACID	--	--	.09	--
DOLOMITE	--	--	.08	.15
HYDROGEN/CARBON	.75	.68	42.77	13.11
OXYGEN/CARBON	.06	.03		
R250	--	--		
SILICA	--	--		
SILICA/ALUMINA	--	--		

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60
FREE SWELLING			2 1/2	8
HARDGROVE GRINDABILITY (HGI)			74	--

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 523

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.7	63.6	4.4	.18	14821	1.0
FLOAT 1.40	81.5	91.5	5.8	.25	14572	1.1
FLOAT 1.60	88.0	97.4	7.0	.32	14359	1.2
FLOAT 1.90	90.0	98.7	7.7	.39	14235	1.3
CUM(1-1/2" X 100M)	100.0	100.0	14.8	.89	12974	2.2
100M X 0	.5	.5	10.9	1.00	13667	2.3
TOTAL(1-1/2" X 0)	100.0	100.0	14.8	.89	12978	2.2

----- SAMPLE CRUSHED TO PASS 3/8" (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.8	63.2	3.5	.10	14981	.9
FLOAT 1.40	80.7	91.0	5.4	.14	14643	.9
FLOAT 1.60	87.3	97.0	6.6	.18	14430	1.0
FLOAT 1.90	90.0	98.7	7.7	.39	14235	1.3
CUM(3/8" X 100M)	100.0	100.0	14.7	.82	12992	2.2
100M X 0	1.3	1.3	13.4	1.03	13223	2.4
TOTAL(3/8" X 0)	100.0	100.0	14.7	.82	12995	2.2

----- SAMPLE CRUSHED TO PASS 14M (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.8	53.1	3.0	.08	15069	.8
FLOAT 1.40	77.7	88.0	5.0	.11	14714	.9
FLOAT 1.60	86.8	96.5	6.5	.13	14448	.9
FLOAT 1.90	90.0	98.7	7.7	.39	14235	1.3
CUM(14M X 0)	100.0	100.0	14.7	.90	12992	2.3

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"
1-1/2" X 3/8" --
3/8" X 14M --
14M X 100M --
100M X 0 .5

----- MOISTURE, % -----
TOTAL
AS RECEIVED
1.5
.9

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 523

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.90	--	--	--	--	--
ASH	14.07	--	--	14.20	--	--
VOLATILE MATTER	26.36	--	--	26.60	--	--
FIXED CARBON	58.67	--	--	59.20	--	--
BTU/LB	13175	--	--	13295	--	15495

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.37	--	--	1.38	--	1.61
OXYGEN	--	--	--	--	--	--
ASH	14.07	--	--	14.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.81	--	--	.82	--	.96
SULFATIC	.12	--	--	.12	--	.14
ORGANIC	.44	--	--	.44	--	.51
TOTAL	1.37	--	--	1.38	--	1.61

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	16.10	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 524

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	43.6	53.2	3.9	.42	14986	1.3
FLOAT 1.40	72.3	85.5	5.8	.65	14518	1.7
FLOAT 1.60	81.0	94.0	7.0	.92	14246	2.1
CUM(1-1/2" X 100M)	100.0	100.0	18.2	1.91	12278	4.2
100M X 0	2.1	2.0	21.7	1.51	11661	4.3
TOTAL(1-1/2" X 0)	100.0	100.0	18.3	1.90	12265	4.2

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	45.3	56.5	3.3	.17	15086	1.1
FLOAT 1.40	70.8	85.8	5.0	.32	14660	1.3
FLOAT 1.60	78.6	93.6	6.2	.41	14407	1.4
CUM(3/8" X 100M)	100.0	100.0	19.3	1.79	12103	4.3
100M X 0	7.2	7.4	17.7	1.08	12382	3.1
TOTAL(3/8" X 0)	100.0	100.0	19.2	1.74	12123	4.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	50.2	61.6	3.7	.15	14981	1.0
FLOAT 1.40	71.1	85.3	5.1	.19	14641	1.1
FLOAT 1.60	80.6	94.6	6.6	.29	14337	1.2
CUM(14M X 0)	100.0	100.0	18.4	1.82	12211	4.1

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	41.1
3/8" X 14M	43.1
14M X 100M	13.7
100M X 0	2.1

----- MOISTURE, % -----

TOTAL
AS RECEIVED
2.0
1.4

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 524

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.40	1.50	19.14	68.30	--	--
ASH	18.87	6.50	28.21	15.30	34.88	48.26
VOLATILE MATTER	27.81	30.93	52.66	16.40	65.12	51.74
FIXED CARBON	51.92	61.07				
BTU/LB	11931	14122	12100	14337	14964	15350

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	67.75	79.22	68.71	80.43	84.97	86.11
HYDROGEN	4.70	5.45	4.61	5.36	5.70	5.74
NITROGEN	1.23	1.48	1.25	1.50	1.54	1.61
SULFUR	2.27	.77	2.30	.78	2.84	.84
OXYGEN	5.19	6.58	4.00	5.33	4.94	5.70
ASH	18.87	6.50	19.14	6.60	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.62	.31	1.64	.32	2.03	.34
SULFATIC	.03	.01	.03	.01	.04	.01
ORGANIC	.62	.45	.63	.45	.78	.49
TOTAL	2.27	.77	2.30	.78	2.84	.84

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES		
SiO2 (SILICON OXIDE)	51.84	46.65
Al2O3 (ALUMINUM OXIDE)	26.84	30.47
Fe2O3 (IRON OXIDE)	15.71	10.52
TiO2 (TITANIUM OXIDE)	1.16	1.19
CaO (CALCIUM OXIDE)	.81	3.65
MgO (MAGNESIUM OXIDE)	.59	1.19
Na2O (SODIUM OXIDE)	.38	--
K2O (POTASSIUM OXIDE)	1.87	2.26
SO3 (SULFITES)	.40	2.86

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.24	--
DOLOMITE	.07	--
HYDROGEN/CARBON	.81	.80
OXYGEN/CARBON	.05	.05
R250	.83	.84
SILICA	.75	.76
SILICA/ALUMINA	1.93	1.53

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2535	2540
SOFTENING TEMPERATURE (ST)	2635	2650
FLUID TEMPERATURE (FT)	2720	2740
MISCELLANEOUS DATA, %		
CL (CHLORINE) (ANALYZED)	.11	--
NA (SODIUM) (CALCULATED)	.05	--
MINERAL MATTER (FARR)	21.47	7.54
		76.04

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	7	9
HARDGROVE GRINDABILITY (HGI)	81	76

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 525

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.1	4.3	.21	14839	1.0
FLOAT 1.40	81.0	6.6	.42	14430	1.3
FLOAT 1.60	89.2	7.9	.54	14199	1.5
FLOAT 1.90	92.5	9.0	.65	14004	1.7
CUM(1-1/2" X 100M)	100.0	13.7	.98	13170	2.3
100M X 0	.2	12.9	1.24	13312	2.6
TOTAL(1-1/2" X 0)	100.0	13.7	.98	13170	2.3

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.9	3.7	.14	14945	.9
FLOAT 1.40	80.2	6.0	.20	14537	1.0
FLOAT 1.60	88.7	7.3	.29	14306	1.1
FLOAT 1.90	92.5	9.0	.65	14004	1.7
CUM(3/8" X 100M)	100.0	13.6	1.09	13187	2.5
100M X 0	.7	13.6	1.32	13187	2.7
TOTAL(3/8" X 0)	100.0	13.6	1.09	13187	2.5

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.8	3.6	.09	14963	.8
FLOAT 1.40	79.7	5.6	.16	14608	.9
FLOAT 1.60	88.5	7.0	.21	14359	1.0
FLOAT 1.90	92.5	9.0	.65	14004	1.7
CUM(14M X 0)	100.0	13.5	.98	13205	2.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	2.8
3/8" X 14M	1.5
14M X 100M	
100M X 0	
TOTAL AS RECEIVED	

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 525

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.50	--	--	--	--	--
ASH	13.83	--	14.04	--	--	--
VOLATILE MATTER	26.38	--	26.78	--	31.16	--
FIXED CARBON	58.29	--	59.18	--	68.84	--
BTU/LB	13073	--	13272	--	15440	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.50	--	1.52	--	1.77	--
OXYGEN	--	--	--	--	--	--
ASH	13.83	--	14.04	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.97	--	.98	--	1.14	--
SULFATIC	.02	--	.02	--	.60	--
ORGANIC	.51	--	.52	--	--	--
TOTAL	1.50	--	1.52	--	1.77	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60
OXIDES	--	--
SiO2 (SILICON OXIDE)	--	--
Al2O3 (ALUMINUM OXIDE)	--	--
Fe2O3 (IRON OXIDE)	--	--
TiO2 (TITANIUM OXIDE)	--	--
CaO (CALCIUM OXIDE)	--	--
MgO (MAGNESIUM OXIDE)	--	--
Na2O (SODIUM OXIDE)	--	--
K2O (POTASSIUM OXIDE)	--	--
SO3 (SULFITES)	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	--	--
SOFTENING TEMPERATURE (ST)	--	--
FLUID TEMPERATURE (FT)	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60 SK 1.60
CL (CHLORINE) (ANALYZED)	--	--
NA (SODIUM) (CALCULATED)	--	--
MINERAL MATTER (PARR)	16.00	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60 SK 1.60
FREE SWELLING (FSI)	--	--
HARDGROVE GRINDABILITY (HGI)	--	--

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 526

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.9	37.9	4.3	.24	1.08	14836	1.5
FLOAT 1.40	63.9	78.2	7.2	.46	1.27	14309	1.8
FLOAT 1.60	79.3	93.0	10.5	.59	1.38	13710	2.0
FLOAT 1.90	86.3	97.8	13.0	.73	1.52	13255	2.3
CUM(1-1/2" X 100M)	100.0	100.0	21.6	1.35	2.16	11692	3.7
100M X 0	.5	.6	14.3	1.99	2.97	13019	4.6
TOTAL(1-1/2" X 0)	100.0	100.0	21.6	1.35	2.16	11699	3.7

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	36.3	46.2	4.2	.22	1.05	14855	1.4
FLOAT 1.40	62.4	77.3	6.4	.38	1.19	14455	1.6
FLOAT 1.60	78.3	92.7	9.9	.50	1.29	13819	1.9
FLOAT 1.90	86.3	97.8	13.0	.73	1.52	13255	2.3
CUM(3/8" X 100M)	100.0	100.0	21.7	1.29	2.11	11674	3.6
100M X 0	.9	1.0	17.8	2.01	2.96	12383	4.8
TOTAL(3/8" X 0)	100.0	100.0	21.7	1.30	2.12	11680	3.6

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.1	44.6	3.5	.16	.98	14982	1.3
FLOAT 1.40	61.1	75.4	5.8	.26	1.06	14564	1.5
FLOAT 1.60	78.3	92.7	9.1	.37	1.11	13964	1.6
FLOAT 1.90	86.3	97.8	13.0	.73	1.52	13255	2.3
CUM(14M X 0)	100.0	100.0	21.0	1.42	2.24	11801	3.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %	MOISTURE, %
SAMPLE CRUSHED TO PASS 1-1/2"	
1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	.5
TOTAL	.9
AS RECEIVED	.5

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: UPPER FREEPORT
RANK: MED VOLATILE BITUMINOUS

BED CODE: 71
SAMPLE NO. 526

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.50	--	--	--	--	--
ASH	20.70	--	--	20.80	--	--
VOLATILE MATTER	23.38	--	--	23.50	--	--
FIXED CARBON	55.42	--	--	55.70	--	--
BTU/LB	12102	--	--	12163	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.09	--	--	2.10	--	--
OXYGEN	--	--	--	--	--	--
ASH	20.70	--	--	20.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.47	--	--	1.48	--	--
SULFATIC	.06	--	--	.06	--	--
ORGANIC	.56	--	--	.56	--	--
TOTAL	2.09	--	--	2.10	--	--

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES			
SiO2 (SILICON OXIDE)	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--
CaO (CALCIUM OXIDE)	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--
Na2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	23.62	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 527

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.1	42.9	4.3	1.06	14982	1.5
FLOAT 1.40	58.5	82.6	7.7	1.09	14371	1.9
FLOAT 1.60	68.0	93.7	9.8	1.34	14016	2.3
CUM(1-1/2" X 100M)	100.0	100.0	30.6	2.27	10172	4.9
100M X 0	1.7	1.9	24.1	3.24	11368	5.9
TOTAL(1-1/2" X 0)	100.0	100.0	30.5	2.29	10192	4.9

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.3	44.9	3.8	.63	15085	1.3
FLOAT 1.40	58.9	83.9	7.2	.80	14498	1.7
FLOAT 1.60	67.5	94.0	9.3	.99	14180	1.9
CUM(3/8" X 100M)	100.0	100.0	31.0	2.00	10182	4.8
100M X 0	5.3	6.0	23.3	2.37	11513	4.9
TOTAL(3/8" X 0)	100.0	100.0	30.6	2.02	10252	4.8

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.1	41.6	3.9	.72	14941	1.1
FLOAT 1.40	53.0	76.0	6.7	.70	14475	1.4
FLOAT 1.60	66.9	92.5	9.5	.78	13970	1.5
CUM(14M X 0)	100.0	100.0	31.0	2.06	10099	4.9

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	36.2
3/8" X 14M	48.3
14M X 100M	13.8
100M X 0	1.7

----- MOISTURE, % -----

TOTAL AS RECEIVED	1.7 1.1
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STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 527

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.10	.90 1.00	--	--	--	--
ASH	29.27	9.79 72.96	29.60	9.88 73.70	--	--
VOLATILE MATTER	24.22	29.48 12.67	24.49	29.75 12.80	34.78	33.01 48.67
FIXED CARBON	45.41	59.82 13.37	45.91	60.37 13.50	65.22	66.99 51.33
BTU/LB	10191	13786 2319	10304	13912 2342	14636	15437 8906

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	58.24	77.23 15.38	58.89	77.93 15.54	83.65	86.47 59.09
HYDROGEN	4.10	5.04 1.99	4.02	4.99 1.90	5.72	5.53 7.22
NITROGEN	1.15	1.52 .30	1.17	1.54 .30	1.66	1.71 1.14
SULFUR	2.29	1.04 5.19	2.32	1.05 5.24	3.29	1.17 19.94
OXYGEN	4.94	5.38 4.17	4.01	4.62 3.32	5.69	5.12 12.61
ASH	29.27	9.79 72.96	29.60	9.88 73.70	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.98	.85 4.60	2.00	.86 4.65	2.84	.95 17.67
SULFATIC	.03	.03 .04	.04	.03 .04	.05	.03 .15
ORGANIC	.28	.16 .55	.28	.16 .56	.40	.18 2.12
TOTAL	2.29	1.04 5.19	2.32	1.05 5.24	3.29	1.17 19.94

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	60.11	51.90 60.00				
SiO2 (SILICON OXIDE)	27.04	33.02 25.90				
Al2O3 (ALUMINUM OXIDE)	6.39	8.61 8.13				
Fe2O3 (IRON OXIDE)	1.26	1.13 1.29				
TiO2 (TITANIUM OXIDE)	.48	1.26 .56				
CaO (CALCIUM OXIDE)	.67	.71 .61				
MgO (MAGNESIUM OXIDE)	.35	.30 .45				
Na2O (SODIUM OXIDE)	2.44	2.08 2.17				
K2O (POTASSIUM OXIDE)	.16	.26 .20				
SO3 (SULFITES)						

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
BASE/ACID	.12	.15				
DOLOMITE	.11	.15				
HYDROGEN/CARBON	.82	.77				
OXYGEN/CARBON	.05	.04				
R250	.93	.90				
SILICA	.89	.83				
SILICA/ALUMINA	2.22	1.57				

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
FREE SWELLING						
HARDGROVE GRINDABILITY (HGI)	8	1/2 73				

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
INITIAL DEFORMATION (ID)	2600	2700				
SOFTENING TEMPERATURE (ST)	2710	2790				
FLUID TEMPERATURE (FT)	2820	2900				
MISCELLANEOUS DATA, %						
CL (CHLORINE) (ANALYZED)						
NA (SODIUM) (CALCULATED)						
MINERAL MATTER (PARR)	33.24	11.25				

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 528

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE	SO ₂ EMISSION
	WEIGHT				TOTAL	BTU/LB	LB/MM BTU
FLOAT 1.30	26.4	31.7	4.4	.20	.80	14818	1.1
FLOAT 1.40	71.4	82.7	7.4	.46	1.10	14273	1.5
FLOAT 1.60	83.7	94.6	9.3	.72	1.39	13928	2.0
FLOAT 1.90	88.9	97.9	11.2	.89	1.57	13582	2.3
CUM(1-1/2" X 100M)	100.0	100.0	18.1	1.52	2.25	12328	3.7
100M X 0	.2	.2	15.9	1.50	2.12	12728	3.3
TOTAL(1-1/2" X 0)	100.0	100.0	18.1	1.52	2.25	12329	3.6

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE	SO ₂ EMISSION
	WEIGHT				TOTAL	BTU/LB	LB/MM BTU
FLOAT 1.30	32.7	39.9	3.7	.14	.77	14946	1.0
FLOAT 1.40	71.7	84.1	6.8	.26	.89	14382	1.2
FLOAT 1.60	82.5	94.4	8.8	.37	.99	14019	1.4
FLOAT 1.90	88.9	97.9	11.2	.89	1.57	13582	2.3
CUM(3/8" X 100M)	100.0	100.0	18.5	1.43	2.24	12256	3.7
100M X 0	.5	.5	16.9	1.74	2.52	12546	4.0
TOTAL(3/8" X 0)	100.0	100.0	18.5	1.43	2.24	12257	3.7

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %	BTU	ASH, %	PYRITIC	SULFUR, %	HEATING VALUE	SO ₂ EMISSION
	WEIGHT				TOTAL	BTU/LB	LB/MM BTU
FLOAT 1.30	35.6	43.5	3.6	.11	.75	14964	1.0
FLOAT 1.40	72.1	84.9	6.5	.20	.84	14437	1.2
FLOAT 1.60	82.0	94.3	8.4	.25	.88	14091	1.2
FLOAT 1.90	88.9	97.9	11.2	.89	1.57	13582	2.3
CUM(14M X 0)	100.0	100.0	18.5	1.61	2.44	12256	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" --
3/8" X 14M --
14M X 100M --
100M X 0 .2

MOISTURE, %

TOTAL
AS RECEIVED
1.8
1.0

STATE: WEST VIRGINIA
COUNTY: PRESTON
BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 71
SAMPLE NO. 528

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.00	--	--	--	--	--
ASH	18.02	--	--	18.20	--	--
VOLATILE MATTER	27.92	--	--	28.20	--	34.47
FIXED CARBON	53.06	--	--	53.60	--	65.53
BTU/LB	12418	--	--	12543	--	15334

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.30	--	--	2.33	--	2.84
OXYGEN	--	--	--	--	--	--
ASH	18.02	--	--	18.20	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.58	--	--	1.60	--	1.95
SULFATIC	.26	--	--	.26	--	.32
ORGANIC	.47	--	--	.47	--	.57
TOTAL	2.30	--	--	2.33	--	2.84

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	20.94	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

STATE: WEST VIRGINIA
 COUNTY: PRESTON

BED: UPPER FREEPORT
 RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
 SAMPLE NO. 529

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO ASS 1-1/2" ---
 (FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.5	3.8	.33	14927	1.2
FLOAT 1.40	69.5	6.4	.64	14455	1.9
FLOAT 1.60	78.3	8.2	.83	14128	2.2
FLOAT 1.90	84.6	10.7	1.06	13673	2.6
CUM(1-1/2" X 100M)	100.0	20.8	1.82	11838	4.6
100M X 0	.3	12.5	1.29	13346	2.9
TOTAL(1-1/2" X 0)	100.0	20.8	1.82	11842	4.6

--- SAMPLE CRUSHED TO PASS 3/8" ---
 (FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.2	3.2	.20	15036	1.1
FLOAT 1.40	68.7	5.5	.34	14618	1.3
FLOAT 1.60	78.1	7.5	.45	14255	1.5
FLOAT 1.90	84.6	10.7	1.06	13673	2.6
CUM(3/8" X 100M)	100.0	20.6	1.83	11874	4.6
100M X 0	.8	16.3	1.52	12655	3.5
TOTAL(3/8" X 0)	100.0	20.6	1.83	11880	4.6

--- SAMPLE CRUSHED TO PASS 14M ---
 (FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.2	3.2	.13	15036	1.0
FLOAT 1.40	68.0	5.2	.24	14673	1.1
FLOAT 1.60	78.1	7.2	.31	14309	1.3
FLOAT 1.90	84.6	10.7	1.06	13673	2.6
CUM(14M X 0)	100.0	20.4	1.86	11910	4.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
 SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	---
3/8" X 14M	---
14M X 100M	---
100M X 0	.3

--- MOISTURE, % ---

TOTAL AS RECEIVED	2.2
	1.4

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: UPPER FREEPORT
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 71
SAMPLE NO. 529

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.40	--	--	--	--	--
ASH	19.31	--	--	19.58	--	--
VOLATILE MATTER	27.87	--	--	28.27	--	--
FIXED CARBON	51.42	--	--	52.15	35.15	--
					64.85	--
BTU/LB	12434	--	--	12611	--	15682

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	2.44	--	--	2.47	3.07	--
OXYGEN	--	--	--	--	--	--
ASH	19.31	--	--	19.58	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.90	--	--	1.93	--	--
SULFATIC	.12	--	--	.12	--	--
ORGANIC	.41	--	--	.42	.15	--
TOTAL	2.44	--	--	2.47	.52	--
					3.07	--

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	22.51	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: UPPER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 76
SAMPLE NO. 530

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	20.9	24.4	3.4	.09	14935	.9
FLOAT 1.40	66.6	73.6	7.7	.30	14162	1.2
FLOAT 1.60	89.8	94.1	11.9	.46	13425	1.5
CUM(1-1/2" X 100M)	100.0	100.0	15.3	1.01	12816	2.4
100M X 0	1.6	1.6	14.4	2.28	12940	4.9
TOTAL(1-1/2" X 0)	100.0	100.0	15.3	1.03	12818	2.4

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	31.4	37.0	2.9	.13	14975	.8
FLOAT 1.40	65.7	74.2	6.6	.13	14356	.8
FLOAT 1.60	86.3	92.5	10.8	.24	13624	1.0
CUM(3/8" X 100M)	100.0	100.0	15.9	1.11	12707	2.5
100M X 0	5.9	6.2	12.4	1.55	13305	3.7
TOTAL(3/8" X 0)	100.0	100.0	15.7	1.14	12743	2.6

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	37.7	45.0	3.0	.14	14978	.9
FLOAT 1.40	65.4	75.3	6.0	.15	14452	.9
FLOAT 1.60	84.8	92.4	10.5	.30	13672	1.2
CUM(14M X 0)	100.0	100.0	16.7	1.13	12545	2.7

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	68.5
3/8" X 14M	23.4
14M X 100M	6.5
100M X 0	1.6

TOTAL	2.5
AS RECEIVED	1.3

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: UPPER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 76
SAMPLE NO. 530

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.30	1.10	1.10	--	--	--	--	--	--
ASH	16.38	9.97	48.70	16.60	10.08	49.24	--	--	--
VOLATILE MATTER	28.65	30.90	17.17	29.03	31.24	17.36	34.80	34.74	34.20
FIXED CARBON	53.67	58.03	33.03	54.37	58.68	33.40	65.20	65.26	65.80
BTU/LB	12397	13585	6453	12560	13736	6525	15060	15276	12853

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	70.09	76.36	40.60	71.01	77.21	41.05	85.14	85.87	80.86
HYDROGEN	4.63	4.89	3.05	4.54	4.82	2.96	5.45	5.36	5.84
NITROGEN	1.10	1.17	.66	1.11	1.18	.67	1.33	1.31	1.32
SULFUR	1.59	.74	6.02	1.62	.75	6.08	1.94	.83	11.98
OXYGEN	6.21	6.87	--	5.12	5.96	--	6.14	6.53	--
ASH	16.38	9.97	48.70	16.60	10.08	49.24	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.04	.27	5.45	1.05	.27	5.51	1.26	.30	10.85
SULFATIC	.05	.05	.06	.06	.05	.06	.07	.06	.12
ORGANIC	.50	.42	.51	.51	.43	.52	.61	.47	1.02
TOTAL	1.59	.74	6.02	1.62	.75	6.08	1.94	.83	11.98

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	47.73	47.73	46.02
SiO2 (SILICON OXIDE)	37.71	43.75	34.69
AL2O3 (ALUMINUM OXIDE)	10.58	3.72	14.58
FE2O3 (IRON OXIDE)	.77	.80	.77
TiO2 (TITANIUM OXIDE)	.08	.06	.06
CaO (CALCIUM OXIDE)	.27	.27	.27
MgO (MAGNESIUM OXIDE)	.39	--	--
Na2O (SODIUM OXIDE)	2.14	2.10	2.17
K2O (POTASSIUM OXIDE)	.48	1.20	.29
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.16	--
DOLOMITE	.03	--
HYDROGEN/CARBON	.77	.75
OXYGEN/CARBON	.05	.06
R250	.89	.96
SILICA	.81	.92
SILICA/ALUMINA	1.27	1.09

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	2910+
SOFTENING TEMPERATURE (ST)	2910+	2910+	2910+
FLUID TEMPERATURE (FT)	2910+	2910+	2910+
----- MISCELLANEOUS DATA, % -----			
CL (CHLORINE) (ANALYZED)	RAW	FL 1.60	SK 1.60
NA (SODIUM) (CALCULATED)	.24	--	--
MINERAL MATTER (PARR)	.05	--	--
	18.82	11.24	56.52

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6 1/2	7 1/2	--
HARDGROVE GRINDABILITY (HGI)	59	57	--

STATE: WEST VIRGINIA BED: UPPER KITTANNING BED CODE: 76
COUNTY: BARBOUR RANK: HIGH VOLATILE A BITUMINOUS SAMPLE NO. 531

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
100M X 0	2.1	11.0	2.1	2.60	13644	5.1
TOTAL(1-1/2" X 0)	100.0	11.9	100.0	1.95	13492	3.8

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
100M X 0	8.7	8.6	9.1	1.91	14072	3.6
TOTAL(3/8" X 0)	100.0	12.0	100.0	1.86	13451	3.9

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	BTU	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
100M X 0	8.7	8.6	9.1	1.91	14072	3.6
TOTAL(3/8" X 0)	100.0	12.0	100.0	1.86	13451	3.9

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	53.7
3/8" X 14M	33.7
14M X 100M	10.5
100M X 0	2.1

----- MOISTURE, % -----

TOTAL	2.2
AS RECEIVED	1.5

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: UPPER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 76
SAMPLE NO. 531

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.50	.90	.90	--	--	--
ASH	11.82	7.73	55.79	12.00	7.80	56.30
VOLATILE MATTER	31.27	32.66	19.13	31.75	32.95	19.30
FIXED CARBON	55.41	58.71	24.18	56.25	59.25	24.40
BTU/lb	13287	14104	5505	13489	14232	5555

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	74.31	79.27	26.16	75.44	79.99	26.40
HYDROGEN	5.00	5.23	2.08	4.90	5.18	2.00
NITROGEN	1.45	1.54	.59	1.47	1.56	.60
SULFUR	2.30	1.14	15.89	2.33	1.15	16.03
OXYGEN	5.13	5.08	--	3.85	4.32	--
ASH	11.82	7.73	55.79	12.00	7.80	56.30

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.67	.55	13.91	1.69	.55	14.04
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.62	.58	1.97	.63	.59	1.98
TOTAL	2.30	1.14	15.89	2.33	1.15	16.03

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	42.55	49.30	33.67	42.55	49.30	33.67
SiO2 (SILICON OXIDE)	28.28	33.91	19.81	28.28	33.91	19.81
AL2O3 (ALUMINUM OXIDE)	19.55	8.50	39.14	19.55	8.50	39.14
Fe2O3 (IRON OXIDE)	1.58	1.56	1.41	1.58	1.56	1.41
TiO2 (TITANIUM OXIDE)	2.80	2.52	.50	2.80	2.52	.50
CaO (CALCIUM OXIDE)	1.11	.60	.68	1.11	.60	.68
MgO (MAGNESIUM OXIDE)	.51	.50	.56	.51	.50	.56
Na2O (SODIUM OXIDE)	2.03	1.78	1.78	2.03	1.78	1.78
K2O (POTASSIUM OXIDE)	.41	.69	.42	.41	.69	.42
SO3 (SULFITES)						

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	.36	.16	.36	.16	.36	.16
DOLOMITE	.15	.22	.15	.22	.15	.22
HYDROGEN/CARBON	.78	.78	.78	.78	.78	.78
OXYGEN/CARBON	.04	.04	.04	.04	.04	.04
R250	.76	.88	.76	.88	.76	.88
SILICA	.64	.80	.64	.80	.64	.80
SILICA/ALUMINA	1.50	1.45	1.50	1.45	1.50	1.45

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	9	8 1/2	9	8 1/2	9	8 1/2
HARDGROVE GRINDABILITY (HGI)	64	--	64	--	64	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
INITIAL DEFORMATION (ID)	2480	2730	2480	2730	2480	2730
SOFTENING TEMPERATURE (ST)	2550	2800	2550	2800	2550	2800
FLUID TEMPERATURE (FT)	2680	2800	2680	2800	2680	2800

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	.27	--	.27	--	.27	--
NA (SODIUM) (CALCULATED)	.05	.03	.05	.03	.05	.03
MINERAL MATTER (PARR)	13.96	9.06	13.96	9.06	13.96	9.06

STATE: WEST VIRGINIA
COUNTY: BARBOUR
BED: UPPER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 76
SAMPLE NO. 532

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	21.7	4.4	.17	14525	1.2
FLOAT 1.40	78.8	6.9	.77	14018	1.9
FLOAT 1.60	89.4	8.5	1.06	13744	2.4
CUM(1-1/2" X 100M)	100.0	13.6	1.96	12876	4.2
100M X 0	2.6	24.5	4.50	11018	10.1
TOTAL(1-1/2" X 0)	100.0	13.9	2.03	12827	4.4

--- SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.1	4.2	.22	14605	1.0
FLOAT 1.40	78.8	6.4	.55	14125	1.5
FLOAT 1.60	89.0	8.0	.84	13856	1.9
CUM(3/8" X 100M)	100.0	13.5	2.06	12930	3.9
100M X 0	7.8	18.9	3.61	11985	7.2
TOTAL(3/8" X 0)	100.0	13.9	2.18	12856	4.1

--- SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.0	4.3	.13	14568	1.0
FLOAT 1.40	76.8	6.0	.37	14201	1.3
FLOAT 1.60	88.6	7.5	.58	13924	1.6
CUM(14M X 0)	100.0	13.3	2.29	12526	4.5

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	54.2
3/8" X 14M	34.6
14M X 100M	8.6
100M X 0	2.6

--- MOISTURE, %

TOTAL AS RECEIVED	2.6
	1.6

STATE: WEST VIRGINIA
COUNTY: BARBOUR

BED: UPPER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 76
SAMPLE NO. 532

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW
FL 1.60 SK 1.60

MOISTURE
1.60
ASH
13.61
VOLATILE MATTER
31.75
FIXED CARBON
53.04

1.60
7.68
33.68
57.04

SK 1.60
1.60
57.76
17.42
23.22

MOISTURE FREE

RAW
FL 1.60 SK 1.60

37.45
62.55

7.80
34.23
57.97

58.70
17.70
23.60

MOISTURE AND ASH FREE

RAW
FL 1.60 SK 1.60

37.45
62.55

7.80
34.23
57.97

58.70
17.70
23.60

BTU/LB
12641

13656
5053

12847
13878
5135

14909
15052
12433

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW
FL 1.60 SK 1.60

CARBON
70.67
HYDROGEN
5.02
NITROGEN
1.33
SULFUR
2.47
OXYGEN
6.90
ASH
13.61

76.25
5.43
1.44
1.07
8.13
7.68

SK 1.60
22.32
1.96
.47
16.07
--
57.76

MOISTURE FREE

RAW
FL 1.60 SK 1.60

83.35
5.71
1.57
2.91
6.46

77.49
5.34
1.47
1.09
6.81
7.80

22.68
1.81
1.48
16.33
--
58.70

MOISTURE AND ASH FREE

RAW
FL 1.60 SK 1.60

83.35
5.71
1.57
2.91
6.46

77.49
5.34
1.47
1.09
6.81
7.80

22.68
1.81
1.48
16.33
--
58.70

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW
FL 1.60 SK 1.60

PYRITIC
2.12
SULFATIC
.01
ORGANIC
.34
TOTAL
2.47

.63
.01
.43
1.07

SK 1.60
14.61
.02
1.44
16.07

MOISTURE FREE

RAW
FL 1.60 SK 1.60

2.50
.02
.40
2.91

.64
.01
.44
1.09

14.85
.02
1.47
16.33

MOISTURE AND ASH FREE

RAW
FL 1.60 SK 1.60

2.50
.02
.40
2.91

.64
.01
.44
1.09

14.85
.02
1.47
16.33

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW
FL 1.60 SK 1.60

OXIDES
SiO2
AL2O3
Fe2O3
TiO2
CaO
MgO
Na2O
K2O
SO3

45.68
25.38
20.84
1.49
1.16
.78
.31
2.61
.42

45.64
33.10
13.12
1.48
2.03
.76
--
2.41
.60

SK 1.60
38.30
19.21
36.13
1.41
.84
.38
--
.51

MOISTURE FREE

RAW
FL 1.60 SK 1.60

2230
2330
2410

2230
2330
2410

2580
2690
2770

MOISTURE AND ASH FREE

RAW
FL 1.60 SK 1.60

2230
2330
2410

2230
2330
2410

2580
2690
2770

COAL UTILIZATION RATIOS

AS RECEIVED

RAW
FL 1.60

BASE/ACID
DOLOMITE
HYDROGEN/CARBON
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

.35
.08
.82
.06
.76
.67
1.80

MOISTURE FREE

RAW
FL 1.60

.08
.07
.84
.74
1.38

MOISTURE AND ASH FREE

RAW
FL 1.60

.08
.07
.84
.74
1.38

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

AS RECEIVED

RAW
FL 1.60 SK 1.60

INITIAL DEFORMATION (ID)
SOFTENING TEMPERATURE (ST)
FLUID TEMPERATURE (FT)

2230
2330
2410

2580
2690
2770

MOISTURE FREE

RAW
FL 1.60 SK 1.60

2230
2330
2410

2230
2330
2410

2580
2690
2770

MOISTURE AND ASH FREE

RAW
FL 1.60 SK 1.60

2230
2330
2410

2230
2330
2410

2580
2690
2770

MISCELLANEOUS DATA, %

AS RECEIVED

RAW
FL 1.60 SK 1.60

CL (CHLORINE) (ANALYZED)
NA (SODIUM) (CALCULATED)
MINERAL MATTER (PARR)

--
.03
16.32

--
--
9.02

SK 1.60
SK 1.60
72.38

MOISTURE FREE

RAW
FL 1.60 SK 1.60

16.32
9.02
72.38

16.32
9.02
72.38

16.32
9.02
72.38

MOISTURE AND ASH FREE

RAW
FL 1.60 SK 1.60

16.32
9.02
72.38

16.32
9.02
72.38

16.32
9.02
72.38

PHYSICAL PARAMETERS, INDEX

AS RECEIVED

RAW
FL 1.60 SK 1.60

FREE SWELLING (FSI)
HARDGROVE GRINDABILITY (HGI)

8
62

8
62

MOISTURE FREE

RAW
FL 1.60 SK 1.60

8
62

8
62

MOISTURE AND ASH FREE

RAW
FL 1.60 SK 1.60

8
62

8
62

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: UPPER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 76
SAMPLE NO. 533

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.8	4.5	.13	14911	1.4
FLOAT 1.40	72.9	6.8	.27	14502	1.7
FLOAT 1.60	80.6	8.2	.50	14249	2.0
CUM(1-1/2" X 100M)	100.0	19.7	1.42	12234	3.4
100M X 0	2.1	20.3	1.90	12126	4.2
TOTAL(1-1/2" X 0)	100.0	19.7	1.43	12232	3.4

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.4	4.1	.18	15001	1.4
FLOAT 1.40	72.2	6.4	.43	14576	1.6
FLOAT 1.60	89.4	7.9	.54	14305	1.7
CUM(3/8" X 100M)	100.0	19.7	1.46	12243	3.5
100M X 0	7.0	15.4	1.32	12988	3.0
TOTAL(3/8" X 0)	100.0	19.4	1.45	12295	3.4

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.4	3.8	.16	15055	1.4
FLOAT 1.40	69.2	6.2	.46	14594	1.5
FLOAT 1.60	79.7	8.0	.60	14264	1.6
CUM(14M X 0)	100.0	20.5	1.58	12076	3.5

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	43.8
3/8" X 14M	40.3
14M X 100M	13.8
100M X 0	2.1

----- MOISTURE, % -----

TOTAL	1.8
AS RECEIVED	.9

STATE: WEST VIRGINIA
COUNTY: PRESTON

BED: UPPER KITTANNING
RANK: MED VOLATILE BITUMINOUS

BED CODE: 76
SAMPLE NO. 533

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	90	1.00	--	--	--	--
ASH	20.71	8.02	20.90	8.10	32.87	31.57
VOLATILE MATTER	25.76	28.72	26.00	29.01	67.13	68.43
FIXED CARBON	52.63	62.26	53.10	62.89	15190	15504
BTU/LB	11907	14106	12015	14248	15190	15504

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	66.82	79.14	67.43	79.94	85.25	86.99
HYDROGEN	4.55	5.26	4.49	5.20	5.67	5.66
NITROGEN	1.22	1.45	1.24	1.47	1.56	1.59
SULFUR	2.06	1.13	2.08	1.14	2.63	1.24
OXYGEN	4.63	5.00	3.86	4.16	4.89	4.52
ASH	20.71	8.02	20.90	8.10	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	1.55	.53	1.56	.54	1.97	.59
SULFATIC	.01	.01	.02	.01	.02	.01
ORGANIC	.50	.58	.51	.59	.64	.64
TOTAL	2.06	1.13	2.08	1.14	2.63	1.24

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
OXIDES	55.64	51.31	55.47	55.47	2600	2870
SiO2 (SILICON OXIDE)	27.51	33.40	26.24	26.24	2720	2910+
Al2O3 (ALUMINUM OXIDE)	11.61	7.37	13.80	13.80	2830	2910+
Fe2O3 (IRON OXIDE)	1.41	1.39	1.49	1.49	--	--
TiO2 (TITANIUM OXIDE)	.98	2.38	.28	.28	--	--
CaO (CALCIUM OXIDE)	.30	.30	.81	.81	--	--
MgO (MAGNESIUM OXIDE)	.72	--	--	--	--	--
Na2O (SODIUM OXIDE)	1.39	.90	1.55	1.55	--	--
K2O (POTASSIUM OXIDE)	.20	.89	.12	.12	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
BASE/ACID	.18	--	--	--	--	--
DOLOMITE	.08	--	--	--	--	--
HYDROGEN/CARBON	.80	.78	--	--	--	--
OXYGEN/CARBON	.04	.04	--	--	--	--
R250	.87	.90	--	--	--	--
SILICA	.81	.84	--	--	--	--
SILICA/ALUMINA	2.02	1.54	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
FREE SWELLING	7	8	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	85	84	--	--	--	--

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
INITIAL DEFORMATION (ID)	2600	2870	--	--	--	--
SOFTENING TEMPERATURE (ST)	2720	2910+	--	--	--	--
FLUID TEMPERATURE (FT)	2830	2910+	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	.11	--	--	--	--	--
MINERAL MATTER (PARR)	23.72	9.38	--	--	--	--

STATE: WEST VIRGINIA
COUNTY: RANDOLPH

BED: UPPER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 76
SAMPLE NO. 534

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.4	24.3	4.8	.29	.89	14722	1.2
FLOAT 1.40	86.9	90.4	8.1	.33	.85	14139	1.2
FLOAT 1.60	95.2	97.8	9.2	.43	.94	13960	1.3
CUM(1-1/2" X 100M)	100.0	100.0	11.2	.89	1.39	13586	2.0
100M X 0	1.9	1.8	15.7	1.34	2.28	12769	3.6
TOTAL(1-1/2" X 0)	100.0	100.0	11.3	.90	1.41	13571	2.1

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.5	41.7	4.6	.31	.85	14794	1.1
FLOAT 1.40	86.3	90.4	7.5	.31	.81	14304	1.1
FLOAT 1.60	94.6	97.6	8.7	.36	.84	14087	1.2
CUM(3/8" X 100M)	100.0	100.0	11.1	.92	1.40	13654	2.1
100M X 0	6.2	6.0	13.2	1.02	1.63	13229	2.5
TOTAL(3/8" X 0)	100.0	100.0	11.2	.93	1.41	13627	2.1

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.0	43.8	3.9	.34	.85	14909	1.1
FLOAT 1.40	80.7	86.0	6.4	.32	.78	14497	1.1
FLOAT 1.60	93.9	97.7	8.2	.36	.80	14160	1.1
CUM(14M X 0)	100.0	100.0	11.2	1.01	1.45	13606	2.1

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	51.4
3/8" X 14M	36.5
14M X 100M	10.2
100M X 0	1.9

----- MOISTURE, % -----

TOTAL	1.7
AS RECEIVED	1.1

STATE: WEST VIRGINIA
COUNTY: RANDOLPH

BED: UPPER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 76
SAMPLE NO. 534

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW
FL 1.60 SK 1.60

1.10 1.00
11.18 8.22
31.48 57.02
56.24 18.81
58.44 23.17

13441 5000

MOISTURE

RAW
FL 1.60 SK 1.60

1.10 1.00
11.18 8.22
31.48 57.02
56.24 18.81
58.44 23.17

13441 5000

ASH

RAW
FL 1.60 SK 1.60

1.10 1.00
11.18 8.22
31.48 57.02
56.24 18.81
58.44 23.17

13441 5000

BTU/LB

RAW
FL 1.60 SK 1.60

1.10 1.00
11.18 8.22
31.48 57.02
56.24 18.81
58.44 23.17

13441 5000

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW
FL 1.60 SK 1.60

75.36 26.18
5.09 2.78
1.50 .50
1.38 11.34
5.48 2.18
11.18 57.02

CARBON

RAW
FL 1.60 SK 1.60

75.36 26.18
5.09 2.78
1.50 .50
1.38 11.34
5.48 2.18
11.18 57.02

HYDROGEN

RAW
FL 1.60 SK 1.60

75.36 26.18
5.09 2.78
1.50 .50
1.38 11.34
5.48 2.18
11.18 57.02

NITROGEN

RAW
FL 1.60 SK 1.60

75.36 26.18
5.09 2.78
1.50 .50
1.38 11.34
5.48 2.18
11.18 57.02

SULFUR

RAW
FL 1.60 SK 1.60

75.36 26.18
5.09 2.78
1.50 .50
1.38 11.34
5.48 2.18
11.18 57.02

OXYGEN

RAW
FL 1.60 SK 1.60

75.36 26.18
5.09 2.78
1.50 .50
1.38 11.34
5.48 2.18
11.18 57.02

ASH

RAW
FL 1.60 SK 1.60

75.36 26.18
5.09 2.78
1.50 .50
1.38 11.34
5.48 2.18
11.18 57.02

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW
FL 1.60 SK 1.60

75.36 26.18
5.09 2.78
1.50 .50
1.38 11.34
5.48 2.18
11.18 57.02

CARBON

RAW
FL 1.60 SK 1.60

75.36 26.18
5.09 2.78
1.50 .50
1.38 11.34
5.48 2.18
11.18 57.02

HYDROGEN

RAW
FL 1.60 SK 1.60

75.36 26.18
5.09 2.78
1.50 .50
1.38 11.34
5.48 2.18
11.18 57.02

NITROGEN

RAW
FL 1.60 SK 1.60

75.36 26.18
5.09 2.78
1.50 .50
1.38 11.34
5.48 2.18
11.18 57.02

SULFUR

RAW
FL 1.60 SK 1.60

75.36 26.18
5.09 2.78
1.50 .50
1.38 11.34
5.48 2.18
11.18 57.02

OXYGEN

RAW
FL 1.60 SK 1.60

75.36 26.18
5.09 2.78
1.50 .50
1.38 11.34
5.48 2.18
11.18 57.02

ASH

RAW
FL 1.60 SK 1.60

75.36 26.18
5.09 2.78
1.50 .50
1.38 11.34
5.48 2.18
11.18 57.02

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

OXIDES

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

SiO2 (SILICON OXIDE)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

Al2O3 (ALUMINUM OXIDE)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

Fe2O3 (IRON OXIDE)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

TiO2 (TITANIUM OXIDE)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

CaO (CALCIUM OXIDE)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

MgO (MAGNESIUM OXIDE)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

Na2O (SODIUM OXIDE)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

K2O (POTASSIUM OXIDE)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

SO3 (SULFITES)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

COAL UTILIZATION RATIOS

AS RECEIVED

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

BASE/ACID

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

DOLOMITE

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

HYDROGEN/CARBON

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

OXYGEN/CARBON

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

R250

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

SILICA

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

SILICA/ALUMINA

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

AS RECEIVED

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

OXIDES

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

SiO2 (SILICON OXIDE)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

Al2O3 (ALUMINUM OXIDE)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

Fe2O3 (IRON OXIDE)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

TiO2 (TITANIUM OXIDE)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

CaO (CALCIUM OXIDE)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

MgO (MAGNESIUM OXIDE)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

Na2O (SODIUM OXIDE)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

K2O (POTASSIUM OXIDE)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

SO3 (SULFITES)

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

PHYSICAL PARAMETERS, INDEX

AS RECEIVED

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

BASE/ACID

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

DOLOMITE

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

HYDROGEN/CARBON

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

OXYGEN/CARBON

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

R250

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

SILICA

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

SILICA/ALUMINA

RAW
FL 1.60 SK 1.60

43.89 42.61
36.60 25.64
9.44 28.31
1.67 1.17
4.48 1.01
4.46 .27
1.16 .94
65.94
8.08

STATE: WEST VIRGINIA
COUNTY: UP SHUR

BED: UPPER KITTINGING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 76
SAMPLE NO. 535

CUMULATIVE WASHABILITY DATA (DRY BASIS)

--- SAMPLE CRUSHED TO PASS 1-1/2" ---
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	3.7	5.2	3.3	.09	14797	1.0
FLOAT 1.40	29.1	37.8	10.0	.36	13639	1.4
FLOAT 1.60	65.9	78.2	17.0	.79	12474	2.4
CUM(1-1/2" X 100M)	100.0	100.0	28.5	1.62	10509	4.2
100M X 0	2.5	2.6	25.0	3.33	11083	8.0
TOTAL(1-1/2" X 0)	100.0	100.0	28.4	1.66	10523	4.3

--- SAMPLE CRUSHED TO PASS 3/8" ---
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.8	12.6	3.5	.07	14788	1.0
FLOAT 1.40	34.8	47.5	7.8	.17	14097	1.1
FLOAT 1.60	61.0	76.5	14.3	.41	12953	1.5
CUM(3/8" X 100M)	100.0	100.0	29.4	1.52	10327	4.4
100M X 0	7.9	8.7	23.6	2.92	11326	6.3
TOTAL(3/8" X 0)	100.0	100.0	28.9	1.63	10406	4.5

--- SAMPLE CRUSHED TO PASS 14M ---
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	9.9	14.2	3.1	.06	14861	1.0
FLOAT 1.40	33.2	45.8	6.3	.09	14328	1.0
FLOAT 1.60	62.3	79.0	12.9	.21	13175	1.2
CUM(14M X 0)	100.0	100.0	29.0	1.58	10391	4.5

RAW COAL SIZE AND MOISTURE ANALYSES

--- SIZE DISTRIBUTION, % ---
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	57.9
3/8" X 14M	30.5
14M X 100M	9.1
100M X 0	2.5

--- MOISTURE, % ---

TOTAL	2.2
AS RECEIVED	1.2

STATE: WEST VIRGINIA
COUNTY: UP SHUR
BED: UPPER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS
BED CODE: 76
SAMPLE NO. 535

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.20	1.00	.90	--	--	--
ASH	28.95	12.97	54.51	29.30	13.10	55.00
VOLATILE MATTER	27.63	32.70	18.63	27.97	33.03	18.80
FIXED CARBON	42.22	53.33	25.96	42.73	53.87	26.20
BTU/LB	10223	13014	5817	10348	13145	5870
					14636	15127
						13044

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	59.39	73.36	31.67	60.11	74.10	31.96
HYDROGEN	4.03	4.82	2.68	3.95	4.76	2.60
NITROGEN	1.32	1.58	.99	1.34	1.60	1.00
SULFUR	2.06	.69	4.38	2.09	.69	4.42
OXYGEN	4.25	6.58	5.78	3.22	5.75	5.02
ASH	28.95	12.97	54.51	29.30	13.10	55.00

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.44	.21	3.43	1.46	.22	3.46
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.61	.46	.94	.62	.47	.95
TOTAL	2.06	.69	4.38	2.09	.69	4.42

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	48.85	52.78	48.38
SiO2 (SILICON OXIDE)	32.38	34.84	32.46
Al2O3 (ALUMINUM OXIDE)	10.30	4.08	13.18
Fe2O3 (IRON OXIDE)	1.74	2.09	1.68
TiO2 (TITANIUM OXIDE)	.56	.98	.28
CaO (CALCIUM OXIDE)	1.01	.81	1.01
MgO (MAGNESIUM OXIDE)	.61	.66	.73
Na2O (SODIUM OXIDE)	2.83	2.21	3.01
K2O (POTASSIUM OXIDE)	.21	.20	.18
SO3 (SULFITES)			

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.18	.10
DOLOMITE	.10	.20
HYDROGEN/CARBON	.79	.77
OXYGEN/CARBON	.05	.06
R250	.88	.95
SILICA	.80	.90
SILICA/ALUMINA	1.51	1.51

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2750	2800	--
SOFTENING TEMPERATURE (ST)	2800	2800	--
FLUID TEMPERATURE (FT)	2800	2800	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.05	--	--
NA (SODIUM) (CALCULATED)	.13	.06	.30
MINERAL MATTER (PARR)	32.47	14.49	60.95

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	2 1/2	6	--
HARDGROVE GRINDABILITY (HGI)	48	--	--

STATE: WEST VIRGINIA
COUNTY: UPSHUR

BED: UPPER FITTING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 76
SAMPLE NO. 536

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	25.1	5.0	.57	14397	1.4
FLOAT 1.40	76.8	7.2	.83	13860	1.9
FLOAT 1.60	84.9	8.6	1.04	13621	2.2
CUM(1-1/2" X 100M)	100.0	17.6	1.27	12172	2.8
100M X 0	1.8	29.1	4.94	10207	10.2
TOTAL(1-1/2" X 0)	100.0	17.8	1.34	12136	2.9

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	33.1	4.5	.28	14507	1.2
FLOAT 1.40	74.9	6.5	.50	14002	1.4
FLOAT 1.60	83.2	7.8	.63	13765	1.7
CUM(3/8" X 100M)	100.0	18.1	1.14	12067	2.6
100M X 0	6.7	22.5	2.07	11325	5.8
TOTAL(3/8" X 0)	100.0	18.4	1.20	12018	2.8

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	30.5	4.5	.39	14520	1.2
FLOAT 1.40	70.2	6.3	.41	14044	1.3
FLOAT 1.60	82.9	7.9	.55	13737	1.5
CUM(14M X 0)	100.0	17.8	1.23	12068	2.9

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	59.5
3/8" X 14M	32.8
14M X 100M	5.9
100M X 0	1.8

----- MOISTURE, % -----

TOTAL	3.3
AS RECEIVED	1.9

STATE: WEST VIRGINIA
COUNTY: UPSHUR

BED: UPPER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 76
SAMPLE NO. 536

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	1.90	2.00 2.00	--	--	--	--
ASH	18.16	7.74 65.37	18.51	7.90 66.70	37.15	36.18
VOLATILE MATTER	29.69	32.65 15.48	30.27	33.32 15.80	62.86	63.82
FIXED CARBON	50.25	57.61 17.15	51.22	58.78 17.50	--	--
BTU/LB	11737	13463 3794	11964	13737 3872	14682	14916

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	65.96	75.55 21.32	67.24	77.09 21.75	82.51	83.70
HYDROGEN	4.82	5.39 2.18	4.70	5.28 2.00	5.77	5.73
NITROGEN	1.33	1.54 .39	1.35	1.57 .40	1.66	1.70
SULFUR	1.71	.99 5.18	1.74	1.01 5.29	2.14	1.10
OXYGEN	8.03	8.79 5.56	6.46	7.15 3.86	7.93	7.77
ASH	18.16	7.74 65.37	18.51	7.90 66.70	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	1.21	.52 4.44	1.23	.53 4.53	1.51	.58
SULFATIC	.03	.04	.03	.04	.04	.02
ORGANIC	.47	.45 .71	.48	.46 .72	.59	.50
TOTAL	1.71	.99 5.18	1.74	1.01 5.29	2.14	1.10

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	52.92	48.04 49.80	--	--	--	--
SiO2 (SILICON OXIDE)	28.36	32.54 23.74	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	11.69	12.15 19.54	--	--	--	--
Fe2O3 (IRON OXIDE)	1.22	1.31 1.25	--	--	--	--
TiO2 (TITANIUM OXIDE)	.73	1.68 .42	--	--	--	--
CaO (CALCIUM OXIDE)	.81	.91 .89	--	--	--	--
MgO (MAGNESIUM OXIDE)	.42	--	--	--	--	--
Na2O (SODIUM OXIDE)	2.92	2.19 2.83	--	--	--	--
K2O (POTASSIUM OXIDE)	.29	.54 .47	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.20	--
DOLOMITE	.09	--
HYDROGEN/CARBON	.84	.82
OXYGEN/CARBON	.07	.07
R250	.87	.85
SILICA	.80	.77
SILICA/ALUMINA	1.87	1.48

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60
FREE SWELLING (FSI)	6	60
HARDGROVE GRINDABILITY (HGI)	56	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60
INITIAL DEFORMATION (ID)	2570	2690
SOFTENING TEMPERATURE (ST)	2680	2780
FLUID TEMPERATURE (FT)	2790	2890

MISCELLANEOUS DATA, %

	RAW	FL 1.60
CL (CHLORINE) (ANALYZED)	.21	--
NA (SODIUM) (CALCULATED)	.06	--
MINERAL MATTER (PARR)	20.95	9.09
	74.94	--

STATE: WEST VIRGINIA
COUNTY: UP SHUR

BED: UPPER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 76
SAMPLE NO. 537

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.9	4.0	3.9	.09	.82	14671	1.1
FLOAT 1.40	32.0	42.0	8.8	.30	1.05	13816	1.5
FLOAT 1.60	63.9	77.2	15.1	1.38	1.91	12708	3.0
CUM(1-1/2" X 100M)	100.0	100.0	27.6	2.95	3.40	10523	6.5
100M X 0	1.4	1.4	26.4	4.61	5.50	10685	10.3
TOTAL(1-1/2" X 0)	100.0	100.0	27.6	2.97	3.43	10525	6.5

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.1	14.4	4.0	.11	.75	14694	1.0
FLOAT 1.40	37.6	50.9	8.0	.29	.89	13983	1.3
FLOAT 1.60	62.0	78.1	13.6	.81	1.26	13014	1.9
CUM(3/8" X 100M)	100.0	100.0	28.7	2.95	3.44	10331	6.7
100M X 0	6.0	6.3	25.7	4.63	4.71	10810	8.7
TOTAL(3/8" X 0)	100.0	100.0	28.5	3.05	3.52	10359	6.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	PYRITIC SULFUR, %	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	14.2	20.4	3.7	.10	.74	14716	1.0
FLOAT 1.40	37.7	52.2	6.6	.15	.79	14161	1.1
FLOAT 1.60	60.4	78.8	11.4	.39	.92	13336	1.4
CUM(14M X 0)	100.0	100.0	28.7	3.05	3.64	10228	7.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	68.3
3/8" X 14M	24.1
14M X 100M	6.2
100M X 0	1.4

MOISTURE, %

TOTAL AS RECEIVED	2.2 1.3
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STATE: WEST VIRGINIA
COUNTY: UPSHUR

BED: UPPER KITTANNING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 76
SAMPLE NO. 537

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW
1.30
28.23
26.66
43.81
10109

FL 1.60
1.40
11.69
31.54
55.37
13081

SK 1.60
1.40
55.81
18.64
24.16
5228

MOISTURE FREE

RAW
--
28.60
27.01
44.39
10242

FL 1.60
--
11.86
31.99
56.16
13267

SK 1.60
--
56.60
18.90
24.50
5302

MOISTURE AND ASH FREE

RAW
--
37.83
62.17
14345

FL 1.60
--
36.29
63.71
15052

SK 1.60
--
43.55
56.45
12217

BTU/LB

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW
57.45
4.13
.99
3.77
5.43
28.23

FL 1.60
73.82
5.07
1.29
1.00
7.13
11.69

SK 1.60
28.16
2.52
.49
7.25
5.76
55.81

MOISTURE FREE

RAW
58.21
4.04
1.00
3.82
4.33
28.60

FL 1.60
74.87
4.99
1.31
1.01
5.97
11.86

SK 1.60
28.56
2.40
.50
7.36
4.58
56.60

MOISTURE AND ASH FREE

RAW
81.53
5.66
1.40
5.35
6.06
--

FL 1.60
84.94
5.66
1.48
1.15
6.77
--

SK 1.60
65.80
5.53
1.15
16.95
10.56
--

ASH

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW
3.10
.03
.64
3.77

FL 1.60
.35
.01
.64
1.00

SK 1.60
7.01
.05
.20
7.25

MOISTURE FREE

RAW
3.14
.03
.65
3.82

FL 1.60
.35
.01
.65
1.01

SK 1.60
7.11
.05
.20
7.36

MOISTURE AND ASH FREE

RAW
4.40
.04
.91
5.35

FL 1.60
.40
.01
.74
1.15

SK 1.60
16.38
.12
.46
16.95

PYRITIC
SULFATIC
ORGANIC
TOTAL

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW
50.68
28.36
15.50
1.51
.58
.07
.75
2.20
.17

FL 1.60
51.45
35.47
6.48
1.78
1.25
.52
--
1.69
.38

SK 1.60
45.54
23.14
23.18
1.50
.56
.61
--
2.29
.72

MISCELLANEOUS DATA, %

INITIAL DEFORMATION (ID)
SOFTENING TEMPERATURE (ST)
FLUID TEMPERATURE (FT)
CL (CHLORINE) (ANALYZED)
NA (SODIUM) (CALCULATED)
MINERAL MATTER (PARR)

RAW
2510
2600
2690
.12
.16
32.99

FL 1.60
2910+
2910+
2910+
--
--
13.36

SK 1.60
--
--
--
--
--
65.17

OXIDES
SiO2
Al2O3
Fe2O3
TiO2
CaO
MgO
Na2O
K2O
SO3

COAL UTILIZATION RATIOS

RAW
.24
.03
.83
.06
.83
.76
1.79

FL 1.60
--
--
.80
.06
.92
.87
1.45

BASE/ACID
DOLOMITE
HYDROGEN/CARBON
OXYGEN/CARBON
R250
SILICA
SILICA/ALUMINA

PHYSICAL PARAMETERS, INDEX

RAW
1
52

FL 1.60
1
52

SK 1.60
8
49

FREE SWELLING (FSI)
HARDGROVE GRINDABILITY (HGI)

STATE: WEST VIRGINIA
COUNTY: BROOKE

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 538

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.8	3.3	3.7	.72	1.50	14211	2.1
FLOAT 1.40	63.2	68.2	11.3	1.88	2.61	13009	4.0
FLOAT 1.60	92.6	95.9	14.6	2.13	2.83	12487	4.5
CUM(1-1/2" X 100M)	100.0	100.0	17.3	2.51	3.18	12052	5.3
100M X 0	.8	.7	24.3	4.06	4.77	10788	8.8
TOTAL(1-1/2" X 0)	100.0	100.0	17.4	2.52	3.19	12042	5.3

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.6	12.5	3.4	.89	1.45	14226	2.0
FLOAT 1.40	62.8	68.8	10.1	1.51	2.18	13160	3.3
FLOAT 1.60	90.9	94.9	14.0	1.94	2.56	12549	4.1
CUM(3/8" X 100M)	100.0	100.0	17.2	2.55	3.14	12016	5.2
100M X 0	5.8	5.5	20.4	3.85	4.35	11442	7.6
TOTAL(3/8" X 0)	100.0	100.0	17.4	2.63	3.21	11983	5.4

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	% BTU	ASH, %	SULFUR, % PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	14.5	17.3	2.6	1.05	1.23	14291	1.7
FLOAT 1.40	55.8	63.1	7.7	1.06	1.67	13549	2.5
FLOAT 1.60	87.7	93.4	12.7	1.43	2.12	12758	3.3
CUM(14M X 0)	100.0	100.0	17.2	2.49	3.23	11982	5.4

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.2
3/8" X 14M	17.0
14M X 100M	5.0
100M X 0	.8

----- MOISTURE, % -----

TOTAL	3.6
AS RECEIVED	2.5

STATE: WEST VIRGINIA
COUNTY: BROOKE

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

RED CODE: 23
SAMPLE NO. 538

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
MOISTURE	2.50	2.40	17.50	12.90	43.05	42.92
ASH	17.06	12.59	35.52	37.38	56.95	57.08
VOLATILE MATTER	34.63	36.48	46.98	49.72		
FIXED CARBON	45.81	48.53				
BTU/LB	11640	12424	11939	12729	14471	14615

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
CARBON	65.30	69.29	66.97	70.99	81.18	81.50
HYDROGEN	4.80	5.10	4.64	4.96	5.63	5.69
NITROGEN	1.41	1.52	1.45	1.55	1.75	1.78
SULFUR	3.09	1.98	3.17	2.03	3.84	2.33
OXYGEN	8.34	9.52	6.27	7.57	7.60	8.69
ASH	17.06	12.59	17.50	12.90		

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	SK 1.60	RAW	SK 1.60
PYRITIC	2.32	1.26	2.38	1.29	2.88	1.48
SULFATIC	.01	.01	.01	.01	.01	.01
ORGANIC	.76	.72	.78	.73	.95	.84
TOTAL	3.09	1.98	3.17	2.03	3.84	2.33

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60	SK 1.60
OXIDES	54.55	32.60	45.60
SiO2 (SILICON OXIDE)	24.14	20.93	16.59
Al2O3 (ALUMINUM OXIDE)	12.58	40.52	29.74
Fe2O3 (IRON OXIDE)	1.23	1.12	.70
TiO2 (TITANIUM OXIDE)	.22	1.16	.98
CaO (CALCIUM OXIDE)	.93	.48	.90
MgO (MAGNESIUM OXIDE)	.19	.18	---
Na2O (SODIUM OXIDE)	2.77	1.11	2.05
K2O (POTASSIUM OXIDE)	.01	1.41	.29
SO3 (SULFITES)			

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.21	.80
DOLOMITE	.07	.04
HYDROGEN/CARBON	.83	.84
OXYGEN/CARBON	.07	.08
R250	.86	.56
SILICA	.80	.43
SILICA/ALUMINA	2.26	1.56

FUSIBILITY OF ASH, DEGREES F
(IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2120	2460	---
SOFTENING TEMPERATURE (ST)	2210	2570	---
FLUID TEMPERATURE (FT)	2320	2650	---

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.06	---	---
NA (SODIUM) (CALCULATED)	.02	.02	---
MINERAL MATTER (PARR)	20.64	15.05	61.21

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FL)	6 1/2	5 1/2	---
HARDGROVE GRINDABILITY (HGI)	51	---	---

STATE: WEST VIRGINIA
COUNTY: MONONGALIA

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 539

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	4.7		5.5	4.1	.20	.92	14276	1.3
FLOAT 1.40	71.4		76.3	10.7	.50	1.21	13133	1.8
FLOAT 1.60	95.2		97.5	13.9	.55	1.24	12579	2.0
CUM(1-1/2" X 100M)	100.0		100.0	15.6	.60	1.27	12285	2.1
100M X 0	.7		.6	21.5	.92	1.73	11263	3.1
TOTAL(1-1/2" X 0)	100.0		100.0	15.6	.60	1.27	12278	2.1

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	10.5		12.2	3.8	.21	.98	14328	1.4
FLOAT 1.40	69.8		75.5	9.8	.49	1.24	13289	1.9
FLOAT 1.60	93.6		96.8	13.2	.54	1.26	12700	2.0
CUM(3/8" X 100M)	100.0		100.0	15.6	.63	1.33	12285	2.2
100M X 0	1.9		1.8	17.6	.95	1.74	11939	2.9
TOTAL(3/8" X 0)	100.0		100.0	15.6	.64	1.34	12278	2.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	%	BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	20.6		24.2	3.1	.08	.92	14449	1.3
FLOAT 1.40	67.6		74.5	8.1	.29	1.06	13583	1.6
FLOAT 1.60	91.3		95.4	12.2	.44	1.08	12874	1.7
CUM(14M X 0)	100.0		100.0	15.4	.64	1.27	12319	2.1

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
3/8" X 14M ---
14M X 100M ---
100M X 0 ---

----- MOISTURE, % -----

TOTAL 3.9
AS RECEIVED 1.9

STATE: WEST VIRGINIA
COUNTY: MONONGALIA

BED: WAYNESBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 23
SAMPLE NO. 539

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.90	1.90	2.10	--	--	--
ASH	15.50	11.77	48.07	15.80	12.00	49.10
VOLATILE MATTER	33.94	34.24	--	34.60	34.90	--
FIXED CARBON	48.66	52.09	--	49.60	53.10	--
BTU/LB	12223	12782	--	12460	13030	--
				14798	14807	--

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--
SULFUR	1.29	1.09	3.20	1.32	1.11	3.26
OXYGEN	--	--	--	--	--	--
ASH	15.50	11.77	48.07	15.80	12.00	49.10

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.63	.39	2.68	.64	.40	2.74
SULFATIC	.00	.00	.00	.00	.00	.00
ORGANIC	.67	.70	.51	.68	.71	.53
TOTAL	1.29	1.09	3.20	1.32	1.11	3.26

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	--	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
BASE/ACID	--	--	--	--	--	--
DOLOMITE	--	--	--	--	--	--
HYDROGEN/CARBON	--	--	--	--	--	--
OXYGEN/CARBON	--	--	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--	--	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--	--	--	--
FLUID TEMPERATURE (FT)	--	--	--	--	--	--

MISCELLANEOUS DATA, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--	--	--	--
MINERAL MATTER (PARR)	--	--	--	--	--	--

STATE: WEST VIRGINIA
COUNTY: BOONE

BED: WINIFREDE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 121
SAMPLE NO. 540

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.8	2.3	.12	14841	1.1
FLOAT 1.40	65.7	3.5	.20	14626	1.2
FLOAT 1.60	71.1	5.3	.22	14303	1.2
CUM(1-1/2" X 100M)	100.0	25.2	.21	10728	1.3
100M X 0	1.2	17.7	.50	12075	1.2
TOTAL(1-1/2" X 0)	100.0	25.1	.21	10744	1.3

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.6	2.0	.13	14895	.9
FLOAT 1.40	64.0	3.0	.17	14716	1.0
FLOAT 1.60	69.1	4.7	.19	14410	1.1
CUM(3/8" X 100M)	100.0	26.8	.21	10441	1.2
100M X 0	4.6	20.7	.35	11536	1.3
TOTAL(3/8" X 0)	100.0	26.5	.22	10491	1.2

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	ASH, %	SULFUR, % PYRITIC	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.0	1.6	.12	14967	1.1
FLOAT 1.40	60.7	2.6	.17	14788	1.1
FLOAT 1.60	68.1	4.7	.20	14410	1.2
CUM(14M X 0)	100.0	26.2	.19	10548	1.2

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	72.1
3/8" X 14M	21.3
14M X 100M	5.4
100M X 0	1.2

----- MOISTURE, % -----

TOTAL AS RECEIVED	3.5
	1.6

STATE: WEST VIRGINIA

COUNTY: BOONE

BED: WINIFREDE

RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 121

SAMPLE NO. 540

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

AS RECEIVED

RAW

FL 1.60

SK 1.60

MOISTURE

ASH

VOLATILE MATTER

FIXED CARBON

BTU/LB

10611

14056

2140

10784

14343

2181

14408

15080

7990

ULTIMATE ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

CARBON

HYDROGEN

NITROGEN

SULFUR

OXYGEN

ASH

24.75

4.79

71.32

25.15

4.89

72.70

89

87

97

97

97

SULFUR FORMS ANALYSIS, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

PYRITIC

SULFATIC

ORGANIC

TOTAL

18

18

17

19

18

17

1

1

1

1

1

MINERAL ANALYSIS OF ASH, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

OXIDES

SiO2 (SILICON OXIDE)

Al2O3 (ALUMINUM OXIDE)

Fe2O3 (IRON OXIDE)

TiO2 (TITANIUM OXIDE)

CaO (CALCIUM OXIDE)

MgO (MAGNESIUM OXIDE)

Na2O (SODIUM OXIDE)

K2O (POTASSIUM OXIDE)

SO3 (SULFITES)

18

18

17

19

18

17

1

1

1

1

1

COAL UTILIZATION RATIOS

AS RECEIVED

RAW

FL 1.60

SK 1.60

BASE/ACID

DOLOMITE

HYDROGEN/CARBON

OXYGEN/CARBON

R250

SILICA

SILICA/ALUMINA

27.53

5.74

78.66

27.53

5.74

78.66

6 1/2

41

41

41

41

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

AS RECEIVED

RAW

FL 1.60

SK 1.60

INITIAL DEFORMATION (ID)

SOFTENING TEMPERATURE (ST)

FLUID TEMPERATURE (FT)

2900

2910+

2910+

2910+

2910+

2910+

MISCELLANEOUS DATA, %

AS RECEIVED

RAW

FL 1.60

SK 1.60

CL (CHLORINE) (ANALYZED)

NA (SODIUM) (CALCULATED)

MINERAL MATTER (PARR)

27.53

5.74

78.66

27.53

5.74

78.66

PHYSICAL PARAMETERS, INDEX

AS RECEIVED

RAW

FL 1.60

SK 1.60

FREE SWELLING (FSI)

HARDGROVE GRINDABILITY (HGI)

6 1/2

41

41

6 1/2

41

41

STATE: WEST VIRGINIA
COUNTY: KANAWHA

BED: WINIFREDE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 121
SAMPLE NO. 541

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	67.9	70.9	2.2	.02	.63	14574	.9
FLOAT 1.40	87.6	90.4	3.2	.02	.62	14408	.9
FLOAT 1.60	97.9	98.9	5.0	.02	.59	14110	.8
CUM(1-1/2" X 100M)	100.0	100.0	5.9	.03	.60	13961	.9
100M X 0	1.0	.9	14.6	.96	1.47	12520	2.3
TOTAL(1-1/2" X 0)	100.0	100.0	6.0	.04	.61	13947	.9

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.3	65.6	1.6	.02	.63	14673	.9
FLOAT 1.40	87.2	90.3	3.1	.02	.61	14425	.8
FLOAT 1.60	97.5	98.8	5.0	.02	.62	14110	.9
CUM(3/8" X 100M)	100.0	100.0	6.1	.03	.64	13928	.9
100M X 0	1.9	1.8	12.3	.95	1.46	12901	2.3
TOTAL(3/8" X 0)	100.0	100.0	6.2	.05	.66	13908	.9

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.9	69.5	1.9	.02	.62	14624	.8
FLOAT 1.40	84.9	88.9	2.6	.02	.61	14508	.8
FLOAT 1.60	95.5	97.7	4.6	.02	.60	14176	.8
CUM(14M X 0)	100.0	100.0	6.5	.07	.64	13862	.9

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8" ---
3/8" X 14M ---
14M X 100M ---
100M X 0 ---

----- MOISTURE, % -----

TOTAL AS RECEIVED 3.5
1.6

STATE: WEST VIRGINIA		BED: WINIFREDE		BED CODE: 121	
COUNTY: KANAWHA		RANK: HIGH VOLATILE A BITUMINOUS		SAMPLE NO. 541	
ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M					
----- PROXIMATE ANALYSIS, % AND BTU ANALYSIS -----					
MOISTURE ASH VOLATILE MATTER FIXED CARBON BTU/LB	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	1.60	1.80 1.70	--	--	--
	6.14	4.34 44.43	6.24	4.42 45.20	--
	37.67	38.40 20.35	38.29	39.11 20.70	40.84 40.91 37.77
54.59		55.46 33.52	55.47	56.48 34.10	59.16 59.09 62.23
13697		13937 7323	13919	14193 7450	14846 14848 13595
----- ULTIMATE ANALYSIS, % -----					
CARBON HYDROGEN NITROGEN SULFUR OXYGEN ASH	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	--	--	--	--	--
	--	--	--	--	--
	.63	.64 1.32	.64	.65 1.34	.68 .68 2.45
6.14		4.34 44.43	6.24	4.42 45.20	--
----- SULFUR FORMS ANALYSIS, % -----					
PYRITIC SULFATIC ORGANIC TOTAL	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	.05	.02 1.00	.05	.02 1.02	.05 .02 1.86
	.00	.00 .00	.00	.00 .00	.00 .00 .00
	.58	.62 .32	.59	.63 .32	.63 .66 .59
.63		.64 1.32	.64	.65 1.34	.68 2.45
----- MINERAL ANALYSIS OF ASH, % -----					
OXIDES (SILICON OXIDE) AL2O3 (ALUMINUM OXIDE) FE2O3 (IRON OXIDE) TiO2 (TITANIUM OXIDE) CaO (CALCIUM OXIDE) MgO (MAGNESIUM OXIDE) Na2O (SODIUM OXIDE) K2O (POTASSIUM OXIDE) SO3 (SULFITES)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
6.14		4.34 44.43	6.24	4.42 45.20	--
----- FUSIBILITY OF ASH, DEGREES F -----					
(IN OXIDIZING ATMOSPHERE)					
INITIAL DEFORMATION (ID) SOFTENING TEMPERATURE (ST) FLUID TEMPERATURE (FT)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
6.14		4.34 44.43	6.24	4.42 45.20	--
----- MISCELLANEOUS DATA, % -----					
CL (CHLORINE) (ANALYZED) NA (SODIUM) (CALCULATED) MINERAL MATTER (PAPR)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
6.14		4.34 44.43	6.24	4.42 45.20	--
----- PHYSICAL PARAMETERS, INDEX -----					
FREE SWELLING (FSI) HARDGROVE GRINDABILITY (HGI)	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW FL 1.60 SK 1.60
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
6.14		4.34 44.43	6.24	4.42 45.20	--

STATE: WEST VIRGINIA
COUNTY: KANAWHA

BED: WINIFREDE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 121
SAMPLE NO. 542

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.6	68.4	1.9	.07	.69	14678	.9
FLOAT 1.40	90.8	93.4	3.1	.07	.68	14479	.9
FLOAT 1.60	97.6	99.1	4.2	.07	.67	14297	.9
CUM(1-1/2" X 100M)	100.0	100.0	5.5	.08	.66	14082	.9
100M X 0	.9	.8	14.3	.36	.98	12624	1.6
TOTAL(1-1/2" X 0)	100.0	100.0	5.6	.08	.66	14069	.9

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	69.7	72.7	1.7	.07	.72	14711	1.0
FLOAT 1.40	91.5	94.3	2.8	.06	.69	14529	.9
FLOAT 1.60	97.0	98.9	3.7	.06	.67	14380	.9
CUM(3/8" X 100M)	100.0	100.0	5.4	.07	.66	14098	.9
100M X 0	2.9	2.8	8.2	.14	.72	13635	1.1
TOTAL(3/8" X 0)	100.0	100.0	5.5	.07	.66	14085	.9

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, WEIGHT	% BTU	ASH, %	SULFUR, PYRITIC	% TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.2	66.6	1.4	.09	.69	14761	.9
FLOAT 1.40	89.6	93.2	2.5	.09	.67	14579	.9
FLOAT 1.60	95.8	98.5	3.5	.09	.66	14413	.9
CUM(14M X 0)	100.0	100.0	5.9	.09	.64	14016	.9

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	82.3
3/8" X 14M	13.0
14M X 100M	3.8
100M X 0	.9

----- MOISTURE, % -----

TOTAL
AS RECEIVED
4.5
3.6

STATE: WEST VIRGINIA
COUNTY: KANAWHA

BED: WINIFREDE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 121
SAMPLE NO. 542

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	3.60	3.10 2.00	--	--	--	--
ASH	5.59	3.49 57.53	5.80	3.60 58.70	--	--
VOLATILE MATTER	36.14	37.22 15.48	37.49	38.41 15.80	39.80	39.84 38.26
FIXED CARBON	54.67	56.20 24.99	56.71	57.99 25.50	60.20	60.16 61.74
BTU/LB	13563	13915 5165	14070	14360 5270	14936	14896 12760

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	76.29	78.43 31.20	79.14	80.94 31.84	84.02	83.96 77.09
HYDROGEN	5.35	5.44 2.28	5.14	5.26 2.10	5.45	5.46 5.08
NITROGEN	1.52	1.57 .59	1.58	1.62 .60	1.68	1.68 1.45
SULFUR	.64	.70 .18	.66	.73 .18	.70	.75 .45
OXYGEN	10.60	10.36 8.22	7.68	7.85 6.58	8.15	8.14 15.92
ASH	5.59	3.49 57.53	5.80	3.60 58.70	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.08	.08 .09	.08	.08 .09	.08	.08 .22
SULFATIC	.02	.02 .02	.02	.02 .02	.02	.02 .05
ORGANIC	.54	.61 .07	.56	.63 .07	.59	.65 .18
TOTAL	.64	.70 .18	.66	.73 .18	.70	.75 .45

MINERAL ANALYSIS OF ASH, %

	RAW	FL 1.60 SK 1.60		RAW	FL 1.60 SK 1.60
OXIDES	--	--	INITIAL DEFORMATION (ID)	2910+	2910+
SiO2 (SILICON OXIDE)	--	--	SOFTENING TEMPERATURE (ST)	2910+	2910+
Al2O3 (ALUMINUM OXIDE)	--	--	FLUID TEMPERATURE (FT)	2910+	2910+
Fe2O3 (IRON OXIDE)	--	--	----- MISCELLANEOUS DATA, % -----		
TiO2 (TITANIUM OXIDE)	--	--	CL (CHLORINE) (ANALYZED)	RAW	FL 1.60 SK 1.60
CaO (CALCIUM OXIDE)	--	--	NA (SODIUM) (CALCULATED)	.21	--
MgO (MAGNESIUM OXIDE)	--	--	MINERAL MATTER (PARR)	.07	.01 .17
Na2O (SODIUM OXIDE)	1.62	.50 .40		6.63	4.30 63.50
K2O (POTASSIUM OXIDE)	--	--			
SO3 (SULFITES)	--	--			

COAL UTILIZATION RATIOS

	RAW	FL 1.60		RAW	FL 1.60 SK 1.60
BASE/ACID	--	--	----- PHYSICAL PARAMETERS, INDEX -----		
DOLOMITE	--	--	FREE SWELLING (FSI)	5	4 0
HYDROGEN/CARBON	.78	.78	HARDGROVE GRINDABILITY (HGI)	--	37
OXYGEN/CARBON	.07	.07			
R250	--	--			
SILICA	--	--			
SILICA/ALUMINA	--	--			

STATE: WEST VIRGINIA
COUNTY: LOGAN

BED: WINIFREDE
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 121
SAMPLE NO. 543

CUMULATIVE WASHABILITY DATA (DRY BASIS)

----- SAMPLE CRUSHED TO PASS 1-1/2" -----
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	28.4	33.5	3.0	.03	14200	1.0
FLOAT 1.40	75.0	86.1	5.1	.04	13836	1.0
FLOAT 1.60	87.1	97.8	6.9	.03	13524	.9
CUM(1-1/2" X 100M)	100.0	100.0	15.4	.04	12049	1.0
100M X 0	1.1	1.0	24.1	.11	10540	1.4
TOTAL(1-1/2" X 0)	100.0	100.0	15.5	.04	12032	1.0

----- SAMPLE CRUSHED TO PASS 3/8" -----
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	32.8	39.1	2.6	.04	14270	1.0
FLOAT 1.40	72.7	84.6	4.6	.04	13923	1.0
FLOAT 1.60	85.9	97.5	6.6	.04	13576	1.0
CUM(3/8" X 100M)	100.0	100.0	15.9	.04	11962	1.0
100M X 0	5.3	5.1	18.3	.10	11546	1.2
TOTAL(3/8" X 0)	100.0	100.0	16.0	.04	11940	1.0

----- SAMPLE CRUSHED TO PASS 14M -----
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	BTU	ASH, %	PYRITIC SULFUR, %	HEATING VALUE BTU/LB	SO ₂ EMISSION LB/MM BTU
FLOAT 1.30	30.8	36.9	2.2	.05	14339	1.0
FLOAT 1.40	67.5	79.1	4.0	.04	14027	1.0
FLOAT 1.60	84.6	96.3	6.4	.04	13611	1.0
CUM(14M X 0)	100.0	100.0	15.9	.05	11962	1.0

RAW COAL SIZE AND MOISTURE ANALYSES

----- SIZE DISTRIBUTION, % -----
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.6
3/8" X 14M	20.6
14M X 100M	4.7
100M X 0	1.1

----- MOISTURE, % -----

TOTAL AS RECEIVED	6.1 4.9
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STATE: WEST VIRGINIA
COUNTY: LOGAN

BED: WINIFREDE
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 121
SAMPLE NO. 543

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
MOISTURE	4.90	2.60 1.60	--	--	--	--
ASH	14.84	6.53 68.68	15.60	6.70 69.80	--	--
VOLATILE MATTER	30.11	33.74 13.19	31.66	34.64 13.40	37.51	37.13 44.37
FIXED CARBON	50.15	57.14 16.53	52.74	58.66 16.80	62.49	62.87 55.63
BTU/LB	11466	13170 2563	12057	13522 2605	14286	14493 8626

ULTIMATE ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
CARBON	66.85	76.01 22.85	70.30	78.04 23.22	83.29	83.64 76.89
HYDROGEN	4.76	5.03 1.95	4.43	4.87 1.80	5.25	5.22 5.96
NITROGEN	1.22	1.38 .49	1.29	1.41 .50	1.52	1.51 1.66
SULFUR	.58	.64 .26	.61	.66 .26	.72	.71 .86
OXYGEN	11.75	10.41 5.77	7.77	8.32 4.42	9.21	8.92 14.63
ASH	14.84	6.53 68.68	15.60	6.70 69.80	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
PYRITIC	.05	.04 .10	.05	.04 .10	.06	.04 .35
SULFATIC	.03	.03 .03	.03	.03 .03	.04	.03 .10
ORGANIC	.50	.57 .12	.53	.59 .13	.63	.63 .42
TOTAL	.58	.64 .26	.61	.66 .26	.72	.71 .86

MINERAL ANALYSIS OF ASH, %

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60	RAW	FL 1.60 SK 1.60
OXIDES	--	--	--	--	--	--
SiO2 (SILICON OXIDE)	--	--	--	--	--	--
Al2O3 (ALUMINUM OXIDE)	--	--	--	--	--	--
Fe2O3 (IRON OXIDE)	--	--	--	--	--	--
TiO2 (TITANIUM OXIDE)	--	--	--	--	--	--
CaO (CALCIUM OXIDE)	--	--	--	--	--	--
MgO (MAGNESIUM OXIDE)	--	--	--	--	--	--
Na2O (SODIUM OXIDE)	1.62	--	--	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--	--	--	--
SO3 (SULFITES)	--	--	--	--	--	--

COAL UTILIZATION RATIOS

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
BASE/ACID	--	--	--	--	--	--
DOLomite	--	--	--	--	--	--
HYDROGEN/CARBON	.76	.75	--	--	--	--
OXYGEN/CARBON	.08	.08	--	--	--	--
R250	--	--	--	--	--	--
SILICA	--	--	--	--	--	--
SILICA/ALUMINA	--	--	--	--	--	--

PHYSICAL PARAMETERS, INDEX

	AS RECEIVED		MOISTURE FREE		MOISTURE AND ASH FREE	
	RAW	FL 1.60	RAW	FL 1.60	RAW	FL 1.60
FREE SWELLING (FSI)	1	1 1/2	1	1 1/2	1	1 1/2
HARDGROVE GRINDABILITY (HGI)	45	--	45	--	45	--

APPENDIX D

Statistical Evaluation of the Composited Washability Data, Selected
Chemical and Physical Properties, and Washability Data at Various
Levels of Btu Recovery by State, Section, and Region

APPENDIX D

Statistical Evaluation of the Composited Washability Data, Selected Chemical and Physical Properties, and Washability Data at Various Levels of Btu Recovery by State, Section, and Region

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STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE (DRY BASIS)

STATE: MARYLAND NUMBER OF SAMPLES: 35 TOTAL MOISTURE, %: 3.2 ST.DEV: 1.9

SIZE	PRODUCT	WEIGHT RECOVERY		BTU RECOVERY		HEATING VALUE		ASH	
		AVERAGE	ST.DEV	AVERAGE	ST.DEV	BTU/LB	INCREASE, %	CONTENT, %	REDUCTION, %
ALL X 0	RAW	100.0	.0	100.0	.0	12627	462	16.4	2.6
1-1/2" X 100M	FLOAT 1.30	10.2	10.5	11.9	11.5	15064	356	2.8	.7
	FLOAT 1.40	56.2	22.2	62.9	23.4	14241	354	7.5	2.0
	FLOAT 1.60	85.0	9.0	91.4	7.9	13580	649	11.1	3.3
	CUMULATIVE	100.0	.0	100.0	.0	12609	817	16.5	4.5
3/8" X 100M	FLOAT 1.30	12.9	11.5	15.2	12.8	15045	360	3.0	.8
	FLOAT 1.40	58.2	20.2	65.5	21.3	14320	321	7.0	1.8
	FLOAT 1.60	84.2	8.6	91.4	7.4	13721	577	10.4	2.9
	CUMULATIVE	100.0	.0	100.0	.0	12642	795	16.3	4.5
14M X 0	FLOAT 1.30	15.9	12.8	18.7	14.1	15143	325	2.4	.6
	FLOAT 1.40	52.9	19.3	60.6	20.6	14571	288	5.7	1.5
	FLOAT 1.60	82.0	9.0	90.2	8.0	13885	493	9.5	2.4
	CUMULATIVE	100.0	.0	100.0	.0	12624	800	16.4	4.5

SIZE	PRODUCT	PYRITIC SULFUR		TOTAL SULFUR		SO2 EMISSION	
		CONTENT, %	REDUCTION, %	CONTENT, %	REDUCTION, %	LB/MM BTU	REDUCTION, %
ALL X 0	RAW	1.73	.79	.0	.0	2.43	.81
1-1/2" X 100M	FLOAT 1.30	.22	.20	87.4	15.4	1.07	.35
	FLOAT 1.40	.58	.53	66.1	41.1	1.34	.61
	FLOAT 1.60	1.00	.81	41.5	66.6	1.73	.88
	CUMULATIVE	1.71	1.37	.0	.0	2.41	1.40
3/8" X 100M	FLOAT 1.30	.21	.18	87.8	14.5	1.09	.35
	FLOAT 1.40	.48	.44	72.1	33.8	1.27	.53
	FLOAT 1.60	.79	.70	54.2	54.7	1.52	.77
	CUMULATIVE	1.72	1.36	.0	.0	2.41	1.40
14M X 0	FLOAT 1.30	.16	.13	91.0	10.3	1.01	.30
	FLOAT 1.40	.31	.27	82.4	20.8	1.12	.40
	FLOAT 1.60	.53	.44	70.0	34.5	1.27	.52
	CUMULATIVE	1.75	1.39	.0	.0	2.46	1.42

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE

STATE: MARYLAND

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST. DEV	SAMPLES	AVERAGE	ST. DEV	SAMPLES	AVERAGE	ST. DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	35	1.7	2.0	34	1.5	1.6	34	1.1	.5
ASH	35	16.4	4.5	34	9.5	2.5	34	49.0	9.6
VOLATILE MATTER	35	18.9	2.3	34	19.8	3.0	32	15.3	3.1
FIXED CARBON	35	64.7	4.6	34	70.7	3.4	32	35.5	9.0
BTU/LB	35	12592	845	34	13772	636	32	6675	1500
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	2	75.1	2.7	2	82.4	.7	2	22.8	5.2
HYDROGEN	2	4.3	.1	2	4.7	.1	2	1.4	.1
NITROGEN	2	1.4	.1	2	1.5	.0	2	.4	.1
OXYGEN	2	2.6	.3	2	3.4	.1	1	2.8	--
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	35	1.73	1.40	34	.52	.42	34	8.37	6.70
SULFATIC SULFUR	35	.03	.03	34	.02	.02	34	.04	.03
ORGANIC SULFUR	35	.67	.18	34	.73	.19	34	.52	.34
TOTAL SULFUR	35	2.44	1.44	34	1.27	.51	34	8.94	6.84
MINERAL ANALYSIS OF ASH, %									
SiO2 (SILICON OXIDE)	0	--	--	0	--	--	0	--	--
Al2O3 (ALUMINUM OXIDE)	0	--	--	0	--	--	0	--	--
Fe2O3 (IRON OXIDE)	0	--	--	0	--	--	0	--	--
TiO2 (TITANIUM OXIDE)	0	--	--	0	--	--	0	--	--
CaO (CALCIUM OXIDE)	0	--	--	0	--	--	0	--	--
MgO (MAGNESIUM OXIDE)	0	--	--	0	--	--	0	--	--
Na2O (SODIUM OXIDE)	1	.20	--	1	.40	--	1	.20	--
K2O (POTASSIUM OXIDE)	0	--	--	0	--	--	0	--	--
SO3 (SULFITES)	0	--	--	0	--	--	0	--	--
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	34	2445	320	33	2668	211	32	2347	334
SOFTENING TEMPERATURE (ST)	34	2502	296	33	2713	183	32	2406	323
FLUID TEMPERATURE (FT)	34	2589	252	32	2755	160	32	2508	291
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	35	19.1	5.2	34	11.0	2.9	34	57.9	11.8
CHLORINE	2	.08	.04	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	4	90	4	4	90	4	0	--	--
FREE SWELLING (FSI)	34	6 1/2	3 1/2	30	8	2 1/2	14	1	0 1/2

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE (DRY BASIS)

STATE: OHIO NUMBER OF SAMPLES: 149 TOTAL MOISTURE, %: 5.0 ST. DEV: 1.6

SIZE	PRODUCT	WEIGHT RECOVERY		BTU RECOVERY		HEATING VALUE		ASH	
		%		%		BTU/LB		%	
		AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV
ALL X 0	RAW	100.0	.0	100.0	.0	12470	501	13.2	2.9
1-1/2" X 100M	FLOAT 1.30	34.6	21.9	38.3	23.3	14071	212	3.9	.8
	FLOAT 1.40	78.1	12.4	84.6	10.7	13576	373	6.8	2.2
	FLOAT 1.60	90.3	6.0	96.0	2.2	13289	535	8.5	3.2
	CUMULATIVE	100.0	.0	100.0	.0	12494	876	13.1	5.1
3/8" X 100M	FLOAT 1.30	42.5	20.7	47.4	21.8	14132	223	3.4	.9
	FLOAT 1.40	77.6	10.7	84.8	9.0	13704	380	6.0	2.2
	FLOAT 1.60	89.0	5.9	95.5	2.3	13418	530	7.7	3.1
	CUMULATIVE	100.0	.0	100.0	.0	12499	868	13.0	5.1
14M X 0	FLOAT 1.30	41.7	17.7	46.8	18.3	14205	231	3.0	.9
	FLOAT 1.40	74.3	11.6	82.0	9.6	13819	325	5.3	1.8
	FLOAT 1.60	87.6	6.4	94.7	2.9	13484	486	7.3	2.8
	CUMULATIVE	100.0	.0	100.0	.0	12463	869	13.2	5.0

SIZE	PRODUCT	PYRITIC SULFUR		TOTAL SULFUR		SO2 EMISSION	
		%		%		LB/MM BTU	
		AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV
ALL X 0	RAW	2.50	.60	.0	.0	6.3	1.4
1-1/2" X 100M	FLOAT 1.30	.59	.26	76.3	14.5	2.8	1.1
	FLOAT 1.40	1.20	.51	51.9	28.8	3.9	1.4
	FLOAT 1.60	1.54	.68	38.0	37.8	4.5	1.7
	CUMULATIVE	2.48	1.05	.0	.0	6.3	2.5
3/8" X 100M	FLOAT 1.30	.46	.24	81.1	12.5	2.7	1.2
	FLOAT 1.40	.90	.45	62.8	24.1	3.4	1.5
	FLOAT 1.60	1.23	.61	49.4	32.7	4.0	1.7
	CUMULATIVE	2.43	1.01	.0	.0	6.2	2.4
14M X 0	FLOAT 1.30	.38	.24	84.8	11.5	2.6	1.2
	FLOAT 1.40	.69	.38	72.4	19.0	3.1	1.4
	FLOAT 1.60	1.01	.55	60.0	27.6	3.6	1.6
	CUMULATIVE	2.52	1.06	.0	.0	6.4	2.5

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE

STATE: OHIO

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST. DEV	SAMPLES	AVERAGE	ST. DEV	SAMPLES	AVERAGE	ST. DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	149	3.2	1.3	117	2.6	1.2	117	1.7	.9
ASH	149	13.3	5.0	117	7.5	2.8	117	53.6	5.2
VOLATILE MATTER	149	39.3	3.1	117	41.7	3.0	97	22.5	3.6
FIXED CARBON	149	47.4	4.0	117	50.9	3.2	97	23.8	4.3
BTU/LB	149	12562	838	117	13450	493	97	5423	871
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	94	69.8	3.9	94	74.8	2.9	74	27.5	5.4
HYDROGEN	94	4.9	.3	94	5.2	.2	74	2.0	.4
NITROGEN	94	1.4	.2	94	1.5	.2	81	.6	.6
OXYGEN	94	7.3	1.1	94	8.6	.9	54	2.8	2.0
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	149	2.52	1.07	117	1.04	.55	117	14.61	5.88
SULFATIC SULFUR	149	.06	.06	117	.03	.03	117	.08	.08
ORGANIC SULFUR	149	1.26	.60	117	1.36	.66	117	1.35	1.76
TOTAL SULFUR	149	3.85	1.42	117	2.42	1.05	117	16.04	6.36
MINERAL ANALYSIS OF ASH, %									
SiO2 (SILICON OXIDE)	47	37.42	10.29	47	41.76	9.73	47	30.37	11.45
Al2O3 (ALUMINUM OXIDE)	47	20.61	4.16	47	25.61	4.39	47	14.51	4.45
Fe2O3 (IRON OXIDE)	47	33.33	13.87	47	23.84	12.26	47	46.56	17.23
TiO2 (TITANIUM OXIDE)	47	1.04	.28	47	1.36	.42	47	.70	.31
CaO (CALCIUM OXIDE)	47	2.14	2.11	47	1.81	1.10	47	2.49	3.43
MgO (MAGNESIUM OXIDE)	47	.65	.20	47	.71	.19	47	.53	.23
Na2O (SODIUM OXIDE)	48	.44	.48	48	.45	.18	47	.22	.15
K2O (POTASSIUM OXIDE)	47	1.55	.60	47	1.67	.59	47	1.25	.64
SO3 (SULFITES)	47	1.10	1.20	47	.89	.95	47	1.32	1.47
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	114	2135	229	112	2308	314	12	2.86	290
SOFTENING TEMPERATURE (ST)	114	2204	222	112	2373	300	12	2250	291
FLUID TEMPERATURE (FT)	113	2326	218	112	2490	264	12	2342	302
MISCELLANEOUS DATA, %									
MINERAL MATTER (FARR)	149	16.4	5.7	117	9.4	3.1	117	66.2	6.0
CHLORINE	91	.09	.07	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	99	53	5	26	46	5	1	45	--
FREE SWELLING (FSI)	117	4 1/2	1 1/2	115	5	1 1/2	46	0 1/2	1

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE (DRY BASIS)

TOTAL MOISTURE, %: 5.0 ST. DEV: 1.6

STATE: OHIO

SIZE	BTU RECOVERY %	NO. OF SAMPLES	WEIGHT RECOVERY			HEATING VALUE			ASH		
			AMOUNT, %		REDUCTION, %	BTU/LB		INCREASE, %	CONTENT, %		REDUCTION, %
			AVERAGE ST. DEV	AVERAGE ST. DEV		AVERAGE ST. DEV	AVERAGE ST. DEV		AVERAGE ST. DEV	AVERAGE ST. DEV	
ALL X 0	100.0	447	100.0	.0	.0	12470	501	.0	13.2	2.9	.0
1-1/2" X 100M	50.0	96	36.6	6.3	63.4	13719	368	9.6	5.9	2.0	54.9
	60.0	120	47.7	5.7	52.3	13712	429	9.6	6.0	2.3	54.0
	70.0	134	59.1	4.5	40.9	13650	464	9.1	6.3	2.6	51.2
	80.0	145	71.1	3.9	28.9	13570	510	8.4	6.8	2.9	47.5
	90.0	148	83.2	4.0	16.8	13425	569	7.3	7.7	3.3	40.8
	100.0	149	100.0	.0	.0	12515	846	.0	13.0	4.9	.0
3/8" X 100M	50.0	79	39.0	4.5	61.0	13815	346	10.3	5.3	1.8	58.6
	60.0	100	49.3	4.0	50.7	13762	376	9.9	5.5	2.2	57.2
	70.0	123	60.2	3.6	39.8	13742	437	9.7	5.7	2.6	55.8
	80.0	142	71.4	3.6	28.6	13697	505	9.4	6.0	2.9	53.1
	90.0	148	82.8	4.1	17.2	13548	573	8.2	6.9	3.4	46.2
	100.0	149	100.0	.0	.0	12522	844	.0	12.9	4.9	.0
14M X 0	50.0	86	40.1	3.4	59.9	13956	286	12.0	4.4	1.5	66.4
	60.0	105	49.8	3.3	50.2	13887	327	11.4	4.7	1.9	64.0
	70.0	130	60.3	3.2	39.7	13862	400	11.2	5.0	2.2	62.0
	80.0	146	71.3	3.5	28.7	13775	467	10.5	5.5	2.6	58.1
	90.0	148	82.3	3.8	17.7	13587	554	9.0	6.6	3.2	49.5
	100.0	149	100.0	.0	.0	12463	869	.0	13.2	5.0	.0

SIZE	BTU RECOVERY %	NO. OF SAMPLES	PYRITIC SULFUR			TOTAL SULFUR			SO2 EMISSION		
			CONTENT, %		REDUCTION, %	CONTENT, %		REDUCTION, %	LB/MM BTU		REDUCTION, %
			AVERAGE ST. DEV	AVERAGE ST. DEV		AVERAGE ST. DEV	AVERAGE ST. DEV		AVERAGE ST. DEV	AVERAGE ST. DEV	
ALL X 0	100.0	447	2.50	.60	.0	3.90	.82	.0	6.3	1.4	.0
1-1/2" X 100M	50.0	96	.85	.34	65.7	2.44	.85	37.1	3.6	1.3	43.1
	60.0	120	.91	.38	63.2	2.42	.87	37.4	3.6	1.3	43.2
	70.0	134	1.02	.44	58.9	2.50	.89	35.4	3.7	1.4	41.1
	80.0	145	1.14	.53	54.0	2.57	.98	33.5	3.8	1.5	39.0
	90.0	148	1.34	.64	45.8	2.76	1.07	28.7	4.1	1.7	33.8
	100.0	149	2.48	1.05	.0	3.87	1.43	.0	6.3	2.5	.0
3/8" X 100M	50.0	79	.64	.30	73.6	2.30	.90	9.9	3.3	1.3	45.9
	60.0	100	.72	.34	70.1	2.33	.87	39.2	3.4	1.3	45.1
	70.0	123	.79	.39	67.6	2.33	.89	39.0	3.4	1.4	44.7
	80.0	142	.86	.46	64.5	2.33	.97	39.2	3.4	1.5	44.6
	90.0	148	1.05	.57	56.8	2.47	1.07	35.4	3.7	1.7	40.4
	100.0	149	2.42	1.01	.0	3.83	1.40	.0	6.2	2.4	.0
14M X 0	50.0	86	.50	.26	80.3	2.14	.86	45.3	3.1	1.3	51.6
	60.0	105	.57	.29	77.5	2.19	.85	44.1	3.2	1.3	50.2
	70.0	130	.62	.34	75.2	2.12	.90	45.9	3.1	1.3	51.6
	80.0	146	.70	.41	72.3	2.13	.95	45.6	3.1	1.4	50.9
	90.0	148	.88	.53	65.1	2.29	1.03	41.4	3.4	1.6	46.3
	100.0	149	2.52	1.06	.0	3.91	1.43	.0	6.4	2.5	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE (DRY BASIS)

STATE: PENNSYLVANIA
 NUMBER OF SAMPLES: 205
 TOTAL MOISTURE, %: 3.3
 ST. DEV: 1.7

SIZE	PRODUCT	WEIGHT RECOVERY		BTU RECOVERY		HEATING VALUE		ASH	
		AVERAGE	ST. DEV	AVERAGE	ST. DEV	BTU/LB	INCREASE, %	CONTENT, %	REDUCTION, %
ALL X 0	RAW	100.0	.0	100.0	.0	12778	686	14.8	3.9
1-1/2" X 100M	FLOAT 1.30	36.7	20.5	41.8	22.2	14770	324	11.1	.8
	FLOAT 1.40	74.5	13.8	82.6	11.3	14275	407	11.5	10.9
	FLOAT 1.60	87.1	9.4	94.5	3.8	13920	518	8.8	11.0
	CUMULATIVE	100.0	.0	100.0	.0	12798	1200	.0	.0
3/8" X 100M	FLOAT 1.30	41.7	19.8	47.9	21.4	14835	309	16.3	11.3
	FLOAT 1.40	73.5	13.4	82.5	11.0	14395	379	12.9	11.2
	FLOAT 1.60	85.5	9.6	94.0	4.0	14044	494	10.1	11.2
	CUMULATIVE	100.0	.0	100.0	.0	12754	1215	.0	.0
14M X 0	FLOAT 1.30	40.0	17.5	46.0	18.7	14908	297	16.7	11.1
	FLOAT 1.40	71.2	13.3	80.4	11.1	14500	348	13.5	10.9
	FLOAT 1.60	85.2	9.5	93.9	4.3	14107	460	10.4	10.9
	CUMULATIVE	100.0	.0	100.0	.0	12775	1187	.0	.0

SIZE	PRODUCT	PYRITIC SULFUR		TOTAL SULFUR		SO2 EMISSION	
		CONTENT, %	REDUCTION, %	CONTENT, %	REDUCTION, %	LB/MM BTU	REDUCTION, %
ALL X 0	RAW	1.74	.75	.0	.0	2.53	.88
1-1/2" X 100M	FLOAT 1.30	.34	.26	80.6	21.1	1.15	.46
	FLOAT 1.40	.66	.49	62.0	40.2	1.46	.68
	FLOAT 1.60	.88	.65	48.7	54.1	1.68	.85
	CUMULATIVE	1.73	1.30	.0	.0	2.51	1.52
3/8" X 100M	FLOAT 1.30	.25	.19	85.8	15.6	1.06	.42
	FLOAT 1.40	.46	.37	73.4	29.3	1.26	.58
	FLOAT 1.60	.65	.52	62.5	41.4	1.44	.73
	CUMULATIVE	1.73	1.30	.0	.0	2.50	1.53
14M X 0	FLOAT 1.30	.20	.15	88.8	12.2	1.01	.38
	FLOAT 1.40	.33	.27	80.9	20.9	1.14	.49
	FLOAT 1.60	.51	.41	71.1	32.0	1.29	.63
	CUMULATIVE	1.75	1.31	.0	.0	2.54	1.53

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE

STATE: PENNSYLVANIA

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	205	1.9	1.5	170	1.4	.7	170	1.4	.7
ASH	205	14.8	6.8	170	7.3	2.5	170	54.8	7.6
VOLATILE MATTER	205	28.7	7.5	170	30.7	8.2	154	18.2	4.7
FIXED CARBON	205	56.5	8.6	170	62.0	8.3	154	27.0	7.5
BTU/LB	205	12850	1146	170	14078	484	152	5590	1259
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	103	72.1	6.9	103	78.7	3.5	101	29.0	6.9
HYDROGEN	103	4.6	.5	103	5.0	.4	101	2.0	.4
NITROGEN	103	1.3	.2	103	1.5	.2	101	.5	.2
OXYGEN	103	5.1	1.8	103	6.0	1.9	80	4.1	3.4
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	205	1.76	1.33	170	.47	.37	170	10.02	7.25
SULFATIC SULFUR	205	.04	.05	170	.02	.02	170	.05	.07
ORGANIC SULFUR	205	.58	.27	170	.58	.28	170	.64	.72
TOTAL SULFUR	205	2.48	1.47	170	1.26	.58	170	10.71	7.60
MINERAL ANALYSIS OF ASH, %									
SiO2 (SILICON OXIDE)	31	49.28	9.05	31	49.91	8.44	30	45.84	12.80
Al2O3 (ALUMINUM OXIDE)	31	25.58	4.56	31	29.35	5.29	30	20.09	5.14
Fe2O3 (IRON OXIDE)	31	17.49	12.71	31	12.79	12.36	30	26.67	19.13
TiO2 (TITANIUM OXIDE)	31	1.45	.50	31	1.75	.57	30	1.04	.31
CaO (CALCIUM OXIDE)	31	1.38	1.28	31	1.50	.87	30	1.54	1.95
MgO (MAGNESIUM OXIDE)	31	.75	.19	31	.71	.16	30	.75	.30
Na2O (SODIUM OXIDE)	36	.50	.33	24	.62	.47	23	.46	.39
K2O (POTASSIUM OXIDE)	31	2.07	.55	31	1.95	.56	30	1.98	.64
SO3 (SULFITES)	31	.65	.57	31	.75	.85	30	.66	.64
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	169	2399	319	169	2675	272	94	2270	332
SOFTENING TEMPERATURE (ST)	169	2456	305	168	2718	247	94	2323	324
FLUID TEMPERATURE (FT)	167	2567	273	158	2773	198	93	2403	312
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	205	17.3	7.5	170	8.5	2.7	170	65.2	7.9
CHLORINE	103	.09	.06	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	122	70	19	62	66	20	1	49	--
FREE SWELLING (FSI)	170	7 1/2	2	167	8	2	103	1	1

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE (DRY BASIS)

STATE: PENNSYLVANIA

TOTAL MOISTURE, %: 3.3 ST. DEV: 1.7

BTU RECOVERY	NO. OF SAMPLES	WEIGHT RECOVERY		REDUCTION, %	HEATING VALUE		CONTENT, %		ASH		
		AMOUNT, %	REDUCTION, %		BTU/LB	INCREASE, %	AVERAGE ST. DEV	AVERAGE ST. DEV	REDUCTION, %	AVERAGE ST. DEV	
%		AVERAGE ST. DEV	AVERAGE ST. DEV			AVERAGE ST. DEV	AVERAGE ST. DEV				
ALL X 0	615	100.0	.0	.0	.0	12778	686	.0	14.8	3.9	.0
1-1/2" X 100M	122	36.6	7.7	63.4	7.7	14513	512	13.4	11.4	2.0	65.5
	162	47.7	6.6	52.3	6.6	14464	503	13.0	11.3	2.2	63.7
	187	58.7	5.6	41.3	5.6	14375	511	12.3	11.3	2.4	60.5
	201	70.2	5.4	29.8	5.4	14249	546	11.3	11.3	2.7	55.7
	205	81.9	5.7	18.1	5.7	14017	659	9.5	11.5	3.5	46.8
	205	100.0	.0	.0	.0	12798	1201	.0	14.7	6.9	.0
3/8" X 100M	85	36.7	6.6	63.3	6.6	14559	525	14.1	11.6	2.0	67.5
	135	48.2	5.9	51.8	5.9	14545	492	14.0	11.5	2.1	67.3
	177	59.1	5.4	40.9	5.4	14490	497	13.5	11.5	2.3	65.4
	202	69.9	5.5	30.1	5.5	14377	544	12.6	11.6	2.7	61.2
	205	81.2	5.6	18.8	5.6	14123	671	10.6	11.8	3.5	51.6
	205	100.0	.0	.0	.0	12764	1219	.0	14.9	7.0	.0
14M X 0	108	38.5	5.5	61.5	5.5	14695	467	15.0	11.3	1.7	72.7
	153	48.9	5.0	51.1	5.0	14652	454	14.7	11.2	1.8	71.2
	195	59.5	4.7	40.5	4.7	14593	472	14.2	11.2	2.1	68.8
	202	69.9	5.0	30.1	5.0	14438	539	13.0	11.3	2.6	63.2
	204	81.0	4.9	19.0	4.9	14170	694	10.9	11.6	3.6	53.0
	205	100.0	.0	.0	.0	12775	1187	.0	14.8	6.8	.0

SIZE	BTU RECOVERY %	NO. OF SAMPLES	PYRITIC SULFUR		REDUCTION, %		CONTENT, %		TOTAL SULFUR		REDUCTION, %		SO2 EMISSION	
			AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	LB/MM BTU	AVERAGE ST. DEV	AVERAGE ST. DEV	
ALL X 0	100.0	615	1.74	.75	.0	.0	2.53	.88	.0	.0	4.0	1.5	.0	.0
1-1/2" X 100M	50.0	122	.45	.42	73.9	31.2	1.26	.62	50.0	39.1	1.7	.9	56.1	35.9
	60.0	162	.49	.44	71.5	33.4	1.30	.63	48.1	40.3	1.8	.9	54.4	37.1
	70.0	187	.56	.48	67.7	37.0	1.38	.68	45.1	42.9	1.9	1.0	51.4	39.7
	80.0	201	.64	.55	62.7	42.4	1.46	.74	42.0	45.9	2.1	1.1	48.2	43.0
	90.0	205	.80	.67	53.5	52.2	1.61	.86	36.1	51.9	2.3	1.3	41.8	49.8
100.0	205	1.73	1.30	.0	.0	2.51	1.52	.0	.0	4.0	2.5	.0	.0	
3/8" X 100M	50.0	85	.31	.33	82.2	23.4	1.09	.54	56.4	34.3	1.5	.8	62.0	31.3
	60.0	135	.36	.34	79.2	25.3	1.16	.56	53.6	36.1	1.6	.8	59.6	32.8
	70.0	177	.39	.37	77.6	27.3	1.20	.58	52.2	37.4	1.7	.8	58.2	34.2
	80.0	202	.45	.42	74.1	31.3	1.25	.62	49.8	39.6	1.8	.9	55.7	36.8
	90.0	205	.58	.53	66.3	40.0	1.38	.73	44.9	44.7	2.0	1.1	50.2	42.7
100.0	205	1.72	1.31	.0	.0	2.50	1.53	.0	.0	4.0	2.5	.0	.0	
14M X 0	50.0	108	.24	.25	86.2	17.8	1.03	.45	59.5	30.3	1.4	.7	65.1	27.4
	60.0	153	.27	.26	84.8	18.9	1.06	.47	58.1	31.5	1.5	.7	63.8	28.5
	70.0	195	.29	.28	83.5	20.3	1.09	.49	57.0	32.5	1.5	.7	62.7	29.5
	80.0	202	.34	.33	80.3	23.3	1.15	.54	54.8	34.6	1.6	.8	60.3	32.0
	90.0	204	.46	.44	73.8	32.0	1.26	.65	50.4	39.5	1.8	1.0	55.3	37.8
100.0	205	1.75	1.31	.0	.0	2.54	1.53	.0	.0	4.0	2.5	.0	.0	

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE (DRY BASIS)

STATE: WEST VIRGINIA (NORTH) NUMBER OF SAMPLES: 93 TOTAL MOISTURE, %: 2.4 ST.DEV: .7

SIZE	PRODUCT	WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		ASH	
		AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	CONTENT, %	REDUCTION, %
ALL X 0	RAW	100.0	.0	100.0	.0	12859	675	14.1	4.0
	FLOAT 1.30	37.2	19.9	41.2	20.3	14661	293	4.0	.6
	FLOAT 1.40	76.7	16.3	83.7	13.1	14187	327	6.6	1.5
	FLOAT 1.60	88.6	9.4	95.0	4.3	13839	529	8.6	3.1
	CUMULATIVE	100.0	.0	100.0	.0	12877	1173	14.0	7.1
3/8" X 100M	FLOAT 1.30	43.4	18.7	48.5	18.5	14697	258	3.7	.5
	FLOAT 1.40	76.6	15.1	84.4	11.3	14283	312	6.1	1.3
	FLOAT 1.60	87.4	9.6	94.6	4.3	13951	483	8.0	2.7
	CUMULATIVE	100.0	.0	100.0	.0	12856	1201	14.2	7.2
	FLOAT 1.30	46.0	17.4	51.7	17.0	14763	250	3.4	.5
14M X 0	FLOAT 1.40	75.4	15.0	83.5	11.3	14392	280	5.5	1.0
	FLOAT 1.60	86.8	9.6	94.6	4.3	14043	427	7.5	2.3
	CUMULATIVE	100.0	.0	100.0	.0	12862	1170	14.1	7.0
	FLOAT 1.30	46.0	17.4	51.7	17.0	14763	250	3.4	.5
	FLOAT 1.40	75.4	15.0	83.5	11.3	14392	280	5.5	1.0
14M X 0	FLOAT 1.60	86.8	9.6	94.6	4.3	14043	427	7.5	2.3
	CUMULATIVE	100.0	.0	100.0	.0	12862	1170	14.1	7.0
	FLOAT 1.30	46.0	17.4	51.7	17.0	14763	250	3.4	.5
14M X 0	FLOAT 1.40	75.4	15.0	83.5	11.3	14392	280	5.5	1.0
	FLOAT 1.60	86.8	9.6	94.6	4.3	14043	427	7.5	2.3
	CUMULATIVE	100.0	.0	100.0	.0	12862	1170	14.1	7.0

SIZE	PRODUCT	PYRITIC SULFUR		TOTAL SULFUR		SO2 EMISSION							
		CONTENT, %	REDUCTION, %	CONTENT, %	REDUCTION, %	LB/MM BTU	REDUCTION, %						
		AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV						
ALL X 0	RAW	1.84	.50	.0	.0	2.88	.65	.0	.0	4.5	1.0	.0	.0
	1-1/2"												
	FLOAT 1.30	.42	.27	77.1	18.4	1.46	.69	48.4	31.8	2.0	1.0	54.7	28.4
	FLOAT 1.40	.84	.51	53.7	35.2	1.88	.86	33.9	40.3	2.7	1.2	40.2	36.9
	FLOAT 1.60	1.10	.59	39.8	42.7	2.10	.93	26.1	44.2	3.0	1.4	31.5	41.3
3/8" X 100M	CUMULATIVE	1.82	.85	.0	.0	2.84	1.14	.0	.0	4.4	1.8	.0	.0
	FLOAT 1.30	.33	.21	81.9	14.6	1.38	.64	51.5	29.7	1.9	.9	57.6	26.3
	FLOAT 1.40	.62	.40	66.0	27.3	1.66	.81	41.9	36.8	2.3	1.2	47.8	33.5
	FLOAT 1.60	.84	.52	53.9	36.4	1.86	.93	34.8	41.7	2.7	1.3	40.2	38.6
	CUMULATIVE	1.81	.87	.0	.0	2.85	1.14	.0	.0	4.5	1.8	.0	.0
14M X 0	FLOAT 1.30	.27	.19	85.0	12.6	1.33	.62	54.2	27.7	1.8	.9	60.1	24.4
	FLOAT 1.40	.44	.29	75.8	19.4	1.48	.73	48.8	32.0	2.1	1.0	54.3	28.8
	FLOAT 1.60	.64	.41	65.2	27.7	1.65	.84	43.1	36.4	2.3	1.2	48.1	33.4
	CUMULATIVE	1.83	.85	.0	.0	2.90	1.12	.0	.0	4.5	1.8	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE

STATE: WEST VIRGINIA (NORTH)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST. DEV	SAMPLES	AVERAGE	ST. DEV	SAMPLES	AVERAGE	ST. DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	93	1.4	.5	83	1.4	.5	83	1.2	.5
ASH	93	14.2	7.0	83	7.5	2.4	83	55.5	8.6
VOLATILE MATTER	93	34.4	6.2	83	36.9	4.9	66	22.6	5.6
FIXED CARBON	93	51.4	4.6	83	55.6	4.2	66	20.7	6.5
BTU/LB	93	12882	1147	83	14031	438	66	5189	1094
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	66	72.1	6.1	66	78.3	2.5	58	25.5	7.0
HYDROGEN	66	4.9	.5	66	5.3	.3	58	2.0	.5
NITROGEN	66	1.4	.2	66	1.5	.1	60	.5	.3
OXYGEN	66	5.0	1.4	66	5.9	1.3	34	4.0	3.5
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	93	1.81	.86	83	.65	.41	82	13.00	8.01
SULFATIC SULFUR	93	.03	.04	83	.02	.02	82	.04	.07
ORGANIC SULFUR	93	.95	.48	83	1.00	.53	82	1.71	1.99
TOTAL SULFUR	93	2.79	1.12	83	1.67	.84	82	14.74	8.69
MINERAL ANALYSIS OF ASH, %									
SiO2 (SILICON OXIDE)	63	40.84	10.18	63	45.78	6.55	63	31.44	15.63
Al2O3 (ALUMINUM OXIDE)	63	24.08	6.56	63	29.94	5.74	63	16.18	9.72
Fe2O3 (IRON OXIDE)	63	23.26	12.89	63	13.42	8.99	63	39.28	22.82
TiO2 (TITANIUM OXIDE)	63	1.33	.43	63	1.43	.50	63	1.22	.50
CaO (CALCIUM OXIDE)	63	4.01	4.37	63	3.29	1.98	63	5.18	8.24
MgO (MAGNESIUM OXIDE)	63	.87	.76	63	.98	.58	63	.78	1.29
Na2O (SODIUM OXIDE)	66	.61	.36	17	.54	.34	17	.43	.39
K2O (POTASSIUM OXIDE)	63	1.57	.70	63	1.60	.51	63	1.35	.97
SO3 (SULFITES)	63	2.69	3.66	63	2.17	2.00	63	2.51	3.72
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	83	2247	300	82	2466	333	4	2510	371
SOFTENING TEMPERATURE (ST)	83	2336	292	82	2534	306	4	2590	387
FLUID TEMPERATURE (FT)	83	2429	277	82	2606	273	3	2583	301
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	93	16.7	7.5	83	9.0	2.5	82	66.7	9.6
CHLORINE	61	.11	.07	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	66	60	9	26	59	11	0	--	--
FREE SWELLING (FSI)	82	7 1/2	1 1/2	77	8	1	5	0 1/2	0 1/2

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE (DRY BASIS)

STATE: WEST VIRGINIA (NORTH)

TOTAL MOISTURE, %: 2.4 ST.DEV: .7

SIZE	BTU RECOVERY %	NO. OF SAMPLES	WEIGHT RECOVERY		BTU/LB	HEATING VALUE		ASH			
			AMOUNT, %	REDUCTION, %		AVERAGE ST. DEV	INCREASE, %	CONTENT, %	REDUCTION, %		
										AVERAGE ST. DEV	AVERAGE ST. DEV
ALL X 0	100.0	279	100.0	.0	.0	12859	675	14.1	4.0	.0	.0
1-1/2" X 100M	50.0	60	38.1	5.4	61.9	14418	437	12.0	10.7	5.4	1.9
	60.0	69	47.9	5.1	52.1	14325	449	11.2	10.7	5.9	2.1
	70.0	87	59.7	5.2	40.3	14265	472	10.8	10.7	6.2	2.4
	80.0	93	71.1	5.2	28.9	14138	521	9.8	10.8	6.9	2.9
	90.0	93	82.9	5.3	17.1	13916	646	8.1	11.0	8.2	3.8
100.0	93	100.0	.0	.0	12877	1173	.0	.0	14.0	7.1	.0
3/8" X 100M	50.0	46	38.8	4.4	61.2	14494	387	12.7	11.0	5.0	1.5
	60.0	61	48.5	4.7	51.5	14429	413	12.2	11.0	5.3	1.8
	70.0	82	59.9	5.3	40.1	14372	429	11.8	11.0	5.6	2.1
	80.0	92	70.9	5.4	29.1	14252	487	10.9	11.0	6.2	2.6
	90.0	93	82.3	5.4	17.7	14016	635	9.0	11.3	7.6	3.7
100.0	93	100.0	.0	.0	12856	1201	.0	.0	14.2	7.2	.0
14M X 0	50.0	39	39.3	4.3	60.7	14599	366	13.5	10.7	4.5	1.2
	60.0	58	49.2	4.5	50.8	14538	370	13.0	10.7	4.7	1.5
	70.0	80	60.0	5.0	40.0	14460	380	12.4	10.6	5.0	1.8
	80.0	93	70.8	5.1	29.2	14358	440	11.6	10.7	5.7	2.3
	90.0	93	81.9	5.0	18.1	14107	619	9.7	11.1	7.1	3.5
100.0	93	100.0	.0	.0	12862	1170	.0	.0	14.1	7.0	.0
SIZE	BTU RECOVERY %	NO. OF SAMPLES	PYRITIC SULFUR		TOTAL SULFUR	REDUCTION, %		SO2 EMISSION			
			CONTENT, %	REDUCTION, %		LB/MM BTU	REDUCTION, %				
								AVERAGE ST. DEV	AVERAGE ST. DEV		
ALL X 0	100.0	279	1.84	.50	.0	2.88	.65	4.5	1.0	.0	.0
1-1/2" X 100M	50.0	60	.55	.39	69.8	1.56	.79	2.2	1.1	51.0	32.3
	60.0	69	.63	.41	65.7	1.63	.80	2.3	1.1	48.4	33.1
	70.0	87	.68	.43	62.9	1.71	.81	2.4	1.2	45.6	34.2
	80.0	93	.79	.47	56.5	1.83	.81	2.6	1.2	41.3	35.6
	90.0	93	.96	.54	47.4	1.98	.86	2.9	1.3	35.5	38.6
100.0	93	1.82	.85	.0	2.84	1.14	4.4	1.8	.0	.0	.0
3/8" X 100M	50.0	46	.38	.31	79.1	1.33	.75	1.9	1.1	58.5	29.1
	60.0	61	.44	.32	75.9	1.43	.78	2.0	1.1	55.4	30.6
	70.0	82	.49	.33	73.1	1.51	.77	2.1	1.1	52.7	31.0
	80.0	92	.56	.37	68.9	1.62	.78	2.3	1.1	49.0	32.3
	90.0	93	.71	.47	60.9	1.75	.84	2.5	1.2	43.9	35.6
100.0	93	1.81	.87	.0	2.85	1.14	4.5	1.8	.0	.0	.0
14M X 0	50.0	39	.29	.25	84.2	1.14	.63	1.6	.9	65.2	23.9
	60.0	58	.33	.25	82.1	1.26	.69	1.7	1.0	61.5	26.4
	70.0	80	.37	.26	80.1	1.36	.70	1.9	1.0	58.2	27.2
	80.0	93	.42	.29	77.2	1.46	.71	2.0	1.0	54.9	28.3
	90.0	93	.54	.37	70.8	1.57	.77	2.2	1.1	50.6	31.2
100.0	93	1.83	.85	.0	2.90	1.12	4.5	1.8	.0	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE (DRY BASIS)

STATE: ALABAMA
 NUMBER OF SAMPLES: 10
 TOTAL MOISTURE, %: 4.6 ST. DEV: 1.9

SIZE	PRODUCT	WEIGHT RECOVERY		BTU RECOVERY		HEATING VALUE		ASH	
		%		%		BTU/LB		%	
		AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV
ALL X 0	RAW	100.0	.0	100.0	.0	13489	586	.0	.0
1-1/2" X 100M	FLOAT 1.30	57.5	33.4	60.7	32.5	14700	278	8.9	8.5
	FLOAT 1.40	83.5	13.6	88.4	10.9	14345	493	6.3	8.8
	FLOAT 1.60	93.0	5.5	97.1	2.7	14099	688	4.5	9.4
	CUMULATIVE	100.0	.0	100.0	.0	13498	1021	.0	.0
3/8" X 100M	FLOAT 1.30	60.0	30.3	63.8	29.0	14726	279	9.0	8.4
	FLOAT 1.40	83.4	12.6	88.7	9.6	14405	464	6.7	8.7
	FLOAT 1.60	92.7	5.5	97.2	2.5	14158	658	4.8	9.2
	CUMULATIVE	100.0	.0	100.0	.0	13505	1011	.0	.0
14M X 0	FLOAT 1.30	58.7	25.6	62.9	23.8	14790	278	9.7	8.6
	FLOAT 1.40	81.0	13.6	86.7	10.6	14480	409	7.4	8.8
	FLOAT 1.60	91.7	5.9	96.6	2.8	14194	631	5.3	9.3
	CUMULATIVE	100.0	.0	100.0	.0	13479	1031	.0	.0

SIZE	PRODUCT	PYRITIC SULFUR		TOTAL SULFUR		SO2 EMISSION	
		%		%		LB/MM BTU	
		AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV
ALL X 0	RAW	.70	.48	.0	.0	2.0	.9
1-1/2" X 100M	FLOAT 1.30	.17	.13	75.1	35.7	1.2	.3
	FLOAT 1.40	.41	.50	40.3	104.1	1.6	.9
	FLOAT 1.60	.53	.72	22.3	142.6	1.7	1.3
	CUMULATIVE	.68	.84	.0	.0	2.0	1.5
3/8" X 100M	FLOAT 1.30	.17	.14	75.3	36.3	1.2	.3
	FLOAT 1.40	.38	.46	44.0	95.9	1.5	.9
	FLOAT 1.60	.49	.66	28.7	129.8	1.7	1.2
	CUMULATIVE	.68	.83	.0	.0	2.0	1.5
14M X 0	FLOAT 1.30	.15	.12	79.5	29.6	1.2	.3
	FLOAT 1.40	.28	.32	59.8	65.0	1.4	.6
	FLOAT 1.60	.40	.51	43.4	98.0	1.5	1.0
	CUMULATIVE	.71	.83	.0	.0	2.1	1.6

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE

STATE: ALABAMA

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST. DEV	SAMPLES	AVERAGE	ST. DEV	SAMPLES	AVERAGE	ST. DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	10	2.7	2.2	9	1.5	.7	9	1.4	.7
ASH	10	9.6	6.4	9	5.9	4.2	9	51.4	10.2
VOLATILE MATTER	10	31.9	5.2	9	32.9	5.2	4	22.4	7.0
FIXED CARBON	10	58.5	4.2	9	61.3	3.2	4	31.5	7.5
BTU/LB	10	13693	949	9	14212	548	4	6981	2242
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	4	82.0	2.7	4	83.0	2.6	4	33.6	8.3
HYDROGEN	4	5.3	.1	4	5.3	.1	4	1.9	.5
NITROGEN	4	1.8	.0	4	1.8	.0	4	.6	.2
OXYGEN	4	7.2	1.8	4	7.2	1.9	3	17.1	12.7
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	10	.70	.83	9	.42	.52	9	4.16	3.71
SULFATIC SULFUR	10	.01	.02	9	.01	.01	9	.02	.02
ORGANIC SULFUR	10	.65	.13	9	.65	.17	9	.71	.70
TOTAL SULFUR	10	1.36	.94	9	1.12	.65	9	4.89	3.79
MINERAL ANALYSIS OF ASH, %									
SiO2 (SILICON OXIDE)	0	--	--	0	--	--	0	--	--
Al2O3 (ALUMINUM OXIDE)	0	--	--	0	--	--	0	--	--
Fe2O3 (IRON OXIDE)	0	--	--	0	--	--	0	--	--
TiO2 (TITANIUM OXIDE)	0	--	--	0	--	--	0	--	--
CaO (CALCIUM OXIDE)	0	--	--	0	--	--	0	--	--
MgO (MAGNESIUM OXIDE)	0	--	--	0	--	--	0	--	--
Na2O (SODIUM OXIDE)	4	.49	.28	3	.40	.17	3	.40	.17
K2O (POTASSIUM OXIDE)	0	--	--	0	--	--	0	--	--
SO3 (SULFITES)	0	--	--	0	--	--	0	--	--
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	9	2582	337	9	2668	293	0	--	--
SOFTENING TEMPERATURE (ST)	9	2620	308	8	2669	279	0	--	--
FLUID TEMPERATURE (FT)	9	2663	271	8	2730	219	0	--	--
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	10	11.1	7.1	9	7.0	4.7	9	61.1	8.1
CHLORINE	4	.09	.08	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	4	45	12	4	46	14	0	--	--
FREE SWELLING (FSI)	9	7	2 1/2	9	7	2	4	0 1/2	0 1/2

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE (DRY BASIS)

STATE: KENTUCKY (EAST)

NUMBER OF SAMPLES: 18

TOTAL MOISTURE, %: 6.1 ST.DEV: 1.7

SIZE	PRODUCT	WEIGHT RECOVERY		BTU RECOVERY		BTU/LB	HEATING VALUE		ASH	
		AVERAGE	ST.DEV	%	AVERAGE	ST.DEV	INCREASE, %	AVERAGE	ST.DEV	REDUCTION, %
ALL X 0	RAW	100.0	.0	100.0	.0	12605	665	.0	.0	.0
1-1/2" X 100M	FLOAT 1.30	49.1	30.3	53.6	30.5	14169	353	12.4	10.8	1.2
	FLOAT 1.40	79.5	14.3	86.5	11.4	13797	644	9.4	11.4	3.0
	FLOAT 1.60	89.5	7.8	95.8	3.6	13505	827	7.1	11.9	5.3
	CUMULATIVE	100.0	.0	100.0	.0	12608	1175	.0	.0	12.4
3/8" X 100M	FLOAT 1.30	53.3	25.9	58.8	25.5	14218	335	12.7	10.7	2.7
	FLOAT 1.40	78.6	13.3	86.3	10.0	13909	571	10.2	11.1	1.1
	FLOAT 1.60	88.4	8.0	95.4	3.7	13627	731	8.0	11.5	4.6
	CUMULATIVE	100.0	.0	100.0	.0	12618	1161	.0	.0	6.3
14M X 0	FLOAT 1.30	50.6	21.2	56.2	20.6	14300	294	13.1	10.3	2.3
	FLOAT 1.40	76.1	14.7	84.0	11.5	14032	460	11.0	10.5	3.9
	FLOAT 1.60	87.8	8.4	95.2	4.0	13727	658	8.5	11.0	5.7
	CUMULATIVE	100.0	.0	100.0	.0	12647	1127	.0	.0	12.1

SIZE	PRODUCT	PYRITIC SULFUR		TOTAL SULFUR		SO2 EMISSION							
		CONTENT, %	REDUCTION, %	CONTENT, %	REDUCTION, %	LB/MM BTU	REDUCTION, %						
1-1/2" X 100M	RAW	1.34	.87	.0	.0	2.02	.90	.0	.0	3.3	1.6	.0	.0
	FLOAT 1.30	.36	.42	72.5	44.5	1.17	.60	41.6	53.9	1.7	.9	49.6	48.7
	FLOAT 1.40	.72	.90	45.3	92.4	1.48	.94	25.7	74.0	2.2	1.4	33.6	69.2
	FLOAT 1.60	.88	1.07	33.5	110.8	1.61	1.10	19.3	82.8	2.4	1.7	25.6	80.2
	CUMULATIVE	1.32	1.51	.0	.0	2.00	1.53	.0	.0	3.3	2.7	.0	.0
3/8" X 100M	FLOAT 1.30	.32	.34	76.2	37.1	1.10	.55	45.4	51.1	1.6	.8	53.1	45.9
	FLOAT 1.40	.55	.64	59.2	66.8	1.31	.78	35.1	64.2	1.9	1.2	42.7	59.4
	FLOAT 1.60	.70	.82	48.0	85.7	1.43	.93	28.7	72.8	2.1	1.4	35.3	69.5
	CUMULATIVE	1.34	1.54	.0	.0	2.01	1.59	.0	.0	3.3	2.8	.0	.0
	14M X 0	FLOAT 1.30	.23	.26	82.4	27.8	1.04	.47	47.7	46.2	1.5	.7	55.1
FLOAT 1.40		.39	.45	70.0	48.0	1.19	.62	40.4	55.1	1.7	.9	47.6	50.5
FLOAT 1.60		.55	.63	57.5	68.2	1.32	.77	33.8	63.5	1.9	1.2	40.2	60.1
CUMULATIVE		1.30	1.45	.0	.0	1.99	1.51	.0	.0	3.3	2.6	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE

STATE: KENTUCKY (EAST)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST. DEV	SAMPLES	AVERAGE	ST. DEV	SAMPLES	AVERAGE	ST. DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	18	4.6	1.3	17	2.9	.9	17	2.7	1.0
ASH	18	12.2	6.7	17	5.8	3.7	17	58.2	8.5
VOLATILE MATTER	18	37.6	2.0	17	40.0	1.8	17	19.9	4.0
FIXED CARBON	18	50.2	5.9	17	54.2	4.4	17	21.9	6.2
BTU/LB	18	12691	1168	17	13743	690	17	4990	1240
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	16	71.9	6.4	16	77.1	4.3	15	27.7	7.3
HYDROGEN	16	4.9	.3	16	5.3	.2	15	2.1	.5
NITROGEN	16	1.5	.2	16	1.6	.2	16	.5	.2
OXYGEN	16	7.7	1.9	16	9.0	1.1	15	5.6	3.5
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	18	1.28	1.40	17	.50	.60	17	6.34	7.15
SULFATIC SULFUR	18	.02	.02	17	.01	.01	17	.01	.01
ORGANIC SULFUR	18	.66	.19	17	.74	.21	17	.31	.33
TOTAL SULFUR	18	1.95	1.46	17	1.25	.75	17	6.66	7.15
MINERAL ANALYSIS OF ASH, %									
SiO2 (SILICON OXIDE)	5	36.39	10.01	5	39.38	9.91	5	36.05	11.00
Al2O3 (ALUMINUM OXIDE)	5	26.92	7.63	5	31.68	7.73	5	22.55	5.61
Fe2O3 (IRON OXIDE)	5	32.11	17.99	5	23.08	17.94	5	36.86	18.66
TiO2 (TITANIUM OXIDE)	5	.93	.15	5	1.08	.35	5	.73	.43
CaO (CALCIUM OXIDE)	5	.64	.22	5	.94	.46	5	.16	.10
MgO (MAGNESIUM OXIDE)	5	.52	.21	5	.74	.31	5	.51	.24
Na2O (SODIUM OXIDE)	14	.36	.37	12	.33	.24	12	.23	.15
K2O (POTASSIUM OXIDE)	5	1.44	1.14	5	1.39	1.24	5	1.57	1.15
SO3 (SULFITES)	5	.48	.23	5	.56	.21	5	.35	.22
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	17	2509	316	17	2643	299	6	2493	352
SOFTENING TEMPERATURE (ST)	17	2561	296	17	2682	285	6	2560	313
FLUID TEMPERATURE (FT)	16	2633	263	16	2729	255	7	2741	237
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	18	14.2	7.4	17	7.0	4.1	17	66.1	8.7
CHLORINE	16	.11	.09	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	17	44	5	10	42	5	0	--	--
FREE SWELLING (FSI)	17	2 1/2	1 1/2	17	3	1 1/2	9	0	0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE (DRY BASIS)

STATE: KENTUCKY (EAST)

TOTAL MOISTURE, %: 6.1 ST. DEV: 1.7

BTU RECOVERY	NO. OF SAMPLES	WEIGHT RECOVERY		REDUCTION, %	HEATING VALUE		ASH		
		AMOUNT, %	REDUCTION, %		BTU/LB	INCREASE, %	CONTENT, %	REDUCTION, %	
SIZE		AVERAGE ST. DEV	AVERAGE ST. DEV		AVERAGE ST. DEV	AVERAGE ST. DEV		AVERAGE ST. DEV	
ALL X 0	54	100.0	.0	.0	12605	665	.0	12.4	3.9
1-1/2" X 100M	8	36.4	8.4	63.6	13548	400	7.5	10.5	5.6
	11	46.9	6.5	53.1	13652	542	8.3	11.0	5.6
	11	57.1	4.3	42.9	13517	588	7.2	11.0	6.5
	13	70.4	3.9	29.6	13486	677	7.0	11.3	6.7
	16	82.5	4.2	17.5	13508	879	7.1	12.2	7.1
100.0	18	100.0	.0	.0	12608	1173	.0	12.4	6.9
3/8" X 100M	7	39.2	4.9	60.8	13707	367	8.6	10.4	4.8
	10	48.9	3.3	51.1	13730	428	8.8	10.6	4.9
	11	58.7	2.4	41.3	13683	525	8.4	10.8	5.5
	12	70.0	4.0	30.0	13606	626	7.8	11.1	6.2
	16	81.8	4.2	18.2	13635	815	8.1	11.9	6.2
100.0	18	100.0	.0	.0	12618	1161	.0	12.3	6.9
14M X 0	7	39.4	2.1	60.6	13913	289	10.0	10.1	4.1
	10	49.8	2.7	50.2	13848	312	9.5	10.1	4.4
	12	59.9	3.7	40.1	13872	494	9.7	10.5	4.6
	16	70.9	4.2	29.1	13908	588	10.0	10.8	4.5
	18	82.3	4.2	17.7	13794	737	9.1	11.3	5.3
100.0	18	100.0	.0	.0	12647	1127	.0	12.1	6.7

SIZE	BTU RECOVERY %	NO. OF SAMPLES	PYRITIC SULFUR		REDUCTION, %	TOTAL SULFUR		SO2 EMISSION				
			CONTENT, %	AVERAGE ST. DEV		CONTENT, %	AVERAGE ST. DEV	LB/MM BTU	REDUCTION, %	AVERAGE ST. DEV		
ALL X 0	100.0	54	1.34	.87	.0	2.02	.90	.0	3.3	1.6	.0	.0
1-1/2" X 100M	50.0	8	.78	.64	40.8	1.78	.76	11.0	78.3	2.6	1.1	20.1
	60.0	11	.72	.71	45.4	1.62	.84	19.0	75.0	2.4	1.3	27.4
	70.0	11	.84	.84	36.7	1.71	.93	14.4	80.4	2.6	1.4	22.3
	80.0	13	.92	.95	30.4	1.73	.98	13.1	82.8	2.6	1.5	20.7
	90.0	16	.92	1.06	30.6	1.67	1.09	16.2	84.5	2.5	1.8	22.5
100.0	18	1.32	1.51	.0	2.00	1.53	.0	.0	3.3	2.7	.0	
3/8" X 100M	50.0	7	.65	.50	51.5	1.53	.73	24.1	70.1	2.2	1.1	32.8
	60.0	10	.62	.53	53.7	1.51	.74	25.0	69.8	2.2	1.1	33.6
	70.0	11	.66	.62	50.9	1.52	.80	24.3	71.7	2.2	1.2	32.5
	80.0	12	.70	.71	47.5	1.54	.86	23.5	74.1	2.3	1.3	31.1
	90.0	16	.72	.82	46.4	1.49	.94	25.7	75.1	2.2	1.5	32.2
100.0	18	1.31	1.54	.0	2.01	1.59	.0	.0	3.3	2.8	.0	
14M X 0	50.0	7	.31	.25	75.9	1.23	.55	38.3	54.6	1.8	.8	45.6
	60.0	10	.45	.38	65.6	1.37	.62	31.1	60.9	2.0	.9	55.9
	70.0	11	.45	.45	65.1	1.34	.65	32.7	60.8	1.9	1.0	56.2
	80.0	12	.47	.45	64.2	1.26	.66	36.8	58.5	1.8	1.0	43.7
	90.0	16	.53	.53	59.0	1.28	.80	35.3	63.3	1.9	1.3	41.5
100.0	18	1.30	1.45	.0	1.99	1.51	.0	.0	3.3	2.6	.0	

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE (DRY BASIS)

STATE: TENNESSEE NUMBER OF SAMPLES: 8 TOTAL MOISTURE, %: 2.9 ST. DEV: 1.2

SIZE	PRODUCT	WEIGHT RECOVERY		BTU RECOVERY		HEATING VALUE		CONTENT, %		ASH	
		AVERAGE	ST.DEV	AVERAGE	ST.DEV	BTU/LB	INCREASE, %	AVERAGE	ST.DEV	AVERAGE	ST.DEV
1-1/2" X 100M	RAW	100.0	.0	100.0	.0	13614	314	.0	.0	2.0	.0
	FLOAT 1.30	53.1	27.5	56.2	28.4	14533	72	6.7	4.4	2.5	.7
	FLOAT 1.40	91.1	4.6	94.8	2.8	14186	321	4.1	4.9	4.6	2.3
	FLOAT 1.60	95.7	4.0	98.9	1.1	14080	345	3.4	4.9	5.2	2.4
	CUMULATIVE	100.0	.0	100.0	.0	13623	556	.0	.0	7.9	3.6
3/8" X 100M	FLOAT 1.30	59.1	23.6	62.8	24.2	14579	64	6.8	4.3	2.3	.6
	FLOAT 1.40	89.7	5.4	93.8	3.8	14291	286	4.6	4.7	4.0	2.0
	FLOAT 1.60	95.1	4.3	98.6	1.1	14167	353	3.7	4.9	4.7	2.4
	CUMULATIVE	100.0	.0	100.0	.0	13657	545	.0	.0	7.7	3.5
1/4" X 0	FLOAT 1.30	51.2	14.2	55.0	15.0	14617	59	7.5	4.4	2.0	.4
	FLOAT 1.40	85.7	6.7	90.4	5.3	14351	202	5.6	4.6	3.6	1.5
	FLOAT 1.60	94.3	4.4	98.1	1.3	14150	332	4.1	4.9	4.8	2.3
	CUMULATIVE	100.0	.0	100.0	.0	13591	555	.0	.0	8.1	3.6

SIZE	PRODUCT	PYRITIC SULFUR		TOTAL SULFUR		SO2 EMISSION	
		CONTENT, %	REDUCTION, %	CONTENT, %	REDUCTION, %	LB/MM BTU	REDUCTION, %
		AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	.43	.38	1.17	.57	1.7	.9
1-1/2" X 100M	FLOAT 1.30	.15	.16	.94	.53	1.3	.7
	FLOAT 1.40	.19	.22	.98	.58	1.4	.8
	FLOAT 1.60	.24	.34	1.02	.69	1.5	1.0
	CUMULATIVE	.43	.64	1.18	.97	1.7	1.4
3/8" X 100M	FLOAT 1.30	.12	.14	.92	.51	1.3	.7
	FLOAT 1.40	.15	.19	.94	.55	1.3	.8
	FLOAT 1.60	.20	.29	.98	.63	1.4	.9
	CUMULATIVE	.42	.65	1.17	.99	1.7	1.5
1/4" X 0	FLOAT 1.30	.10	.11	.88	.46	1.2	.6
	FLOAT 1.40	.14	.17	.91	.52	1.3	.7
	FLOAT 1.60	.18	.23	.93	.57	1.3	.8
	CUMULATIVE	.44	.69	1.17	1.01	1.7	1.5

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE

STATE: TENNESSEE

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	8	2.1	1.3	4	2.2	.9	4	2.2	.9
ASH	8	8.0	3.5	4	4.8	2.7	4	53.9	11.1
VOLATILE MATTER	8	36.4	3.3	4	38.7	1.9	3	19.2	3.4
FIXED CARBON	8	55.5	3.5	4	56.5	3.0	3	24.0	14.4
BTU/LB	8	13739	457	4	14104	359	3	5385	2140
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	2	79.9	.4	2	81.0	.8	2	23.4	18.3
HYDROGEN	2	5.3	.2	2	5.3	.2	2	1.6	.8
NITROGEN	2	1.9	.1	2	1.9	.1	2	.4	.2
OXYGEN	2	8.1	.2	2	8.3	.0	2	10.1	7.0
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	8	.44	.67	4	.27	.29	4	7.15	9.69
SULFATIC SULFUR	8	.01	.02	4	.01	.01	4	.01	.00
ORGANIC SULFUR	8	.72	.40	4	.94	.50	4	.63	.43
TOTAL SULFUR	8	1.17	1.05	4	1.22	.77	4	7.79	9.52
MINERAL ANALYSIS OF ASH, %									
SiO2 (SILICON OXIDE)	0	--	--	0	--	--	0	--	--
Al2O3 (ALUMINUM OXIDE)	0	--	--	0	--	--	0	--	--
Fe2O3 (IRON OXIDE)	0	--	--	0	--	--	0	--	--
TiO2 (TITANIUM OXIDE)	0	--	--	0	--	--	0	--	--
CaO (CALCIUM OXIDE)	0	--	--	0	--	--	0	--	--
MgO (MAGNESIUM OXIDE)	0	--	--	0	--	--	0	--	--
Na2O (SODIUM OXIDE)	7	.57	.44	2	.60	.28	2	.35	.07
K2O (POTASSIUM OXIDE)	0	--	--	0	--	--	0	--	--
SO3 (SULFITES)	0	--	--	0	--	--	0	--	--
FUSIBILITY OF ASH, DEGREES F.									
INITIAL DEFORMATION (ID)	4	2398	450	4	2453	352	0	--	--
SOFTENING TEMPERATURE (ST)	4	2453	412	4	2495	328	0	--	--
FLUID TEMPERATURE (FT)	4	2535	355	4	2620	275	0	--	--
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	8	9.4	3.8	4	5.9	3.1	4	64.5	14.4
CHLORINE	2	.24	.01	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	2	40	1	2	40	1	0	--	--
FREE SWELLING (FSI)	4	4 1/2	2	4	5 1/2	1 1/2	3	0 1/2	0 1/2

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE (DRY BASIS)

STATE: TENNESSEE TOTAL MOISTURE, %: 2.9 ST.DEV: 1.2

BTU RECOVERY	NO. OF SAMPLES	WEIGHT RECOVERY		BTU/LB	HEATING VALUE		CONTENT, %		ASH			
		AMOUNT, %	REDUCTION, %		AVERAGE ST. DEV	INCREASE, %	AVERAGE ST. DEV	REDUCTION, %				
SIZE	%	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV		
ALL X 0	100.0	24	100.0	.0	.0	13614	314	.0	.0	8.0	2.0	.0
1-1/2" X 100M	50.0	3	36.7	9.2	63.3	9.2	93	5.0	4.3	4.0	.5	23.9
	60.0	4	48.2	9.8	51.8	9.8	14321	241	5.1	4.6	1.4	50.6
	70.0	5	59.2	8.1	40.8	8.1	14273	257	4.8	4.7	1.5	28.9
	80.0	7	71.6	5.7	28.4	5.7	14262	275	4.7	4.7	1.9	30.9
	90.0	7	84.2	3.5	15.8	3.5	14171	306	4.0	4.8	2.1	46.0
100.0	8	100.0	.0	.0	.0	13623	556	.0	.0	7.9	3.6	40.0
3/8" X 100M	50.0	3	41.9	4.0	58.1	4.0	78	5.1	4.1	3.5	.4	52.9
	60.0	3	50.2	3.8	49.8	3.8	81	4.4	4.1	4.1	.4	22.2
	70.0	3	60.2	3.3	39.8	3.3	84	3.6	4.0	4.7	.5	25.6
	80.0	6	74.2	3.2	25.8	3.2	282	4.5	4.5	3.9	1.8	29.7
	90.0	8	85.6	3.2	14.4	3.2	309	4.4	4.6	3.8	2.2	34.2
100.0	8	100.0	.0	.0	.0	527	.0	.0	7.4	3.4	48.3	37.7
14M X 0	50.0	2	41.9	2.4	58.1	2.4	32	6.1	4.2	3.1	.2	60.4
	60.0	4	53.0	3.1	47.0	3.1	147	6.1	4.3	3.0	.9	17.7
	70.0	7	63.8	3.0	36.2	3.0	159	5.9	4.3	2.8	1.3	20.9
	80.0	8	74.0	2.4	26.0	2.4	200	5.6	4.5	3.2	1.5	22.9
	90.0	8	85.0	2.9	15.0	2.9	272	4.8	4.6	3.8	1.9	26.5
100.0	8	100.0	.0	.0	.0	535	.0	.0	7.8	3.4	50.8	33.1

SIZE	BTU RECOVERY %	NO. OF SAMPLES	PYRITIC SULFUR		CONTENT, %	TOTAL SULFUR		SO2 EMISSION			
			AVERAGE ST.DEV	REDUCTION, %		AVERAGE ST.DEV	REDUCTION, %	LB/MM BTU	AVERAGE ST.DEV		
ALL X 0	100.0	24	.43	.38	.0	.57	.0	1.7	.9	.0	.0
1-1/2" X 100M	50.0	3	.21	.27	51.3	.89	-5.0	115.3	1.2	.5	109.4
	60.0	4	.18	.25	58.0	.72	-3.6	103.0	1.1	10.5	98.4
	70.0	5	.16	.25	62.9	.61	-4.4	95.1	1.0	16.4	91.5
	80.0	7	.18	.22	57.0	.98	-16.2	86.7	.9	20.0	83.8
	90.0	7	.20	.23	53.3	1.00	-15.3	87.8	.9	18.6	85.5
100.0	8	.42	.64	.0	.97	.0	.0	1.7	1.4	.0	.0
3/8" X 100M	50.0	3	.16	.21	61.1	.84	-2.7	113.8	1.2	3.0	108.2
	60.0	3	.18	.24	57.2	.86	-3.6	115.2	1.2	1.5	110.4
	70.0	3	.19	.26	53.0	.87	-4.4	116.7	1.2	-.1	112.7
	80.0	6	.18	.22	55.2	.63	-14.6	90.8	.9	18.4	88.0
	90.0	8	.18	.22	56.8	.57	-13.0	84.7	.8	22.5	82.6
100.0	8	.41	.65	.0	.99	.0	.0	1.7	1.5	.0	.0
14M X 0	50.0	2	.03	.01	93.8	.28	38.8	58.5	1.0	42.6	55.6
	60.0	4	.11	.15	75.6	.68	12.2	96.0	1.4	17.7	90.9
	70.0	7	.13	.14	70.1	.52	20.3	82.5	1.3	25.1	78.7
	80.0	8	.15	.16	66.6	.51	22.7	80.3	1.3	27.1	77.0
	90.0	8	.17	.20	60.7	.53	21.4	82.5	.8	25.2	80.0
100.0	8	.43	.70	.0	1.01	.0	.0	1.7	1.5	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE (DRY BASIS)

STATE: VIRGINIA

NUMBER OF SAMPLES: 8

TOTAL MOISTURE, %: 2.5

ST. DEV: 1.2

SIZE	PRODUCT	WEIGHT RECOVERY		BTU RECOVERY		HEATING VALUE		CONTENT, %		ASH	
		AVERAGE ST. DEV	%	AVERAGE ST. DEV	%	BTU/LB	INCREASE, %	AVERAGE ST. DEV	%	AVERAGE ST. DEV	REDUCTION, %
ALL X 0	RAW	100.0	.0	100.0	.0	13643	698	.0	.0	10.1	4.5
1-1/2" X 100M	FLOAT 1.30	63.1	21.3	68.0	19.6	14933	119	9.3	9.5	2.6	.9
	FLOAT 1.40	85.0	14.0	91.1	8.5	14728	175	7.8	9.4	3.8	1.5
	FLOAT 1.60	92.0	8.5	97.6	2.1	14511	369	6.2	9.6	5.0	2.7
	CUMULATIVE	100.0	.0	100.0	.0	13662	1183	.0	.0	10.0	7.7
3/8" X 100M	FLOAT 1.30	65.1	19.2	70.6	16.4	14952	126	9.8	10.4	2.5	1.0
	FLOAT 1.40	84.3	14.2	90.9	8.0	14771	166	8.5	10.3	3.5	1.5
	FLOAT 1.60	90.9	9.9	97.0	3.0	14548	349	6.9	10.4	4.8	2.6
	CUMULATIVE	100.0	.0	100.0	.0	13614	1289	.0	.0	10.3	8.3
14M X 0	FLOAT 1.30	61.5	20.9	66.4	18.9	15027	109	9.7	9.3	2.0	.8
	FLOAT 1.40	82.3	14.2	88.6	9.0	14827	160	8.3	9.3	3.2	1.4
	FLOAT 1.60	91.0	8.9	96.9	2.9	14597	329	6.6	9.3	4.5	2.5
	CUMULATIVE	100.3	.0	100.0	.0	13693	1160	.0	.0	9.8	7.6

SIZE	PRODUCT	PYRITIC SULFUR		TOTAL SULFUR		SO2 EMISSION	
		CONTENT, %	REDUCTION, %	CONTENT, %	REDUCTION, %	LB/MM BTU	REDUCTION, %
ALL X 0	RAW	.20	.08	.77	.13	1.1	.2
1-1/2" X 100M	FLOAT 1.30	.07	.05	.71	.14	.9	.2
	FLOAT 1.40	.11	.07	.72	.17	1.0	.2
	FLOAT 1.60	.13	.09	.74	.19	1.0	.2
	CUMULATIVE	.19	.13	.76	.24	1.1	.3
3/8" X 100M	FLOAT 1.30	.07	.04	.69	.15	.9	.2
	FLOAT 1.40	.10	.06	.71	.16	1.0	.2
	FLOAT 1.60	.12	.08	.72	.17	1.0	.2
	CUMULATIVE	.20	.14	.76	.23	1.1	.3
14M X 0	FLOAT 1.30	.08	.04	.72	.11	1.0	.1
	FLOAT 1.40	.09	.05	.72	.13	1.0	.2
	FLOAT 1.60	.12	.09	.72	.14	1.0	.2
	CUMULATIVE	.20	.13	.78	.21	1.1	.3

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE

STATE: VIRGINIA

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST. DEV	SAMPLES	AVERAGE	ST. DEV	SAMPLES	AVERAGE	ST. DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	8	1.6	1.0	8	1.3	.3	8	1.4	.4
ASH	8	9.9	7.7	8	4.4	2.4	8	60.6	7.7
VOLATILE MATTER	8	31.8	3.2	8	32.9	2.0	4	17.9	1.7
FIXED CARBON	8	58.3	4.8	8	62.6	1.7	4	25.9	5.9
BTU/LB	8	13715	1137	8	14617	308	4	5397	1252
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	4	82.0	2.1	4	83.1	1.3	4	29.1	13.1
HYDROGEN	4	5.2	.1	4	5.3	.1	4	1.9	.9
NITROGEN	4	1.5	.1	4	1.5	.1	4	.5	.2
OXYGEN	4	6.1	.5	4	6.3	.4	2	5.8	5.2
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	8	.21	.14	8	.11	.08	8	4.04	5.23
SULFATIC SULFUR	8	.01	.00	8	.00	.00	8	.01	.00
ORGANIC SULFUR	8	.57	.14	8	.59	.08	8	1.02	1.79
TOTAL SULFUR	8	.79	.27	8	.71	.14	8	5.07	6.31
MINERAL ANALYSIS OF ASH, %									
SiO2 (SILICON OXIDE)	0	--	--	0	--	--	0	--	--
Al2O3 (ALUMINUM OXIDE)	0	--	--	0	--	--	0	--	--
Fe2O3 (IRON OXIDE)	0	--	--	0	--	--	0	--	--
TiO2 (TITANIUM OXIDE)	0	--	--	0	--	--	0	--	--
CaO (CALCIUM OXIDE)	0	--	--	0	--	--	0	--	--
MgO (MAGNESIUM OXIDE)	0	--	--	0	--	--	0	--	--
Na2O (SODIUM OXIDE)	5	.59	.24	4	1.40	.88	4	.55	.30
K2O (POTASSIUM OXIDE)	0	--	--	0	--	--	0	--	--
SO3 (SULFITES)	0	--	--	0	--	--	0	--	--
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	8	2380	208	8	2519	322	1	2190	--
SOFTENING TEMPERATURE (ST)	8	2455	212	8	2565	304	1	2250	--
FLUID TEMPERATURE (FT)	8	2559	238	8	2640	287	1	2380	--
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	8	11.2	8.2	8	5.2	2.5	8	69.2	9.0
CHLORINE	4	.04	.03	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	4	50	5	4	50	5	0	--	--
FREE SWELLING (FSI)	8	7 1/2	1 1/2	8	8	1	3	0 1/2	0 1/2

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE (DRY BASIS)

STATE: VIRGINIA

TOTAL MOISTURE, %: 2.5 ST.DEV: 1.2

BTU NO.OF			WEIGHT RECOVERY		HEATING VALUE				ASH		
RECOVERY		SAMPLES	AMOUNT, %	REDUCTION, %	BTU/LB	INCREASE, %		CONTENT, %		REDUCTION, %	
			AVERAGE ST.DEV	AVERAGE ST.DEV	AVERAGE ST.DEV	AVERAGE ST.DEV	AVERAGE ST.DEV	AVERAGE ST.DEV	AVERAGE ST.DEV	AVERAGE ST.DEV	AVERAGE ST.DEV
SIZE	%										
14M X 0	100.0	24	100.0	.0	.0	13643	698	.0	10.1	4.5	.0
1-1/2" X 100M	50.0	1	36.4	--	63.6	14665	--	7.3	4.7	--	52.7
	60.0	1	45.4	--	54.6	14559	--	6.6	5.3	--	46.5
	70.0	6	62.3	5.6	37.7	14830	232	8.6	3.5	1.5	65.5
	80.0	6	71.5	5.7	28.5	14727	270	7.8	4.0	1.8	59.6
	90.0	7	82.6	6.0	17.4	14633	336	7.1	9.6	2.3	41.3
	100.0	8	100.0	.0	.0	13662	1183	.0	10.0	7.7	.0
3/8" X 100M	50.0	1	39.2	--	60.8	14706	--	8.0	4.5	--	55.8
	60.0	1	47.1	--	52.9	14620	--	7.4	5.0	--	51.1
	70.0	3	58.0	6.2	42.0	14782	246	8.6	3.9	1.5	62.2
	80.0	6	71.1	6.4	28.9	14779	242	8.6	3.7	1.6	63.7
	90.0	7	82.2	6.7	17.8	14663	323	7.7	4.3	2.2	58.1
	100.0	8	100.0	.0	.0	13614	1289	.0	10.3	8.3	.0
14M X 0	50.0	1	37.6	--	62.4	14758	--	7.8	4.2	--	57.2
	60.0	3	49.6	5.6	50.4	14904	217	8.8	3.2	1.4	67.7
	70.0	4	61.1	6.5	38.9	14812	179	8.2	3.2	1.6	67.7
	80.0	6	71.4	5.3	28.6	14813	255	8.2	3.5	1.6	64.0
	90.0	7	82.5	5.7	17.5	14696	324	7.3	4.1	2.2	58.1
	100.0	8	100.0	.0	.0	13693	1160	.0	9.8	7.6	.0
TOTAL SULFUR											
		PYRITIC SULFUR		REDUCTION, %		CONTENT, %		SO2 EMISSION		REDUCTION, %	
		CONTENT, %		REDUCTION, %		CONTENT, %		LB/MM BTU		REDUCTION, %	
		AVERAGE ST.DEV		AVERAGE ST.DEV		AVERAGE ST.DEV		AVERAGE ST.DEV		AVERAGE ST.DEV	
SIZE	%										
14M X 0	100.0	24	.20	.08	.0	.77	.13	.0	1.1	.2	.0
1-1/2" X 100M	50.0	1	.06	--	66.3	.66	--	12.8	.9	--	18.4
	60.0	1	.06	--	67.4	.65	--	14.8	.9	--	19.7
	70.0	6	.05	.03	73.3	.64	.10	15.9	.9	.1	22.3
	80.0	6	.06	.04	68.3	.64	.12	15.6	.9	.2	21.4
	90.0	7	.09	.05	54.8	.69	.16	10.1	.9	.2	15.8
	100.0	8	.19	.13	.0	.76	.24	.0	1.1	.3	.0
3/8" X 100M	50.0	1	.08	--	60.0	.55	--	27.3	.8	--	32.6
	60.0	1	.08	--	60.0	.57	--	25.5	.8	--	30.5
	70.0	3	.06	.02	68.3	.68	.11	10.2	.9	.1	17.4
	80.0	6	.06	.03	67.8	.64	.12	16.2	.9	.2	22.7
	90.0	7	.09	.05	54.9	.68	.15	11.0	.9	.2	17.4
	100.0	8	.20	.14	.0	.76	.23	.0	1.1	.3	.0
14M X 0	50.0	1	.06	--	68.1	.67	--	13.6	.9	--	19.7
	60.0	3	.08	.03	58.7	.71	.08	8.4	1.0	.1	15.9
	70.0	4	.08	.03	58.2	.71	.07	9.2	1.0	.1	16.0
	80.0	6	.07	.04	66.3	.66	.09	15.0	.9	.1	21.4
	90.0	7	.09	.05	56.7	.69	.12	11.0	.9	.2	17.0
	100.0	8	.20	.13	.0	.78	.21	.0	1.1	.3	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE (DRY BASIS)

STATE: WEST VIRGINIA (SOUTH) NUMBER OF SAMPLES: 17 TOTAL MOISTURE, %: 3.6 ST. DEV: 1.1

SIZE	PRODUCT	WEIGHT RECOVERY		BTU RECOVERY		HEATING VALUE		ASH	
		AVERAGE	ST. DEV	AVERAGE	ST. DEV	BTU/LB	INCREASE, %	CONTENT, %	REDUCTION, %
		AVERAGE	ST. DEV	AVERAGE	ST. DEV	AVERAGE	ST. DEV	AVERAGE	ST. DEV
ALL X 0	RAW	100.0	.0	100.0	.0	12781	663	13.5	3.8
1-1/2" X 100M	FLOAT 1.30	44.5	23.0	50.4	24.6	14650	277	2.9	.8
	FLOAT 1.40	79.3	9.0	88.5	5.7	14305	330	4.8	1.6
	FLOAT 1.60	89.2	8.7	97.2	2.4	13969	446	6.7	2.3
	CUMULATIVE	100.0	.0	100.0	.0	12310	1119	13.3	6.3
3/8" X 100M	FLOAT 1.30	49.0	18.1	56.2	19.1	14725	255	2.4	.6
	FLOAT 1.40	78.3	9.3	88.1	5.8	14393	307	4.3	1.5
	FLOAT 1.60	88.0	8.7	96.8	2.5	14075	410	6.2	2.1
	CUMULATIVE	100.0	.0	100.0	.0	12784	1146	13.5	6.6
14M X 0	FLOAT 1.30	43.2	15.5	49.9	16.7	14785	270	2.1	.6
	FLOAT 1.40	74.9	10.2	84.7	6.6	14456	298	3.9	1.3
	FLOAT 1.60	87.0	9.2	95.9	3.2	14098	378	6.0	2.0
	CUMULATIVE	100.0	.0	100.0	.0	12768	1168	13.6	6.5

SIZE	PRODUCT	PYRITIC SULFUR		TOTAL SULFUR		SO2 EMISSION	
		CONTENT, %	REDUCTION, %	CONTENT, %	REDUCTION, %	LB/MM BTU	REDUCTION, %
		AVERAGE	ST. DEV	AVERAGE	ST. DEV	AVERAGE	ST. DEV
ALL X 0	RAW	.26	.15	.88	.21	1.4	.3
1-1/2" X 100M	FLOAT 1.30	.07	.05	.79	.16	1.1	.2
	FLOAT 1.40	.11	.08	.80	.17	1.1	.2
	FLOAT 1.60	.14	.11	.81	.21	1.2	.3
	CUMULATIVE	.25	.25	.87	.36	1.4	.5
3/8" X 100M	FLOAT 1.30	.08	.06	.78	.17	1.1	.2
	FLOAT 1.40	.11	.08	.79	.18	1.1	.2
	FLOAT 1.60	.14	.10	.80	.20	1.1	.3
	CUMULATIVE	.26	.25	.87	.35	1.4	.5
14M X 0	FLOAT 1.30	.06	.04	.77	.14	1.0	.2
	FLOAT 1.40	.09	.06	.78	.15	1.1	.2
	FLOAT 1.60	.13	.09	.79	.18	1.1	.3
	CUMULATIVE	.27	.26	.88	.37	1.4	.5

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE

STATE: WEST VIRGINIA (SOUTH)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	17	2.0	1.1	17	1.7	.6	17	1.6	.5
ASH	17	13.5	6.6	17	6.0	2.0	17	61.0	10.2
VOLATILE MATTER	17	33.0	3.3	17	35.6	2.8	17	16.9	3.6
FIXED CARBON	17	53.4	4.8	17	58.4	2.4	17	22.1	7.1
BTU/LB	17	12823	1170	17	14056	403	17	4611	1985

ULTIMATE ANALYSIS, % (DRY BASIS)

TOTAL CARBON	6	70.7	7.2	6	78.8	1.9	6	27.3	7.4
HYDROGEN	6	4.6	.4	6	5.1	.2	6	2.0	.4
NITROGEN	6	1.3	.2	6	1.5	.1	6	.5	.2
OXYGEN	6	7.1	1.1	6	7.5	1.4	6	5.2	1.5

SULFUR FORMS ANALYSIS, % (DRY BASIS)

PYRITIC SULFUR	17	.26	.24	17	.12	.08	17	1.87	2.51
SULFATIC SULFUR	17	.03	.04	17	.02	.03	17	.03	.05
ORGANIC SULFUR	17	.60	.15	17	.66	.11	17	.31	.31
TOTAL SULFUR	17	.89	.38	17	.80	.18	17	2.21	2.82

MINERAL ANALYSIS OF ASH, %

SiO2 (SILICON OXIDE)	1	59.23	--	1	53.60	--	1	58.40	--
Al2O3 (ALUMINUM OXIDE)	1	29.42	--	1	34.70	--	1	28.30	--
Fe2O3 (IRON OXIDE)	1	3.72	--	1	4.60	--	1	3.40	--
TiO2 (TITANIUM OXIDE)	1	1.53	--	1	1.70	--	1	1.50	--
CaO (CALCIUM OXIDE)	1	.45	--	1	1.20	--	1	.22	--
MgO (MAGNESIUM OXIDE)	1	1.23	--	1	1.10	--	1	4.03	--
Na2O (SODIUM OXIDE)	8	.65	.63	3	.41	.25	3	.33	.22
K2O (POTASSIUM OXIDE)	1	3.85	--	1	2.41	--	1	4.10	--
SO3 (SULFITES)	1	.11	--	1	.31	--	1	.05	--

FUSIBILITY OF ASH, DEGREES F

INITIAL DEFORMATION (ID)	17	2828	125	17	2884	92	15	2685	241
SOFTENING TEMPERATURE (ST)	17	2854	106	17	2891	80	15	2741	229
FLUID TEMPERATURE (FT)	16	2873	86	15	2891	72	15	2800	205

MISCELLANEOUS DATA, %

MINERAL MATTER (PARR)	17	15.1	7.0	17	7.0	2.2	17	67.5	10.5
CHLORINE	5	.15	.04	0	--	--	0	--	--

PHYSICAL PARAMETERS, INDEX

HARDGROVE GRINDABILITY (HGI)	13	48	10	11	47	12	0	--	--
FREE SWELLING (FSI)	17	5 1/2	2	16	6 1/2	2	5	0 1/2	0 1/2

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE (DRY BASIS)

STATE: WEST VIRGINIA (SOUTH)

TOTAL MOISTURE, %: 3.6 ST. DEV: 1.1

SIZE	BTU RECOVERY	NO. OF SAMPLES	WEIGHT RECOVERY			HEATING VALUE			ASH					
			AMOUNT, %	REDUCTION, %	BTU/LB	INCREASE, %	CONTENT, %	REDUCTION, %	AVERAGE ST. DEV	AVERAGE ST. DEV				
											AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV
ALL X 0	100.0	51	100.0	.0	.0	12781	663	.0	.0	13.5	3.8	.0	.0	
1-1/2" X 100M	50.0	7	35.6	8.1	64.4	8.1	14347	260	12.0	4.3	.8	68.1	16.2	
	60.0	10	45.5	7.6	54.5	7.6	14313	229	11.7	9.9	.8	66.2	17.2	
	70.0	11	56.6	7.9	43.4	7.9	14260	245	11.3	9.9	4.8	64.4	19.6	
	80.0	16	69.0	7.6	31.0	7.6	14352	377	12.0	10.2	4.5	66.5	21.4	
	90.0	17	80.6	7.0	19.4	7.0	14211	464	10.9	10.3	5.3	60.1	26.2	
	100.0	17	100.0	.0	.0	12810	1119	.0	.0	13.3	6.3	.0	.0	
3/8" X 100M	50.0	5	39.2	1.3	60.8	1.3	14454	290	13.1	10.4	.6	71.9	14.2	
	60.0	9	48.7	3.5	51.3	3.5	14428	230	12.9	10.3	3.9	71.5	15.2	
	70.0	11	58.6	4.3	41.4	4.3	14374	222	12.4	10.2	4.1	69.7	17.4	
	80.0	16	69.6	6.1	30.4	6.1	14449	354	13.0	10.5	4.0	70.8	19.4	
	90.0	17	80.3	6.8	19.7	6.8	14297	437	11.8	10.6	4.9	64.0	24.4	
	100.0	17	100.0	.0	.0	12784	1146	.0	.0	13.5	6.6	.0	.0	
14M X 0	50.0	8	39.6	3.0	60.4	3.0	14552	283	14.0	10.7	.8	77.5	12.4	
	60.0	10	48.6	3.4	51.4	3.4	14518	277	13.7	10.6	3.4	75.3	14.0	
	70.0	15	59.6	4.3	40.4	4.3	14555	335	14.0	10.8	3.3	75.6	15.6	
	80.0	17	69.7	5.8	30.3	5.8	14475	363	13.4	10.8	3.8	72.3	18.6	
	90.0	17	80.5	6.0	19.5	6.0	14249	515	11.6	11.0	5.0	63.0	25.4	
	100.0	17	100.0	.0	.0	12768	1168	.0	.0	13.6	6.5	.0	.0	
SIZE	BTU RECOVERY	NO. OF SAMPLES	PYRITIC SULFUR			TOTAL SULFUR			SO2 EMISSION					
			CONTENT, %	REDUCTION, %	CONTENT, %	REDUCTION, %	LB/MM BTU	REDUCTION, %	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV			
												AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV
ALL X 0	100.0	51	.26	.15	.0	.0	.88	.21	.0	.0	1.4	.3	.0	.0
1-1/2" X 100M	50.0	7	.09	.07	65.1	45.1	.78	.11	10.7	38.5	1.1	.1	19.8	31.4
	60.0	10	.09	.07	62.9	45.2	.82	.20	5.6	44.8	1.2	.3	15.0	37.0
	70.0	11	.10	.07	61.2	46.6	.81	.20	7.0	44.1	1.1	.3	16.0	37.3
	80.0	16	.10	.07	60.1	47.4	.79	.17	9.3	42.1	1.1	.2	18.5	35.2
	90.0	17	.11	.08	55.1	55.2	.79	.17	8.9	42.2	1.1	.2	17.4	35.7
	100.0	17	.25	.25	.0	.0	.87	.36	.0	.0	1.4	.5	.0	.0
3/8" X 100M	50.0	5	.10	.09	61.4	49.8	.78	.10	10.1	37.9	1.1	.1	20.0	30.4
	60.0	9	.09	.07	64.0	43.2	.83	.22	4.2	45.8	1.2	.3	14.6	37.7
	70.0	11	.09	.06	65.5	41.6	.81	.20	7.4	44.0	1.1	.3	17.1	36.5
	80.0	16	.09	.06	63.3	42.7	.79	.17	9.6	41.5	1.1	.2	19.4	34.5
	90.0	17	.11	.08	58.1	50.1	.78	.18	10.0	41.5	1.1	.2	18.9	34.7
	100.0	17	.26	.25	.0	.0	.87	.35	.0	.0	1.4	.5	.0	.0
14M X 0	50.0	8	.07	.06	72.9	33.7	.75	.11	14.8	37.8	1.0	.1	24.6	30.4
	60.0	10	.08	.06	71.7	34.1	.80	.17	9.0	43.0	1.1	.2	19.3	34.9
	70.0	15	.07	.05	73.1	32.7	.76	.15	13.0	40.4	1.1	.2	23.0	33.0
	80.0	17	.09	.06	68.1	37.5	.77	.15	12.4	40.5	1.1	.2	22.1	33.2
	90.0	17	.10	.07	62.0	44.4	.77	.16	12.1	41.3	1.1	.2	20.5	34.3
	100.0	17	.27	.26	.0	.0	.88	.37	.0	.0	1.4	.5	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY SECTIONS (DRY BASIS)

NORTHERN SECTION
 NUMBER OF SAMPLES: 482
 TOTAL MOISTURE, %: 3.6
 ST. DEV: 1.8

SIZE	PRODUCT	WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		CONTENT, %		ASH REDUCTION, %	
		AVERAGE	ST. DEV	AVERAGE	ST. DEV	AVERAGE	ST. DEV	AVERAGE	ST. DEV	AVERAGE	ST. DEV
1-1/2" X 100M	RAW	100.0	.0	100.0	.0	12687	1078	.0	.0	14.3	6.3
	FLOAT 1.30	34.4	21.3	38.6	22.8	14554	444	14.6	10.4	3.7	.8
	FLOAT 1.40	74.7	15.6	82.0	13.8	14040	490	10.5	10.2	6.7	1.9
	FLOAT 1.60	88.2	8.6	94.9	4.1	13685	602	7.7	10.4	8.7	3.0
	CUMULATIVE	100.0	.0	100.0	.0	12705	1087	.0	.0	14.2	6.3
3/8" X 100M	FLOAT 1.30	40.3	20.7	45.6	22.1	14606	430	15.1	10.5	3.4	.8
	FLOAT 1.40	74.3	14.4	82.4	12.5	14154	473	11.6	10.3	6.0	1.8
	FLOAT 1.60	86.8	8.7	94.4	4.1	13809	578	8.8	10.4	7.9	2.9
	CUMULATIVE	100.0	.0	100.0	.0	12686	1094	.0	.0	14.3	6.4
14M X 0	FLOAT 1.30	40.2	18.5	45.7	19.4	14680	427	15.7	10.4	3.0	.8
	FLOAT 1.40	71.6	14.7	80.1	12.9	14274	447	12.5	10.2	5.3	1.5
	FLOAT 1.60	86.0	8.7	94.0	4.5	13886	539	9.5	10.2	7.5	2.5
	CUMULATIVE	100.0	.0	100.0	.0	12684	1078	.0	.0	14.3	6.3

SIZE	PRODUCT	PYRITIC SULFUR		TOTAL SULFUR		SO2 EMISSION							
		CONTENT, %	REDUCTION, %	CONTENT, %	REDUCTION, %	LB/MM BTU	REDUCTION, %						
AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV						
ALL X 0	RAW	1.99	1.20	.0	.0	3.01	1.54	.0	.0	4.8	2.6	.0	.0
1-1/2" X 100M	FLOAT 1.30	.42	.29	78.7	19.5	1.47	.72	50.9	34.8	2.0	1.0	57.3	31.6
	FLOAT 1.40	.85	.55	56.9	38.3	1.89	.95	36.8	45.4	2.7	1.4	43.1	42.7
	FLOAT 1.60	1.14	.72	42.5	50.3	2.16	1.10	27.8	52.2	3.2	1.7	33.2	50.4
	CUMULATIVE	1.98	1.20	.0	.0	2.99	1.54	.0	.0	4.8	2.6	.0	.0
3/8" X 100M	FLOAT 1.30	.33	.23	83.4	15.5	1.38	.71	53.5	33.9	1.9	1.0	59.7	30.6
	FLOAT 1.40	.63	.45	67.9	30.0	1.67	.89	43.8	41.6	2.4	1.3	49.8	38.8
	FLOAT 1.60	.87	.62	55.4	41.4	1.90	1.04	36.2	47.8	2.8	1.6	41.5	45.7
	CUMULATIVE	1.96	1.19	.0	.0	2.98	1.53	.0	.0	4.8	2.5	.0	.0
14M X 0	FLOAT 1.30	.27	.21	86.6	13.2	1.32	.69	56.2	31.9	1.8	1.0	62.3	28.8
	FLOAT 1.40	.46	.35	76.8	22.3	1.51	.82	50.2	37.2	2.1	1.2	55.9	34.4
	FLOAT 1.60	.69	.51	65.7	32.8	1.70	.95	43.8	42.5	2.5	1.4	48.8	40.4
	CUMULATIVE	2.00	1.21	.0	.0	3.03	1.54	.0	.0	4.8	2.6	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY SECTIONS

NORTHERN SECTION

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	482	2.2	1.5	404	1.8	1.1	404	1.4	.7
ASH	482	14.3	6.3	404	7.6	2.6	404	54.1	7.6
VOLATILE MATTER	482	32.4	8.3	404	34.2	8.8	349	19.9	5.2
FIXED CARBON	482	53.3	8.2	404	58.2	8.5	349	25.7	7.7
BTU/LB	482	12749	1047	404	13861	562	347	5567	1215
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	265	71.3	5.9	265	77.3	3.6	235	27.6	6.6
HYDROGEN	265	4.7	.5	265	5.1	.4	235	2.0	.4
NITROGEN	265	1.4	.2	265	1.5	.2	244	.5	.4
OXYGEN	265	5.8	1.8	265	6.9	1.9	169	3.7	3.1
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	482	2.00	1.22	404	.67	.50	403	11.82	7.32
SULFATIC SULFUR	482	.05	.05	404	.02	.03	403	.06	.07
ORGANIC SULFUR	482	.91	.50	404	.98	.53	403	1.05	1.46
TOTAL SULFUR	482	2.96	1.51	404	1.68	.93	403	12.93	7.87
MINERAL ANALYSIS OF ASH, %									
SiO2 (SILICON OXIDE)	141	41.56	10.84	141	45.35	8.63	140	34.17	14.97
Al2O3 (ALUMINUM OXIDE)	141	23.25	5.75	141	28.36	5.55	140	16.46	7.64
Fe2O3 (IRON OXIDE)	141	25.35	14.44	141	16.75	11.97	140	39.02	21.43
TiO2 (TITANIUM OXIDE)	141	1.26	.43	141	1.48	.51	140	1.01	.46
CaO (CALCIUM OXIDE)	141	2.81	3.39	141	2.40	1.72	140	3.50	6.12
MgO (MAGNESIUM OXIDE)	141	.77	.54	141	.83	.43	140	.69	.89
Na2O (SODIUM OXIDE)	151	.52	.40	90	.51	.32	88	.32	.30
K2O (POTASSIUM OXIDE)	141	1.67	.67	141	1.70	.56	140	1.45	.85
SO3 (SULFITES)	141	1.71	2.70	141	1.43	1.63	140	1.72	2.75
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	400	2296	315	396	2527	333	142	2287	332
SOFTENING TEMPERATURE (ST)	400	2363	301	395	2581	309	142	2343	325
FLUID TEMPERATURE (FT)	397	2471	278	384	2653	263	140	2426	308
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	482	17.1	6.8	404	9.1	2.9	403	65.2	8.5
CHLORINE	257	.09	.07	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	291	62	16	118	62	18	2	47	3
FREE SWELLING (FSI)	403	6 1/2	2 1/2	389	7	2	168	0 1/2	1

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY SECTIONS (DRY BASIS)

TOTAL MOISTURE, %: 3.6 ST.DEV: 1.8

NORTHERN SECTION

SIZE	BTU RECOVERY %	NO. OF SAMPLES	WEIGHT RECOVERY		REDUCTION, %		HEATING VALUE		ASH	
			AMOUNT, %	%	AVERAGE ST. DEV	AVERAGE ST. DEV	BTU/LB	INCREASE, %	CONTENT, %	REDUCTION, %
ALL X 0	100.0	1446	100.0	.0	.0	.0	12687	1078	.0	.0
1-1/2" X 100M	50.0	312	36.5	6.8	63.5	6.8	14241	576	12.0	10.5
	60.0	386	47.4	6.1	52.6	6.1	14199	577	11.6	10.5
	70.0	443	58.9	5.2	41.1	5.2	14113	586	11.0	10.5
	80.0	474	70.7	4.9	29.3	4.9	13991	615	10.1	10.5
	90.0	481	82.6	5.0	17.4	5.1	13783	685	8.4	10.7
	100.0	482	99.9	1.1	.0	.0	12712	1079	.0	.0
3/8" X 100M	50.0	244	37.6	5.5	62.4	5.5	14303	555	12.6	10.6
	60.0	331	48.3	5.1	51.6	5.2	14272	561	12.4	10.6
	70.0	417	59.4	4.8	40.5	4.9	14224	570	12.0	10.6
	80.0	471	70.6	4.9	29.3	5.0	14120	601	11.2	10.6
	90.0	481	82.0	5.0	17.9	5.2	13895	682	9.4	10.8
	100.0	482	99.9	1.4	.0	.0	12698	1089	.0	.0
14M X 0	50.0	266	38.8	4.7	61.2	4.7	14440	516	13.8	10.5
	60.0	350	49.0	4.4	51.0	4.4	14392	525	13.5	10.5
	70.0	440	59.8	4.3	40.2	4.3	14335	538	13.0	10.5
	80.0	476	70.5	4.5	29.5	4.5	14198	577	11.9	10.5
	90.0	480	81.7	4.5	18.3	4.5	13952	687	10.0	10.8
	100.0	482	100.0	.0	.0	.0	12684	1078	.0	.0

SIZE	BTU RECOVERY %	NO. OF SAMPLES	PYRITIC SULFUR		REDUCTION, %		TOTAL SULFUR		SO2 EMISSION	
			CONTENT, %	%	AVERAGE ST. DEV	AVERAGE ST. DEV	CONTENT, %	%	LB/MM BTU	REDUCTION, %
ALL X 0	100.0	1446	1.99	1.20	.0	.0	3.01	1.54	.0	.0
1-1/2" X 100M	50.0	312	.59	.44	69.9	28.7	1.68	.89	43.8	41.6
	60.0	386	.65	.47	67.1	31.0	1.71	.89	42.7	41.9
	70.0	443	.73	.51	63.3	34.3	1.79	.91	40.2	43.4
	80.0	474	.84	.58	57.7	39.1	1.88	.96	37.2	45.7
	90.0	481	1.01	.69	48.7	47.0	2.04	1.06	31.6	50.0
	100.0	482	1.98	1.20	.0	.0	2.99	1.54	.0	.0
3/8" X 100M	50.0	244	.44	.36	77.5	22.8	1.54	.89	48.1	40.1
	60.0	331	.49	.38	74.9	24.9	1.57	.87	47.2	39.9
	70.0	417	.53	.42	72.7	27.1	1.60	.87	46.1	40.3
	80.0	471	.61	.47	69.0	30.6	1.66	.90	44.3	41.7
	90.0	481	.76	.58	60.9	38.1	1.80	.99	39.5	45.6
	100.0	482	1.96	1.19	.0	.0	2.97	1.53	.0	.0
14M X 0	50.0	266	.33	.28	83.4	17.1	1.41	.81	53.4	35.8
	60.0	350	.37	.30	81.5	18.7	1.44	.81	52.5	36.1
	70.0	440	.41	.33	79.7	20.6	1.45	.81	52.2	36.1
	80.0	476	.47	.38	76.5	23.9	1.51	.84	50.0	37.6
	90.0	480	.61	.50	69.5	30.9	1.64	.92	45.7	41.1
	100.0	482	2.00	1.21	.0	.0	3.03	1.54	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY SECTIONS (DRY BASIS)

SOUTHERN SECTION
 NUMBER OF SAMPLES: 61
 TOTAL MOISTURE, %: 4.3
 ST.DEV: 2.0

SIZE	PRODUCT	WEIGHT RECOVERY		BTU RECOVERY		BTU/LB		HEATING VALUE		ASH	
		AVERAGE ST.DEV	%	AVERAGE ST.DEV	%	AVERAGE ST.DEV	%	AVERAGE ST.DEV	%	AVERAGE ST.DEV	%
ALL X 0	RAW	100.0	.0	100.0	.0	13067	1135	.0	.0	11.4	6.6
1-1/2" X 100M	FLOAT 1.30	51.6	27.4	56.1	27.5	14538	373	11.1	10.0	2.8	1.0
	FLOAT 1.40	82.3	12.2	89.1	8.9	14201	539	8.6	10.3	4.8	2.5
	FLOAT 1.60	91.1	7.6	97.0	2.8	13939	674	6.6	10.6	6.3	3.5
	CUMULATIVE	100.0	.0	100.0	.0	13082	1132	.0	.0	11.3	6.5
3/8" X 100M	FLOAT 1.30	55.5	23.5	61.0	23.0	14586	361	11.5	10.2	2.5	.9
	FLOAT 1.40	81.5	11.8	88.8	8.2	14289	492	9.3	10.3	4.3	2.2
	FLOAT 1.60	90.2	8.0	96.7	3.0	14030	617	7.3	10.5	5.8	3.2
	CUMULATIVE	100.0	.0	100.0	.0	13076	1147	.0	.0	11.3	6.7
1/4" X 0	FLOAT 1.30	51.4	20.1	56.7	19.5	14652	349	12.0	10.0	2.2	.8
	FLOAT 1.40	78.7	12.7	86.1	9.2	14370	427	9.9	10.0	3.8	1.8
	FLOAT 1.60	89.5	8.1	96.2	3.2	14077	567	7.6	10.2	5.5	2.9
	CUMULATIVE	100.0	.0	100.0	.0	13078	1127	.0	.0	11.3	6.5

SIZE	PRODUCT	PYRITIC SULFUR		TOTAL SULFUR		SO2 EMISSION	
		CONTENT, %	REDUCTION, %	CONTENT, %	REDUCTION, %	LB/MM BTU	REDUCTION, %
ALL X 0	RAW	.67	1.02	.0	.0	2.1	1.9
1-1/2" X 100M	FLOAT 1.30	.18	.27	71.7	60.0	.92	.43
	FLOAT 1.40	.35	.59	46.3	122.9	1.06	.67
	FLOAT 1.60	.43	.72	33.5	151.6	1.13	.80
	CUMULATIVE	.65	1.02	.0	.0	1.30	1.09
3/8" X 100M	FLOAT 1.30	.17	.22	74.5	52.0	.89	.40
	FLOAT 1.40	.29	.44	56.6	94.8	1.00	.57
	FLOAT 1.60	.36	.58	44.7	122.7	1.06	.69
	CUMULATIVE	.66	1.03	.0	.0	1.31	1.12
1/4" X 0	FLOAT 1.30	.13	.17	79.9	39.3	.87	.34
	FLOAT 1.40	.22	.31	66.9	67.9	.94	.46
	FLOAT 1.60	.30	.44	54.0	96.5	1.00	.58
	CUMULATIVE	.66	.99	.0	.0	1.31	1.09

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY SECTIONS

SOUTHERN SECTION

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST. DEV	SAMPLES	AVERAGE	ST. DEV	SAMPLES	AVERAGE	ST. DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	61	2.8	1.8	55	2.0	.9	55	2.0	.9
ASH	61	11.3	6.5	55	5.6	3.0	55	58.0	9.7
VOLATILE MATTER	61	34.5	4.1	55	36.3	4.1	45	18.8	4.2
FIXED CARBON	61	54.2	5.8	55	58.0	4.4	45	23.3	7.5
BTU/LB	61	13164	1137	55	14070	578	45	5086	1755
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	32	74.7	7.2	32	79.2	.1	31	28.3	8.7
HYDROGEN	32	4.9	.4	32	5.2	.2	31	2.0	.5
NITROGEN	32	1.5	.2	32	1.6	.2	32	.5	.2
OXYGEN	32	7.4	1.6	32	8.1	1.5	28	7.0	5.9
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	61	.65	.96	55	.30	.43	55	4.33	5.62
SULFATIC SULFUR	61	.02	.03	55	.01	.02	55	.02	.03
ORGANIC SULFUR	61	.64	.20	55	.70	.20	55	.79	.79
TOTAL SULFUR	61	1.30	1.06	55	1.01	.57	55	4.85	5.80
MINERAL ANALYSIS OF ASH, %									
SiO2 (SILICON OXIDE)	6	40.20	12.93	6	41.75	10.60	6	39.78	13.42
Al2O3 (ALUMINUM OXIDE)	6	27.34	6.90	6	32.18	7.03	6	23.51	5.54
Fe2O3 (IRON OXIDE)	6	27.38	19.83	6	20.00	17.73	6	31.28	21.57
TiO2 (TITANIUM OXIDE)	6	1.03	.28	6	1.18	.40	6	.86	.50
CaO (CALCIUM OXIDE)	6	.61	.21	6	.98	.43	6	.17	.09
MgO (MAGNESIUM OXIDE)	6	.64	.34	6	.80	.31	6	1.10	1.45
Na2O (SODIUM OXIDE)	38	.50	.42	24	.55	.55	24	.33	.21
K2O (POTASSIUM OXIDE)	6	1.84	1.42	6	1.49	1.20	6	1.99	1.46
SO3 (SULFITES)	6	.42	.26	6	.52	.21	6	.30	.23
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	55	2593	311	55	2690	288	22	2610	291
SOFTENING TEMPERATURE (ST)	55	2638	287	54	2715	270	22	2669	271
FLUID TEMPERATURE (FT)	53	2692	253	51	2754	230	23	2764	223
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	61	12.9	7.1	55	6.6	3.4	55	66.1	9.6
CHLORINE	31	.11	.09	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	40	46	8	31	45	9	0	--	--
FREE SWELLING (FSI)	55	5	2 1/2	54	5 1/2	2 1/2	24	0 1/2	0 1/2

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY SECTIONS (DRY BASIS)

TOTAL MOISTURE, %: 4.3 ST. DEV: 2.0

SOUTHERN SECTION

SIZE	BTU RECOVERY	NO. OF SAMPLES	WEIGHT RECOVERY		BTU/LB	HEATING VALUE		CONTENT, %	ASH				
			AMOUNT, %	REDUCTION, %		AVERAGE ST. DEV	INCREASE, %		AVERAGE ST. DEV	REDUCTION, %			
%	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV			
ALL X 0	100.0	183	100.0	.0	.0	13067	1135	.0	11.4	6.6	.0	.0	
1-1/2" X 100M	50.0	23	36.4	7.0	63.6	--	14079	488	7.6	10.0	1.6	56.0	29.0
	60.0	31	46.8	6.6	53.2	--	14079	483	7.6	10.0	5.1	55.1	31.0
	70.0	38	58.3	6.2	41.7	--	14117	575	7.9	10.3	5.2	53.6	34.0
	80.0	47	70.3	5.7	29.7	--	14103	616	7.8	10.4	5.4	52.4	37.4
	90.0	54	82.3	5.3	17.7	--	14016	695	7.1	10.7	5.9	47.8	43.2
100.0	61	100.0	--	.0	.0	13082	1132	.0	11.3	6.5	.0	.0	
3/8" X 100M	50.0	20	39.7	3.3	60.3	3.3	14202	459	8.6	10.2	4.4	61.1	26.1
	60.0	28	48.9	3.0	51.0	3.0	14163	443	8.3	10.1	4.5	59.6	27.8
	70.0	33	58.9	3.5	41.1	3.5	14142	495	8.1	10.2	4.9	56.5	31.2
	80.0	45	70.6	5.0	29.3	5.0	14208	578	8.6	10.5	4.8	57.2	34.0
	90.0	57	82.4	5.4	17.6	5.4	14145	656	8.1	10.7	5.1	54.5	39.5
100.0	61	99.9	.5	.0	.0	13083	1150	.0	11.3	6.7	.0	.0	
14M X 0	50.0	22	39.9	2.5	60.0	2.5	14367	400	9.8	10.0	3.7	67.5	21.3
	60.0	32	49.9	3.2	50.1	3.2	14335	432	9.5	10.0	3.8	66.0	23.4
	70.0	43	60.5	4.1	39.4	4.1	14345	465	9.6	10.1	3.8	65.8	26.2
	80.0	53	71.1	4.7	28.8	4.7	14299	501	9.3	10.2	4.1	63.4	29.7
	90.0	60	82.6	4.9	17.4	4.9	14183	623	8.4	10.5	4.8	57.2	37.3
100.0	61	99.9	.4	.0	.0	13086	1130	.0	11.2	6.5	.0	.0	
SIZE	BTU RECOVERY	NO. OF SAMPLES	PYRITIC SULFUR		CONTENT, %	TOTAL SULFUR		REDUCTION, %	SO2 EMISSION				
			AMOUNT, %	REDUCTION, %		AVERAGE ST. DEV	AVERAGE ST. DEV		LB/MM BTU	REDUCTION, %			
%	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV			
ALL X 0	100.0	183	.67	1.02	.0	1.31	1.11	.0	2.1	1.9	.0	.0	
1-1/2" X 100M	50.0	23	.39	.49	40.3	119.7	.69	4.6	95.6	1.8	1.0	12.9	92.7
	60.0	31	.38	.52	42.4	120.0	.68	8.0	92.9	1.7	1.0	15.9	90.3
	70.0	38	.37	.58	43.5	125.0	.72	12.4	91.7	1.6	1.1	19.8	89.6
	80.0	47	.40	.65	39.4	136.9	.74	13.1	92.4	1.6	1.1	20.2	90.8
	90.0	54	.43	.72	34.7	150.0	.80	12.5	95.4	1.7	1.3	18.7	95.5
100.0	61	.55	1.02	.0	.0	1.09	.0	.0	2.1	1.8	.0	.0	
3/8" X 100M	50.0	20	.35	.39	47.6	101.0	.61	11.3	89.4	1.6	.9	20.1	85.6
	60.0	28	.34	.41	48.9	100.9	.61	10.7	89.7	1.7	.9	19.3	86.3
	70.0	33	.34	.46	48.1	106.9	.64	12.5	89.6	1.6	1.0	20.6	86.8
	80.0	45	.32	.49	50.7	107.6	.64	18.6	85.5	1.5	1.0	26.1	83.1
	90.0	57	.35	.56	47.2	118.6	.68	19.3	86.8	1.5	1.1	26.0	86.1
100.0	61	.66	1.03	.0	.0	1.12	.0	.0	2.1	1.9	.0	.0	
14M X 0	50.0	22	.18	.20	73.3	50.1	.40	27.3	67.7	1.3	.6	35.2	64.3
	60.0	32	.23	.28	65.6	67.0	.49	20.2	76.3	1.5	.7	28.6	72.5
	70.0	43	.22	.30	66.5	68.3	.49	24.2	73.2	1.4	.7	32.0	69.9
	80.0	53	.24	.34	63.3	75.7	.50	25.9	72.3	1.4	.7	33.3	69.5
	90.0	60	.28	.43	58.0	91.0	.57	25.3	76.0	1.4	.9	31.7	74.7
100.0	61	.66	.99	.0	.0	1.09	.0	.0	2.1	1.8	.0	.0	

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY REGION (DRY BASIS)

EASTERN REGION

NUMBER OF SAMPLES: 543

TOTAL MOISTURE, %: 3.7 ST.DEV: 1.8

SIZE	PRODUCT	WEIGHT RECOVERY		BTU RECOVERY		HEATING VALUE		ASH	
		AVERAGE	ST.DEV	AVERAGE	ST.DEV	BTU/LB	INCREASE, %	CONTENT, %	REDUCTION, %
ALL X 0	RAW	100.0	.0	100.0	.0	12730	1090	14.0	6.3
1-1/2" X 100M	FLOAT 1.30	36.3	22.7	40.6	24.0	14552	436	3.6	.9
	FLOAT 1.40	75.5	15.4	82.8	13.5	14058	498	6.4	2.1
	FLOAT 1.60	88.5	8.5	95.1	4.0	13713	615	8.4	3.2
	CUMULATIVE	100.0	.0	100.0	.0	12748	1097	13.9	6.4
3/8" X 100M	FLOAT 1.30	42.0	21.6	47.4	22.7	14604	423	3.3	.9
	FLOAT 1.40	75.1	14.3	83.1	12.3	14169	477	5.8	2.0
	FLOAT 1.60	87.2	8.6	94.7	4.1	13834	586	7.7	3.0
	CUMULATIVE	100.0	.0	100.0	.0	12730	1106	14.0	6.5
14M X 0	FLOAT 1.30	41.4	19.0	46.9	19.7	14677	419	2.9	.9
	FLOAT 1.40	72.4	14.7	80.7	12.7	14285	445	5.1	1.6
	FLOAT 1.60	86.4	8.7	94.3	4.4	13907	545	7.3	2.7
	CUMULATIVE	100.0	.0	100.0	.0	12729	1090	13.9	6.3

SIZE	PRODUCT	PYRITIC SULFUR		TOTAL SULFUR		SO2 EMISSION	
		CONTENT, %	REDUCTION, %	CONTENT, %	REDUCTION, %	LB/MM BTU	REDUCTION, %
ALL X 0	RAW	1.84	1.25	.0	.0	2.82	1.59
1-1/2" X 100M	FLOAT 1.30	.39	.29	78.4	21.9	1.41	.71
	FLOAT 1.40	.80	.58	56.4	43.5	1.80	.96
	FLOAT 1.60	1.06	.75	42.2	57.1	2.04	1.12
	CUMULATIVE	1.83	1.25	.0	.0	2.80	1.59
3/8" X 100M	FLOAT 1.30	.31	.24	83.1	17.4	1.33	.70
	FLOAT 1.40	.59	.46	67.5	33.7	1.60	.89
	FLOAT 1.60	.82	.63	55.0	46.5	1.04	1.04
	CUMULATIVE	1.81	1.24	.0	.0	2.79	1.58
14M X 0	FLOAT 1.30	.25	.21	86.4	14.6	1.27	.68
	FLOAT 1.40	.44	.35	76.4	24.9	1.44	.81
	FLOAT 1.60	.64	.52	65.2	36.6	1.62	.94
	CUMULATIVE	1.85	1.26	.0	.0	2.83	1.59

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY REGION

EASTERN REGION

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	543	2.3	1.6	459	1.8	1.1	459	1.5	.8
ASH	543	14.0	6.4	459	7.3	2.7	459	54.6	8.0
VOLATILE MATTER	543	32.6	8.0	459	34.5	8.4	394	19.8	5.1
FIXED CARBON	543	53.4	8.0	459	58.2	8.1	394	25.4	7.7
BTU/LB	543	12795	1064	459	13886	567	392	5512	1294
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	297	71.7	6.1	297	77.5	3.7	266	27.7	6.8
HYDROGEN	297	4.8	.4	297	5.1	.3	266	2.0	.4
NITROGEN	297	1.4	.2	297	1.5	.2	276	.5	.4
OXYGEN	297	6.0	1.9	297	7.0	1.9	197	4.1	3.8
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	543	1.85	1.27	459	.63	.51	458	10.92	7.54
SULFATIC SULFUR	543	.04	.05	459	.02	.03	458	.05	.07
ORGANIC SULFUR	543	.88	.49	459	.95	.51	458	.99	1.41
TOTAL SULFUR	543	2.77	1.56	459	1.60	.92	458	11.96	8.08
MINERAL ANALYSIS OF ASH, %									
SiO2 (SILICON OXIDE)	147	41.50	10.88	147	45.20	8.70	146	34.40	14.91
Al2O3 (ALUMINUM OXIDE)	147	23.42	5.83	147	28.52	5.64	146	16.75	7.68
Fe2O3 (IRON OXIDE)	147	25.43	14.61	147	16.89	12.19	146	38.70	21.41
TiO2 (TITANIUM OXIDE)	147	1.25	.43	147	1.46	.51	146	1.00	.47
CaO (CALCIUM OXIDE)	147	2.72	3.35	147	2.35	1.71	146	3.36	6.03
MgO (MAGNESIUM OXIDE)	147	.77	.53	147	.83	.42	146	.71	.91
Na2O (SODIUM OXIDE)	189	.52	.40	114	.52	.37	112	.32	.28
K2O (POTASSIUM OXIDE)	147	1.68	.71	147	1.69	.59	146	1.48	.88
SO3 (SULFITES)	147	1.66	2.65	147	1.39	1.61	146	1.66	2.70
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	455	2332	329	451	2547	332	164	2330	344
SOFTENING TEMPERATURE (ST)	455	2396	312	449	2597	307	164	2387	336
FLUID TEMPERATURE (FT)	450	2497	284	435	2665	261	163	2473	320
MISCELLANEOUS DATA, %									
MINERAL MATTER (PAR2)	543	16.6	7.0	459	8.8	3.1	458	65.3	8.6
CHLORINE	288	.09	.07	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	331	60	16	149	57	18	2	47	3
FREE SWELLING	458	6 1/2	2 1/2	443	7	2 1/2	192	0 1/2	1

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY REGION (DRY BASIS)

EASTERN REGION

TOTAL MOISTURE, %: 3.7 ST.DEV: 1.8

SIZE	BTU RECOVERY %	NO. OF SAMPLES	WEIGHT RECOVERY		REDUCTION, %	HEATING VALUE		BTU/LB	INCREASE, %		CONTENT, %		REDUCTION, %	
			AMOUNT, %	%		AVERAGE ST. DEV	AVERAGE ST. DEV		AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV	AVERAGE ST. DEV		
ALL X 0	100.0	1629	100.0	.0	.0	.0	.0	12730	1090	.0	.0	14.0	6.3	.0
1-1/2" X 100M	50.0	335	36.5	6.8	63.5	6.8	14230	571	11.6	10.5	5.5	2.1	60.5	23.4
	60.0	417	47.3	6.1	52.6	6.1	14181	571	11.2	10.5	5.7	2.3	58.6	25.3
	70.0	481	58.8	5.3	41.2	5.3	14113	585	10.7	10.5	6.2	2.6	55.6	27.6
	80.0	521	70.6	4.9	29.3	5.0	14001	615	9.8	10.5	6.8	3.0	51.1	31.1
	90.0	535	82.6	5.0	17.4	5.1	13807	689	8.3	10.7	7.9	3.7	43.2	37.1
	100.0	543	100.0	1.1	.0	.0	12754	1090	.0	.0	13.9	6.4	.0	.0
3/8" X 100M	50.0	264	37.8	5.4	62.2	5.4	14296	548	12.2	10.6	5.1	1.9	63.4	21.7
	60.0	359	48.4	5.0	51.6	5.0	14263	553	11.9	10.6	5.2	2.1	62.2	23.4
	70.0	450	59.4	4.7	40.5	4.8	14218	565	11.6	10.6	5.5	2.4	60.1	25.5
	80.0	516	70.6	4.9	29.3	5.0	14128	599	10.9	10.7	6.0	2.8	56.5	28.8
	90.0	538	82.0	5.1	17.9	5.2	13922	683	9.3	10.9	7.2	3.6	48.3	35.5
	100.0	543	99.9	1.3	.0	.0	12741	1102	.0	.0	13.9	6.5	.0	.0
14M X 0	50.0	288	38.9	4.6	61.1	4.6	14434	508	13.4	10.5	4.3	1.6	69.2	17.9
	60.0	382	49.1	4.3	50.9	4.3	14387	518	13.0	10.5	4.6	1.8	67.3	19.8
	70.0	483	59.9	4.3	40.1	4.3	14336	532	12.6	10.5	4.9	2.2	65.1	22.2
	80.0	529	70.6	4.5	29.4	4.5	14208	570	11.6	10.6	5.5	2.6	60.3	26.1
	90.0	540	81.8	4.6	18.2	4.6	13978	684	9.8	10.8	6.8	3.6	50.9	33.9
	100.0	543	100.0	.1	.0	.0	12730	1090	.0	.0	13.9	6.3	.0	.0

SIZE	BTU RECOVERY %	NO. OF SAMPLES	PYRITIC SULFUR		REDUCTION, %	TOTAL SULFUR		CONTENT, %	SO2 EMISSION	
			CONTENT, %	REDUCTION, %		CONTENT, %	REDUCTION, %		LB/MM BTU	REDUCTION, %
ALL X 0	100.0	1629	1.84	1.25	.0	2.82	1.59	.0	4.5	2.6
1-1/2" X 100M	50.0	335	.58	.44	68.2	1.65	.88	41.0	2.4	1.3
	60.0	417	.63	.48	65.5	1.67	.89	40.2	2.4	1.3
	70.0	481	.70	.53	61.8	1.73	.92	38.0	2.5	1.4
	80.0	521	.80	.60	56.4	1.81	.97	35.3	2.6	1.5
	90.0	535	.95	.72	47.7	1.95	1.07	30.2	2.9	1.7
	100.0	543	1.83	1.25	.0	2.80	1.59	.0	4.5	2.6
3/8" X 100M	50.0	264	.43	.36	76.1	1.51	.87	45.6	2.1	1.3
	60.0	359	.48	.39	73.5	1.54	.86	44.8	2.2	1.3
	70.0	450	.52	.42	71.3	1.57	.86	43.7	2.2	1.3
	80.0	516	.58	.48	67.9	1.60	.90	42.4	2.3	1.4
	90.0	538	.72	.59	60.2	1.72	.99	38.2	2.5	1.5
	100.0	543	1.81	1.24	.0	2.78	1.58	.0	4.4	2.6
14M X 0	50.0	288	.32	.27	82.7	1.38	.79	51.4	1.9	1.2
	60.0	382	.36	.30	80.7	1.40	.80	50.5	2.0	1.2
	70.0	483	.39	.33	79.0	1.41	.79	50.4	2.0	1.2
	80.0	529	.45	.39	75.7	1.46	.82	48.5	2.1	1.2
	90.0	540	.57	.50	69.0	1.57	.91	44.6	2.3	1.4
	100.0	543	1.85	1.26	.0	2.83	1.59	.0	4.5	2.7

APPENDIX E

Coalbed Codes and Names for the Eastern Region

APPENDIX E

Coalbed Codes and Names for the Eastern Region

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TABLE 1. COALBED CODES AND NAMES FOR EASTERN REGION (NORTHERN SECTION)

State	MARYLAND	OHIO	PENNSYLVANIA	WEST VIRGINIA (North)
	Coalbed	Coalbed	Coalbed	Coalbed
Code	Name	Name	Name	Name
1	Various	Various	Various	Various
17	Washington	Washington No. 12 Washington (No. 12)	Washington	Washington
23	Waynesburg Koontz	Waynesburg Macksburg No. 11 Waynesburg (No. 11)	Waynesburg	Waynesburg Fairview Mount Morris
29	Sewickley Lower Sewickley Tyson	Sewickley Mapletown Meigs Creek Meigs Creek No. 9 No. 9 Sewickley (No. 9)	Sewickley Mapletown Meigs Creek Pine Hill No. 1 Tyson	Sewickley Tyson
33	Redstone Redstone (Upper and Lower Benches)	Redstone No. 8-A Pomeroy Redstone (No. 8-A)	Redstone	Redstone
36	Pittsburgh Big Vein Elk Garden Fourteen-Foot	Pittsburgh Federal Creek Jeffers No. 8 Pittsburgh No. 8 Swan Creek	Pittsburgh Big Vein Connellsville No. 8 Pine Hill No. 2 Pittsburgh No. 8 Price Rogers Youghiogheny	Pittsburgh Big Vein No. 8 Pittsburgh No. 8 Raymond Raymond City

Note: The first name given for each bed is the DuE/EIA assigned principal name.

TABLE 1. COALBED CODES AND NAMES FOR EASTERN REGION (NORTHERN SECTION) -- CONTINUED

State	MARYLAND		OHIO		PENNSYLVANIA		WEST VIRGINIA (North)	
	Coalbed	Name	Coalbed	Name	Coalbed	Name	Coalbed	Name
38	Little Pittsburgh First Little Pittsburgh		Little Pittsburgh Upper Little Pittsburgh		Little Pittsburgh First Little Pittsburgh		Little Pittsburgh	
42	Franklin			Franklin			Franklin Little Clarksburg Dirty Nine-Foot	
55	Elk Lick Barton Four-Foot		Elk Lick		Elk Lick Barton		Elk Lick Barton Four-Foot	
60	Harlem		Harlem		Harlem Friendsville McCue Platt		Harlem Crinoidal Friendsville	
61	Bakerstown Freeport Maynadier Upper Bakerstown		Bakerstown Anderson		Bakerstown Anderson Farmington Maynadier Mosquito Hollow		Bakerstown Upper Bakerstown	
63	Lower Bakerstown Honeycomb Thomas Three-Foot				Lower Bakerstown Hager Honeycomb Thomas		Lower Bakerstown Four-Foot Honeycomb Thomas Three-Foot	
67	Brush Creek Brushcreek		Brush Creek		Brush Creek Gallitzen Mason Masontown Phipps		Brush Creek Forked Seam	

TABLE 1. COALBED CODES AND NAMES FOR EASTERN REGION (NORTHERN SECTION) -- CONTINUED

State	MARYLAND	OHIO	PENNSYLVANIA	WEST VIRGINIA (North)
Code	Coalbed	Coalbed	Coalbed	Coalbed
	Name	Name	Name	Name
70	Mahoning Piedmont Six-Foot	Mahoning East Palestine Groff Mahoning (No. 7-A) No. 7-A	Mahoning East Palestine Speer	Mahoning Six-Foot
71	Upper Freeport Beachy Davis Grantsville Kittanning Split Six	Upper Freeport Alexander Bayleys Run Big Vein Black Bank Black Vein Blue Rock Cambridge Del Ray Morris No. 7 Sherodsville Upper Freeport (No. 7) Waterloo	Upper Freeport "E" Seam Cokeyard Davis Double Freeport E Kelley Lemon McIntyre No. 7 Split Six Thick Freeport Twin Freeport Upper Freeport (E)	Upper Freeport Davis Freeport Split Six
74	Lower Freeport Barrelville Parker	Lower Freeport Hatcher Lower Freeport (No. 6-A) No. 6-A Randen Furnace Rogers Steubenville Shaft Whan	Lower Freeport D Seam D Dudley Limestone Lower Freeport (D) Moshannon Rockvein Shantz	Lower Freeport

TABLE 1. COALBED CODES AND NAMES FOR EASTERN REGION (NORTHERN SECTION) -- CONTINUED

State	MARYLAND		OHIO		PENNSYLVANIA		WEST VIRGINIA (North)	
	Coalbed		Coalbed		Coalbed		Coalbed	
Code	Name		Name		Name		Name	
76	Upper Kittanning Bluebaugh Montell Westernport		Upper Kittanning		Upper Kittanning Barnettstown Big C Prime Cement Creek Vein Cushing Cushion Cushion Vein No. 6-A North Washington Railroad Seymour Upper Kittanning (C Prime) Woodland		Upper Kittanning Kittanning No. 7 Block	
80	Middle Kittanning Luke		Middle Kittanning Black Bed Carbondale Coshocton Dry Run Goshen Great Vein Hocking Middle Kittanning (No. 6) Mineral City Nelsonville No. 6 Osnaburg Sheridan Straitsville Strip Bed Upper New Lexington Upper Zaleski Upper Zanesville Washington Furnace		Middle Kittanning Bluebaugh C Cannel Darlington Middle Kittanning (C) Middle Kittanning (No. 6) Morgan No. 6 Twin Bed		Middle Kittanning No. 6 Block North Coalburg	

TABLE 1. COALBED CODES AND NAMES FOR EASTERN REGION (NORTHERN SECTION) -- CONTINUED

State	MARYLAND		OHIO		PENNSYLVANIA		WEST VIRGINIA (North)	
	Coalbed		Coalbed		Coalbed		Coalbed	
Code	Name		Name		Name		Name	
84	Lower Kittanning Ellerslie		Lower Kittanning Clay Vein Creek Vein Lower Kittanning (No. 5) Lower New Lexington Mineral Point Newcastle No. 5 Potters Vein		Lower Kittanning B Barnett Blacklick Bloss Dagus Daguscohonda Lilly Lower Kittanning (B) Miller Miller B Sonman Westernport No. 5		Lower Kittanning 5 Block Five Block Kittanning McQueen No. 5 Block No. V Block S Block Tioga	
86					Upper Clarion Bear Creek			
87	Clarion Fulton Upper Mount Savage		Clarion Clarion (No. 4-A) No. 4-A		Clarion A Prime Clarion (A Prime) Fulton Lower Clarion No. 4-A Upper Clermont		Clarion	
95	Brookville Lower Mount Savage		Brookville Brookville (No. 4) Conway Flint Run Gray Limestone Newland No. 4		Brookville A Brookville (A) Gordon Lower Clermont No. 4 Pardoe			

TABLE 1. COALBED CODES AND NAMES FOR EASTERN REGION (NORTHERN SECTION) -- CONTINUED

State	MARYLAND	OHIO	PENNSYLVANIA	WEST VIRGINIA (North)
	Coalbed	Coalbed	Coalbed	Coalbed
Code	Name	Name	Name	Name
103	Lower Mercer	Lower Mercer Lower Mercer (No. 3) No. 3	Lower Mercer Alton Lower Alton Mercer	Lower mercer Stockton Belmont Hampton Lewiston Lower Stockton Stockton-lewiston
799	Uncorrelated	Uncorrelated	Uncorrelated	Uncorrelated
926		Lower Kittanning and Lower Freeport	Lower Kittanning and Lower Freeport Lower Freeport and Lower Kittanning Lower Freeport and Lower Kittanning (D and B) Lower Kittanning and Lower Freeport (B and D)	

TABLE 2. COALBED CODES AND NAMES FOR EASTERN REGION (SOUTHERN SECTION)

State	ALABAMA	KENTUCKY (EAST)	TENNESSEE	VIRGINIA	WEST VIRGINIA (SOUTH)
	Coalbed	Coalbed	Coalbed	Coalbed	Coalbed
Code	Name	Name	Name	Name	Name
77	Coalton	Coalton			
	Princess No. 7				
83	Princess No. 6				
84	Kittanning	Kittanning			
	No. 5 Block	No. 5 Block			
					Lower Kittanning
					5 Block
					Five Block
					Kittanning
					McQueen
					No. 5 Block
					No. V Block
					S Block
					Tioga
90	Princess No. 5	Princess No. 5			
	Knob No. 1	Knob No. 1			
	Lower Knob	Lower Knob			
	Lower Richardson	Lower Richardson			
	Lower Skyline	Lower Skyline			
103	Stockton	Stockton			
	Hazard No. 7 Rider	Hazard No. 7 Rider			
	Stockton-Lewston	Stockton-Lewston			
					Stockton
					Belmont
					Hampton
					Lewiston
					Lower Mercer
					Lower Stockton
					Stockton-Lewiston

Note: The first name given for each bed is the DOE/EIA assigned principal name.

TABLE 2. COALBED CODES AND NAMES FOR EASTERN REGION (SOUTHERN SECTION) -- CONTINUED

State	ALABAMA	KENTUCKY (EAST)	TENNESSEE	VIRGINIA	WEST VIRGINIA (SOUTH)
	Coalbed	Coalbed	Coalbed	Coalbed	Coalbed
Code	Name	Name	Name	Name	Name
104		Hazard No. 7 Hazard No. 7 Surface High Splint Hignsplint Hignite Nickell No. 12 Oakley Queen Mary Red Spring Red Springs Stockton	Bold Knob Red Spring	High Splint No. 12	
111		Coalburg Adele Clod Cornett Dinky Hazard Hazard No. 5-A Hazard No. 5-A Rider Hazard No. 6 Hitchens No. 3 Index Leatherwood Lennox Lower Peach Orchard Morris MUD No. 11 No. 3 Clod Peach Orchard Prater Princess No. 3 Skyline Stockton Top Hill Upper Peach Orchard		Morris Cornett No. 11	Coalburg

TABLE 2. COALBED CODES AND NAMES FOR EASTERN REGION (SOUTHERN SECTION) -- CONTINUED

State	ALABAMA	KENTUCKY (EAST)	TENNESSEE	VIRGINIA	WEST VIRGINIA (SOUTH)
	Coalbed	Coalbed	Coalbed	Coalbed	Coalbed
Code	Name	Name	Name	Name	Name
121		Winifrede Flatwoods Haddix Hazard No. 5 Lower Haddix			Winifrede Black Band Dorothy Quakertown
128		Walnut Mountain			
134		Fire Clay Rider Hazard No. 4-A Hazard No. 4 Rider Klondike McQuire Sterling Upper Dean	Big Mary Sterling Klondike Dean Upper Dean		Chilton Rider
135		Chilton Bevins Dean Fire Clay Fire Clay No. 4 Fireclay Hazard No. 4 Hyden Lower Dean No. 7 Phillips Poplar Lick Springfield Taylor 7 Wallins Wallins Creek	Poplar Lick Cannel Fire Clay Flint Clay Lower Dean Windrock	Phillips Dean Fire Clay No. 7	Chilton Upper Chilton

TABLE 2. COALBED CODES AND NAMES FOR EASTERN REGION (SOUTHERN SECTION) -- CONTINUED

State	ALABAMA	KENTUCKY (EAST)	TENNESSEE	VIRGINIA	WEST VIRGINIA (SOUTH)
	Coalbed	Coalbed	Coalbed	Coalbed	Coalbed
Code	Name	Name	Name	Name	Name
137		Whitesburg Hernshaw Lower Whitesburg Mills			Hernshaw
142		Low Splint Amburgey Bowling Cannel City Creesh Dirty Gun Creek Howard Jack Rock Jackrock Knott Mason Moss No. 6 Rim Sandstone Parting Upper Mason Williamson	Lower Pioneer Buckeye Springs Jackrock Middle	Low Splint Buck Knob Creveling Mason No. 6	Williamson
144			Peabody Jordan Splint		

TABLE 2. COALBED CODES AND NAMES FOR EASTERN REGION (SOUTHERN SECTION) -- CONTINUED

State	ALABAMA	KENTUCKY (EAST)	TENNESSEE	VIRGINIA	WEST VIRGINIA (SOUTH)
	Coalbed	Coalbed	Coalbed	Coalbed	Coalbed
Code	Name	Name	Name	Name	Name
151	Cedar Grove Caney Darby Darby No. 5 Keokee Lower Mason No. 5 Upper Cedar Grove Upper Elkhorn No. 3 Upper Taggart	Jellico Big Brushy Broyles Brushy Mountain Coking Log Mountain Mason Mingo Poplar Creek Pruden State Straight Creek Westbourne White Oak	Cedar Grove C Darby Darby No. 5 Keokee No. 5 Red Jacket Roda Taggart Thacker Upper Thacker	Cedar Grove Glen Alum Island Creek Marpleton Mingo Red Jacket Thacker Upper Cedar Grove Upper Thacker	
165				Kelly Five Foot Upper Bolling	
168	No. 2 Gas A Bacon Creek Bennett Fork Black Wax Freeburn Imboden Lower Blue Gem Lower Elkhorn Lower Marrowbone Pond Creek Shelby Gap Wayland Vulcan	Coal Creek Bennett Fork Dixie Kent Kings Mountain Rector Turner Little Italy Douglas	No. 2 Gas Burnwell Campbell Creek Freeburn Imboden Lower Bolling Lower Campbell Creek Lower Elkhorn Lower Marrowbone No. 1 Pond Creek Upper War Eagle Warfield	No. 2 Gas Burnwell Campbell Creek Campbell Creek No. 2 Gas Freeburn Imboden Logan Eagle Lower Campbell Creek Lower Elkhorn Pond Creek Rawl Upper War Eagle War Eagle Warfield	

TABLE 2. COALBED CODES AND NAMES FOR EASTERN REGION (SOUTHERN SECTION) -- CONTINUED

State	ALABAMA	KENTUCKY (EAST)	TENNESSEE	VIRGINIA	WEST VIRGINIA (SOUTH)
	Coalbed	Coalbed	Coalbed	Coalbed	Coalbed
Code	Name	Name	Name	Name	Name
170					Powellton Brownstone Brownstown C C Seam Hatfield Tunnel
185	Millard		Dorchester Big Dirt Seam Esserville Gladeville Glamorgan Haskell No. 3 Marcee Norton No. 2	Cedar	
195	Hagy Cranes Creek		Lower War Eagle Hagy	Lower War Eagle	
201	Clements				
207	Gwin				
210	Splash Dam Edwards		Splash Dam Edwards		
214	Upper Banner		Upper Banner		
216			Gilbert Cary Lower Banner	Gilbert Kidd Lower Banner McGowan	

TABLE 2. COALBED CODES AND NAMES FOR EASTERN REGION (SOUTHERN SECTION) -- CONTINUED

State	ALABAMA	KENTUCKY (EAST)	TENNESSEE	VIRGINIA	WEST VIRGINIA (SOUTH)
	Coalbed	Coalbed	Coalbed	Coalbed	Coalbed
Code	Name	Name	Name	Name	Name
229	American				
266			Jawbone Iaeger Lower Jewell No. 5 Ratliff Shannon	Jawbone Iaeger Lower Jewell No. 5 Ratliff Shannon	Jawbone Bradshaw Hughes Ferry Iaeger
269			Lower Iaeger Hogwallow Tiller No. 4	Lower Iaeger Hogwallow Tiller No. 4	Lower Iaeger
279	Mary Lee Bowers Horse Creek Mount Carmel				
286	Sewanee		Sewanee Haley Main Sewanee Oak Hill Renfro Rockwood Soddy No. 9 Upper Clifty Upper Sewanee		
299	Black Creek				

END

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10/01/91