SYNTHANE PILOT PLANT
SOUTH PARK TOWNSHIP, PENNSYLVANIA

RUN REPORT NO. 1-DB

OPERATING PERIOD
FEBRUARY - AUGUST, 1977

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I. ABSTRACT

This report covers the operation of the Synthane Coal Gasification Pilot Plant, South Park Township, Pennsylvania from February through August 1977. The facility is owned by the United States Government and operated by C-E Lummus.

Following Test Directive No. 1-DB, the plant operated with Montana Rosebud coal at a pressure of 600 psig, at temperatures from 1,300°F to 1,550°F and at coal feed rates of 1.5 to 3.0 tons/hour. Gas was produced for 556 hours and 1,304 tons of coal were fed to the gasifier. Continuous operation of up to 97 hours and carbon conversions of up to 78% were achieved. A total of 29 steady state periods, ranging from 1 hour and 30 minutes to 14 hours and 54 minutes, were obtained.

The successful operation during this period has demonstrated that the Synthane Process is a viable route to coal gasification. Data obtained during the operation are adequate for the preliminary design of a commercial facility.

The coal was fed, during this period of operation, into the fluidized bed of the gasifier by "deep bed injection" rather than by free fall as in previous studies. The results showed conclusively that this procedure is advantageous to the operation of the gasifier and the Synthane Process in that little tar, phenol or oils were produced. This will have a considerable advantage in the cost and operation of a commercial facility.

II. INTRODUCTION

The Synthane Coal Gasification Pilot Plant, located in South Park Township, Allegheny County, Pennsylvania, is operated by C-E Lummus, Bloomfield, New Jersey, a subsidiary of Combustion Engineering, Inc., for the Department of Energy (DOE) under Contract EY-76-C-02-0003.*000. The facility is owned by the United States Government. C-E Lummus designed and engineered the pilot plant and provided construction advisory services. Field construction was done by Rust Engineering of Birmingham, Alabama under separate contract. C-E Lummus is operating the pilot plant under the contract from August 1, 1975 through September 30, 1978.

The Synthane Process is a high pressure coal gasification system developed by the Pittsburgh Energy Research Center (PERC) of the Department of Energy, formerly part of the U.S. Bureau of Mines and then part of the U.S. Energy Research and Development Administration (ERDA). It converts bituminous coal, sub-bituminous coal, and lignite into a substitute for natural gas with a heating value of 950 BTU's per cubic foot at a pressure of 1,000 pounds per square inch, and ready for direct feeding into existing gas pipelines.

The important advantage of the Synthane Process over the existing coal gasification technology is that it can utilize caking coals as well as non-caking coals as a raw material. Unlike other processes, the Synthane Process does not require pretreatment of caking coals at low pressures prior to feeding into the gasification system. It was developed in response to a need posed by the existence of large deposits of caking coals in the Appalachian region of the eastern United States.

INTRODUCTION - cont'd

The objectives of the operating contract are to demonstrate the Synthane Process on a larger scale and to obtain sufficient process information for the design of a demonstration and/or commercial coal gasification plant for the production of pipeline quality gas. These objectives are to be accomplished through the execution of experimental and developmental operation programs in the Synthane pilot plant.

The pilot plant started operation on July 8, 1976 under Test Directive No. 1. The directive specified operating procedures and process requirements for the gasification of Montana Rosebud coal. The Test Directive No. 1 was discontinued in January 1977 because of severe operating problems experienced in the plant. A large amount of tar formed during the free fall of coal into the fluidized bed of the gasifier. The cyclone dip leg plugged repeatedly and the gas scrubbing area was unable to handle the tar, char and fresh feed which were carried over from the gasifier. This carry-over caused continual plugging and fouling of exchangers, pumps, vessels, and other gas scrubbing facilities. Long runs could not be achieved under these conditions. A report covering the operation of the pilot plant under Test Directive No. 1 from July 7, 1976 to December 20, 1976 was issued in March 1978*.

Tests at the Pittsburgh Energy Research Center had shown that injecting coal feed below the surface of the fluidized bed produces less tars and phenols (which is important from the environmental point of view) than the

*See Reference (1), Appendix I

INTRODUCTION - cont'd

free fall coal feeding method. Based on these tests, Test Directive No. 1-DB, specifying deep bed coal feed injection and continuation of the gasification of Montana Rosebud coal, was issued to supersede Test Directive No. 1, under the assumption that the operating problems experienced in the gas scrubbing area would be reduced.

Following Test Directive 1-DB, the first phase of the operation of the Synthane pilot plant, namely the gasification of Montana Rosebud coal, was completed in August, 1977, with the successful gasification of this sub-bituminous coal. The objective of the second phase of operation is outlined in Test Directive No. 2 which specifies the gasification of Illinois No. 6 coal at 600 psig to a carbon conversion of 67%. This project is now underway.

This report covers the operating period February-August 1977 under Test Directive 1-DB. A brief process description is given in Section IV. The plant operations are then described in chronological order in Section V. Plant and equipment modifications and equipment failure analysis are presented in Sections VI and VII.

The operating results including evaluation methods, effects of process conditions on operating results, effects of equipment modifications on plant operations, and material balance data are discussed in Section VIII. The Appendix contains a glossary of terms, the Test Directive, coal analyses, references, process data and laboratory data.

III. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Fifteen test runs, designated as Run Series 1-DB and numbered from 1-DB-A through 1-DB-O, were conducted at the Synthane Coal Gasification Pilot Plant, South Park Township, Pennsylvania from February 1977 through August 1977 under Test Directive No. 1-DB. The Directive specified the continuation of the gasification of Montana Rosebud coal to a carbon conversion of about 67% at 600 psig pressure for a steady state period of a minimum of 24 hours. The Test Directive also required that the coal feed be injected below the surface of the fluidized bed by so-called "deep bed injection" rather than by free fall into the fluidized bed.

Under this test directive 1,304 tons of Montana Rosebud coal were gasified and gas was produced from the gasifier for 556 hours. Continuous operations of up to 97 hours and carbon conversions of up to 78% were achieved. The operations were carried out at a pressure of 600 psig, temperatures ranging from 1,300°F to 1,550°F and coal feed rates of 1.5 to 3.0 tons/hour. The pretreater was placed in service toward the end of the test period for Run 1-DB-O and used as a coal preheater. The deep bed injection method produced little tar, phenols or oils. Fouling of gas scrubbing equipment was much reduced when compared to previous runs with free fall injection of coal feed into the gasifier.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS - cont'd

Major problems encountered during the Run Series 1-DB were: plugging of various coal and char transfer lines, specifically of the char cooler standpipe; clinker formation in the gasifier; fines carry-over which caused operating problems in the scrubbing area; poor control of fluidized bed levels; and a number of mechanical problems such as pump failures, circuit breaker trips, rupture disc failures, etc. Most of these problems were resolved through repairs and equipment modifications. However, controlling fluid bed levels at low bed densities, clinker formation and carry-over of fines from the gasifier to the gas scrubbing area continued to be problems. Attempts are being made to solve these problems in future operations.

Run Series 1-DB has demonstrated that the Synthane Process is a viable route to coal gasification. The general operability of the system is good and has improved significantly since the Run Series that was conducted under Test Directive No. 1.

The major achievements during Run Series 1-DB, and recommendations for the improvement of the process and toward the solution of the remaining peripheral operating problems are summarized in the remainder of this section. Detailed discussion of the events leading to these recommendations will be found in other parts of this report.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS - cont'd

Major Achievements During Run Series 1-DB

1. The plant produced gas for a total of 556 hours and processed 1,304 tons of Montana Rosebud coal at 1.5 to 3.0 tons/hour.
2. Extended run lengths of up to 97 hours of continuous operation have been achieved.
3. A carbon conversion of 65 to 78 percent has been demonstrated.
4. A total of 29 steady state periods ranging from 1 hour and 30 minutes to 14 hours and 54 minutes has been obtained during Run Series 1-DB.
5. Overall material balance closures within 95 and 105% have been achieved in 18 steady state periods.
6. Tendency for clinker formation at operating temperatures necessary to obtain desired conversion has been reduced. Clinker formation is still a problem at higher operating temperatures.
7. A dry coal feed system operating continuously at 600 psig has been demonstrated.
8. A system for discharging char continuously from 600 psig to atmospheric pressure has been operated successfully.
9. A raw gas stream with H_2 to CO molar ratio of 3:1 has been obtained under operating conditions of Run Series 1-DB. A CO shift converter is, therefore, not required.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS - cont'd

Major Achievements During Run Series 1-DB - cont'd

10. A process gas stream essentially free of tars and heavy oils has been obtained. This gas stream simplifies the gas/ liquid separation steps and enhances the environmental aspects of the Synthane Process.
11. A high temperature non-fouling process gas stream suitable for steam generation from process heat exchangers has been obtained from the gasifier.
12. A condensate with low phenol content and low chemical oxygen demand has been obtained from the overhead gas stream. This quality should permit the reuse of this water stream without extensive treatment.
13. Gas scrubbing recycle pump cases have been hardfaced successfully thus allowing extended periods of continuous service.
14. The thermal oxidizer has been modified to operate at design capacity.
15. Data obtained during Run Series 1-DB are adequate for the preliminary design of a commercial facility.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS - cont'd

Major Problem Areas Remaining After Completion
of Run Series 1-DB

1. Gasifier fluid bed height control has improved over Run Series 1, but still remains a problem.
2. Clinker formation at operating temperatures above 1,500°F.
3. Fines carry-over from the gasifier to the gas scrubbing system.
4. Thermal oxidizer refractory life is still undetermined.

Recommendations

In view of the progress made in Run Series 1-DB in overcoming problems encountered during Run Series 1, additional time and effort should be expended toward the solution of the few remaining operating problems. The following additional work is recommended:

1. Install a secondary oxygen distributor above the gasifier cone area. Installation of such a system would help to minimize the oxygen concentration in the critical areas of the fluidized bed and may, therefore, aid in the prevention of clinker formation.
2. Study operation of the gasifier at superficial gas velocities higher than the previous 0.5 feet per second. Higher gas velocities within the O₂ reaction zone may aid in the destruction of stagnant solids areas, removal of heat, and reduction of O₂ concentration within the fluidized bed of the gasifier and, therefore, aid in the prevention of clinker formation.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS - cont'd

Recommendations - cont'd

3. Modify gasifier to reduce coal fines entrainment into the product gas and study means for the removal of fines from the fluidized bed to the char slurry area. This may aid in controlling gasifier fluid bed height and density and in reducing carry-over of fines to the gas scrubbing area.
4. Investigate whether a char cooling vessel is actually needed or whether it is possible to cool the char directly in the transfer line. Elimination of the char cooler vessel would result in economic benefits to the Synthane process in a commercial design.
5. Accumulate more operating data in order to study more accurately the effect of operating conditions on operating results.

These studies may be carried out as part of the operations to be conducted under Test Directive 2 with caking coal or may require additional runs with western non-caking coal.

IV. PROCESS DESCRIPTION

A flow diagram of the equipment placed in service under Test Directives 1 and 1-DB is shown in Figure 1. Although Benfield and Stretford units for removal of carbon dioxide and sulfur respectively, a shift converter for adjusting the hydrogen to carbon monoxide ratio for methanation, and a methanation section for converting mixtures of carbon monoxide and hydrogen to methane are part of the Synthane Plant, these systems were not placed in service during this phase of operation.

The first step in the process is coal preparation. Raw coal is trucked to the plant and dumped into the feed hopper. From there it is carried by the belt feeder to the bucket elevator for deposit in the raw coal storage bin.

Coal is withdrawn from the raw coal storage bin and fed by the raw coal weigh belt feeder to the flash drying impact mill. Hot gas from the drying air heater and recycled drying gas enter the mill simultaneously with the coal. The coal is flash dried to approximately 7 weight percent moisture and ground to a finer size. The ground coal-gas mixture leaves the flash drying mill and enters the cyclone separator. From there the separated coal is fed to the pulverized coal storage bin through the vibrating screen which returns particles larger than 20 mesh to the flash drying mill for further grinding. Less than 30 weight percent of the material passing through the screen is finer than 200 mesh. The hot gases leaving the cyclone separator pass through the dust collector where small coal particles are removed. Part of the gases leaving the dust collector is

PROCESS DESCRIPTION - cont'd

vented to remove the moisture while the major portion is recycled back to the drying air heater through the drying system fan located immediately ahead of the dust collector. The coal particles removed from the gas in the dust collector are fed to the pulverized coal storage bin.

Dry coal stored in the pulverized coal storage bin at atmospheric pressure is brought up to operating pressure by the Petrocarb lock hopper system shown in Figure 2. A prescribed weight of coal is transferred from the pulverized coal storage bin to the weigh hopper. The weigh hopper alternately feeds two storage injectors when level probes indicate that the injectors are empty. After a storage injector is filled with coal, it is isolated from the rest of the system and pressurized with CO₂. When pressurization is complete, the coal is fed from the storage injector to the primary injector for feed to the gasifier. When the storage injector is empty, it is depressured and prepared to receive another batch of coal. The two storage injectors are valved so that the CO₂ vented from one injector can be used to partially pressurize the other. This cross-pressurization considerably reduces the total CO₂ demand of the Petrocarb unit. The coal is then pneumatically transported by CO₂ from the Petrocarb primary injector to the pretreater or directly to the gasifier through a 1-inch line.

During the last run of the Run Series 1-DB the pretreater was put into operation to preheat the coal on its way to the gasifier and to test the pretreater controls and instruments for future runs. Typically, the pretreater is

PROCESS DESCRIPTION - cont'd

to be used with coals that have caking characteristics (high free swelling index). In the pretreater the caking or agglomerating properties are reduced by a limited oxidation of the coal particles to a point where the coal will not agglomerate during gasification. Montana Rosebud coal used during the Run Series 1-DB is non-caking and pretreating was not necessary.

The gasifier shown in Figure 3 is constructed of Monel clad carbon steel, has a height of about 62 feet and is separated from a 33-foot high char cooler by an internal head. The gasifier is five feet in diameter and is lined with a six inch layer of insulating castable refractory and three inches of a dense erosion resistant castable refractory. An Incoloy 800 shroud has been placed inside the gasifier so that the actual internal diameter is about three feet.

In the gasifier, coal is fluidized and reacted with steam and oxygen at temperatures up to 1800°F. The fluid bed height is normally maintained between 10 and 20 feet. Initially, the coal feed line terminated 6 feet above the distribution cone break line in the gasifier. This was later changed to 9 feet above the cone line because it was felt that some fresh feed was going directly into the bottom of the outlet of the cone and did not have time to mix in the bed.

Hot char from the gasifier flows through a standpipe to the char cooler where a fluidized bed is maintained by steam which cools the char. Char from the char cooler is then conveyed by high pressure steam to the high pressure char slurry tank where it is slurried with filtrate water and

PROCESS DESCRIPTION - cont'd

let down to atmospheric pressure through Willis Choke valves into the slurry filter feed tank. The slurry is then pumped to the char filters. The cake which forms is discharged onto a conveyor belt and dumped into hoppers for removal from the plant site. The clean filtrate from the filters is recovered and pumped back to the high pressure char slurry tank for remixing with fresh char.

The gas leaves the gasifier through an internal cyclone. It is quenched with water in the venturi scrubber and the gas-liquid mixture is then separated in the scrubber surge tank. The gas leaving the scrubber surge tank is washed in a second venturi scrubber and then passed through the raw gas scrubber packed with stainless steel Pall rings where it is cooled to approximately 330°F and let down in pressure into the flare header for burning.

The scrubber surge tank consists of three internal compartments. The first venturi scrubber discharge flows into one of the end compartments which overflows to the center compartment. The combined liquid from the second venturi scrubber and the raw gas scrubber collects at the bottom of the raw gas scrubber before flowing to the other end of the surge tank. This liquid then overflows into the center compartment. The material collected in the center compartment, which is a multi-phase mixture of water, coal fines, tars, and oils, is sent to the decanter and then to the thermal oxidizer for disposal.

PROCESS DESCRIPTION - cont'd

The plant's utility systems include air compressors, a boiler feed water treatment facility, a cooling tower plus low and high pressure steam generators. A liquid carbon dioxide storage unit supplies low pressure carbon dioxide to compressors which provide pressure for the Petrocarb System and for instrument purges in the gasifier. A liquid oxygen storage unit provides the oxygen required for the gasification reaction.

Figure 1. Synthane Pilot Plant - RUN SERIES I-DB

Figure 2. Petrocarb High Pressure Coal Feed System - RUN SERIES I-DB

Figure 3. Synthane Gasifier - RUN SERIES I-DB

V. PLANT OPERATIONS

The plant did not operate from December 20, 1976 to February 23, 1977. Cleanup, inspection and modifications were completed by January 21, 1977 but the lack of fuel oil and carbon dioxide because of the energy crisis prevented startup until CO₂ became available from the supplier on February 21, 1977. During this extended outage, some major modifications were made to the gasifier and scrubbing system in an attempt to improve the operation and provide more reliability. Among the major changes made were: the installation of a pipe in the gasifier to provide for a deep bed injection of feed, the installation of an eductor in the cyclone dip leg, the installation of condensate collection pots on gasifier purge instrumentation, the conversion of the trickle valve in line from the gasifier to the char cooler from manual to automatic control, the installation of a venturi scrubber in the vapor line from the scrubber surge drum to the gas scrubber to knock out more solids and prevent the scrubber from fouling, and modifications to the raw gas scrubber surge tank, thermal oxidizer, and coal grinding.

For the purpose of this report a Run is defined as one or more periods of continuous operation of sufficient time to obtain sample data and separated from the next period of continuous operation by an outage of at least one shift (8 hours), or a drastic change of operating conditions. The 1-DB Runs are consecutively labeled with letters of the alphabet (i.e. Run 1-DB-A through Run 1-DB-O).

PLANT OPERATIONS - cont'd

A period of continuous operation is defined as an operation which met the following conditions:

- the gasifier bed temperature reached the desired level and has been steady for at least one hour,
- the operation has been sufficiently smooth in the opinion of the shift supervisor and the representative of the technical department,
- coal and oxygen have been fed to the gasifier for at least two hours,
- a period of continuous operation was separated from the next period of continuous operation by an outage of at least 30 minutes.

The plant is considered to be in operation when coal and oxygen are fed to the gasifier and gas is produced. A period of continuous operation may contain interruptions in coal and/or oxygen supply to the gasifier of less than 30 minutes.

A summary of the plant operation is shown on Table 1.

The plant operated under Test Directive No. 1-DB from February 23 to August 16, 1977 during which time 1,304 tons of Montana Rosebud coal were gasified. During this period oxygen and coal were fed to the gasifier for 556 hours. Continuous operations of up to 97 hours and carbon conversions of up to 78% were achieved. The operations were carried out at a pressure of 600 psig, temperatures ranging from 1,300°F to 1,550°F, and coal feed rates of 1.5 to 3.0 tons/hour. The

Table 1

Summary of Synthane Pilot Plant Operations

<u>Run Duration</u>			<u>Periods of Continuous Operation</u>		
<u>Run No.</u> <u>1-DB</u>	<u>Operation</u> <u>(Hours)</u>	<u>Elapsed*</u> <u>Time</u> <u>(Hours)</u>	<u>Date</u> <u>1977</u>	<u>Duration</u> <u>(Hours)</u>	<u>Reason for Curtailment</u>
A	13	↑	Feb. 23/24	13	Hole in char cooler steam vent line
B	48	74	Feb. 24/25	23	Char slurry line plugged
		↓	Feb. 25/26	25	Leaking of skimming valves in scrubber surge drum
C	23	↑	Feb. 27	4	Plug in char cooler standpipe
C/D		53	Feb. 27/ March 1	41	Circuit breaker trip
D	28	↓	March 1	6	Plug in char cooler standpipe, clinker
E	18	↑	March 15/16	8	Char slurry circulating pump problems
		27	March 16	7	Low bed density
		↓	March 16	3	Low bed density, clinker, H.P. steam line failure
F	13	↑	March 22	3	Char slurry recycle water pump down
		15	March 22	10	Plug in char cooler standpipe, clinker
G	7.5	↑	March 31	7.5	Char slurry line plugged
H	35.5	126	April 1/2	35.5	Plug in char cooler standpipe
		(cont'd)			

*Operation plus outages

Table 1

Summary of Synthane Pilot Plant Operations - cont'd

<u>Run Duration</u>		<u>Periods of Continuous Operation</u>			
<u>Run No.</u> <u>1-DB</u>	<u>Operation</u> <u>(Hours)</u>	<u>Elapsed</u> <u>Time</u> <u>(Hours)</u>	<u>Date</u> <u>1977</u>	<u>Duration</u> <u>(Hours)</u>	<u>Reason for Curtailment</u>
I	13	↓	April 2/3	13	Plug in char cooler standpipe
J	17		April 3/4	8.5	Char slurry line plugged
			April 4	5	Erratic temperature readings, instrument problems
			April 5	3.5	Plug in char cooler standpipe, clinker
K	15	18	April 15/16	15	Plug in char cooler standpipe, clinker
L	16	↑ 19 ↓	April 27/28	9	Char slurry recycle water pump down
			April 28	7	Plug in char cooler standpipe, clinker
M	26.5	31	May 16/17	26.5	Char slurry line plugged
N	85.5	↑ 174 ↓	May 20	6	Coal transport line plugged
			May 21/22	10	Char slurry recycle water pump down
			May 22/23	7.5	Char slurry line plugged
			May 23	6.5	External power failure
			May 24/25	16.5	Char slurry recycle water pump problems
			May 25/26	17	Low CO ₂ header pressure

(cont'd)

Table 1

Summary of Synthane Pilot Plant Operations - cont'd

Run No. 1-DB	<u>Run Duration</u>		<u>Periods of Continuous Operation</u>		
	<u>Operation (Hours)</u>	<u>Elapsed Time (Hours)</u>	<u>Date 1977</u>	<u>Duration (Hours)</u>	<u>Reason for Curtailment</u>
0	197.5	↓	May 26	5	Nut in Petrocarb primary outlet valve
			May 27	6.5	Plug in char cooler standpipe
			May 27	4	Petrocarb problems
			May 27	6.5	Gasifier nozzle leak
		↑	Aug. 5	2.5	Pretreater temperature trip
		↓	Aug. 6-9	46*	Rupture disc failure
			Aug. 9-13	97	Low CO ₂ header pressure
			Aug. 14	5	Char slurry recycle water pump down
			Aug. 14-16	47	Plug in char cooler standpipe, clinker
	556.5	803		556.5	

*Ten outages occurred during this period due to repeated rupture disc failure. In some instances the outages were longer than the maximum 30 minutes allowed by the definition of a continuous operation period.

PLANT OPERATIONS - cont'd

deep bed injection procedure produced little tar, phenols, or oils. Fouling of the gas scrubbing system was reduced when compared to previous runs with free fall injection of coal feed into the gasifier. The pretreater was placed in service towards the end of the Run Series. Major problems encountered during the Run Series 1-DB were plugging of various coal and char transfer lines, specifically of the char cooler standpipe; clinker formation in the gasifier; fines carry-over from the gasifier which caused operating problems in the scrubbing area; poor control of fluidized bed levels; and a number of mechanical problems such as pump failures, circuit breaker trips, rupture disc failures, etc.

Most of these problems were resolved through repairs and equipment modifications which are discussed in Section VI. Controlling fluid bed levels and low bed densities continued to be problems which required some post-operational modification. Attempts are being made to achieve improved bed level control in future operations.

PLANT OPERATIONS - cont'd

Operating Details

Runs 1-DB-A, 1-DB-B, 1-DB-C, 1-DB-D

Gasifier Run Sequence 1-DB-A through D started on February 23, 1977 and terminated on March 1, 1977. During these runs the coal was fed to the gasifier by deep bed injection with the coal feed line terminating 6 feet above the gasifier cone line. The objectives of these runs were to operate the plant as specified in Test Directive No. 1-DB. During this period a total of 275 tons of dried coal were fed with oxygen to the gasifier for a total of 112 hours. Periods of continuous operation of 13, 23, 25, 4, 41 and 6 hours duration and carbon conversion of 65% were achieved.

Run 1-DB-A started on February 23. The unit was operated at a coal feed rate of 2.0 to 3.3 tons/hour, a bed height of 6-15 feet, and bed temperatures of 1,400 to 1,500°F. Continuous operation was maintained at these conditions for 13 hours. The run was terminated when, due to erosion, a hole developed in the piping downstream of the char cooler steam outlet control valve.

Run 1-DB-B started 9 hours later after the piping repairs were completed. The bed temperature was raised to 1,500°F. These conditions were maintained for 23 hours until the feed was halted for one hour because of a plugged char slurry line. Operation was resumed at the same conditions and the plant ran for another 25 hours until the skimming valves in the scrubber surge drum began leaking and water level control could not be maintained.

PLANT OPERATIONS - cont'd

Runs 1-DB-A, 1-DB-B, 1-DB-C, 1-DB-D - cont'd

Approximately 20 hours were required to repair the leak after which coal and oxygen were fed again to the gasifier, starting Run 1-DB-C. The 10 foot high bed was brought to 1525°F. Coal and oxygen feeds were halted about 4 hours later due to partial plugging of the char cooler standpipe. Operations were resumed approximately 50 minutes later. Thermocouples within the gasifier bed indicated possible clinker formation but operation was continued for 19 hours at 1500°F.

The gasifier bed level was 10 to 12 feet during Run 1-DB-C. It was raised without interruption of the continuous operation to 15 to 17 feet thus beginning Run 1-DB-D. The objective of this change in bed height was to improve carbon conversion. Bed temperatures continued to be maintained at 1500°F and operations remained at these conditions until March 1. The plant had now operated 41 hours without interruption.

A circuit breaker then tripped, interrupting coal, oxygen, and steam flow to the gasifier for approximately 30 minutes. Operation continued thereafter for about 6 hours, but it became more and more difficult to remove char from the gasifier because of apparent plugging of the gasifier outlet cone by clinker formation. The unit was then shut down for inspection and cleanup.

Major problems encountered during the runs were erosion in the piping downstream of the char cooler steam outlet control valve, plugging of char cooler standpipe and char

PLANT OPERATIONS - cont'd

Runs 1-DB-A, 1-DB-B, 1-DB-C, 1-DB-D - cont'd

slurry line, leaking of skimming valves in the scrubber surge drum, tripping of a circuit breaker, and fines carry-over from the gasifier.

Modifications after conclusion of the runs included replacement of the steam eductor with the original cyclone dip leg and the purge piping, replacement of all 2-inch gate valves which were eroded in the blowdown manifold from the scrubber surge drum, installation of angle valves in the blowdown piping manifold to take the pressure drop during blowdown operations, and addition of more steam and carbon dioxide metering systems.

PLANT OPERATIONS - cont'dRuns 1-DB-E, 1-DB-F

Run 1-DB-E, in continuation of attempts to achieve the objectives of the previous Runs 1-DB-A through D, was started on March 15, after all maintenance and modifications were completed. Initially a number of problems developed with the coal feeding system. The temperature at the top of the gasifier reached 1200°F after two hours of operation. Coal and oxygen feeds were halted briefly 2.5 hours later to clear the coal feed line. Operation was resumed for another 5.5 hours and feed was again interrupted when pump problems in the filter area developed. After this problem was corrected, coal and oxygen were again fed to the gasifier early on March 16. The plant remained in operation for 7 hours. During this period, the bed density decreased from 22 lbs./cu. ft. to 8 lbs./cu. ft. In all preceding runs with similar process conditions, bed densities normally were 20 to 22 lbs./cu. ft. Low carbon conversions were obtained. The gasifier was emptied and restarted.

After restart the bed temperature was increased to 1450°F. Again, a low density of 8 lbs./cu. ft. was obtained. It was then surmised that the low bed density was probably due to accumulation of fines in the gasifier, which were returned to the bed by the cyclone which was now operating. The low carbon conversions probably resulted from the deep bed injection which allowed the coal feed to pass unreacted through the bed and out with the char. The run was discontinued after 3 hours because of these continuing problems.

PLANT OPERATIONS - cont'd

Runs 1-DB-E, 1-DB-F - cont'd

The gasifier was down from March 17 through 20, 1977 for cleanout, inspection and modifications. Work performed included cutting 3 feet off the deep bed injection feed line to bring it to 9 feet above the cone line instead of 6 feet, installation of a baffle plate in front of the cyclone dip leg trickle valve, and relocation of cone thermocouples up into the bed. The bottom row of the 8 nozzles in the cone which were plugged during free fall runs were opened in an attempt to improve gas distribution in the cone.

The objectives of Run 1-DB-F were to duplicate Run 1-DB-E, and to observe the effects of low bed density on operating results.

Run 1-DB-F started on March 22. After 3 hours of operation the run was interrupted for 3 hours due to plugging of the char slurry transfer line caused by failure of the char slurry recycle water pump. Another 10 hours of operation was achieved thereafter, but plugging of the char transfer line continued to be a problem. The bed height averaged 15 ft., and the gasifier temperature remained around 1500°F. The low bed density of the previous run was not duplicated. The density remained during the run at the usually experienced 16 to 20 lbs./cu. ft. The run was terminated when the char cooler standpipe plugged because of clinker formation. When the gasifier was opened a hard clinker was found attached to the screen in the area of the bottom row of 8 nozzles in the outlet of the gasifier cone.

PLANT OPERATIONS - cont'd

Runs 1-DB-E, 1-DB-F - cont'd

Major problems encountered during the runs were failure of pumps in the filter area, low bed density in Run 1-DB-E, clinker formation at the outlet of the cone, and fines carry-over from the gasifier which continued to cause operating problems in the scrubbing area. Scrubbing pump casings were so badly eroded because of fines circulation that they required extensive repairs between runs.

Modifications after conclusion of the runs included plugging of the bottom row of nozzles in the gasifier cone, installation of a baffle under the deep bed pipe to help to ensure proper mixing of the fresh feed with the bed and the removal of the splash plate that was installed over the cyclone dip leg trickle valve. Gas scrubbing pump casings were being rebuilt by hardfacing with weld metal.

PLANT OPERATIONS - cont'd

Runs 1-DB-G, 1-DB-H, 1-DB-I, 1-DB-J

Gasifier Runs 1-DB-G through J started on March 31 and terminated on April 5, 1977. During this period coal and oxygen were fed to the gasifier for a total of 76 hours. The objectives of these runs were to vary feed rates and bed heights at an operating temperature of 1,500°F in an attempt to achieve carbon conversions of over 70%.

Run 1-DB-G started on March 31. The unit was operated at a coal feed rate of 2.7 tons/hour, a bed height of 15 feet and bed temperature of 1,500°F. The run was terminated after 7.5 hours of operation due to plugging of the char slurry transfer line. Carbon conversions were approximately 55% during the run.

Run 1-DB-H started on April 1, 1977. The coal feed rate was adjusted to 2.0 to 2.5 tons/hour in an attempt to achieve higher carbon conversions. After 32 hours of operation the coal feed rate was increased to 3.0 tons/hour, and the bed height was increased to 20 feet. Carbon conversions of 60 to 65% were achieved with a 15 foot bed and a 2.2 tons/hour feed rate. The run was terminated on April 2 after a total of 35.5 hours of operation because of problems with char withdrawal from the gasifier.

The gasifier operation was resumed on April 2, 1977 with Run 1-DB-I. The unit was operated at 2.8 tons/hour coal feed rate, 1,500°F bed temperature, and 20 feet bed height. The run was terminated after approximately 13 hours of operation due to plugging of the char cooler standpipe. Carbon conversions of 50-55% were achieved. The bed density remained at 20 lbs./cu. ft. throughout the run.

PLANT OPERATIONS - cont'd

Runs 1-DB-G, 1-DB-H, 1-DB-I, 1-DB-J - cont'd

Run 1-DB-J started on April 3, 1977. The gasifier was again brought to 1,500°F. A bed height of 15 feet and a coal feed rate of 3 tons/hour were established. The run was interrupted on April 4 after 8.5 hours due to plugging of the char slurry transfer line. This portion of the run was characterized by poor temperature and bed level control, and char withdrawal problems. An attempt to resume operation 4 hours later failed when problems in the high pressure steam system developed. A second attempt, however, succeeded 8 hours later. The gasifier bed height was brought to 20 feet, the coal feed rate was adjusted to 2.0 to 2.5 tons/hour and the bed temperature was maintained at 1,500°F. Coal and oxygen feed were halted 5 hours later because of erratic gasifier temperature readings. Instruments, and not the suspected coal feeding system, turned out to be the cause of this problem. About 17 hours later on April 5 the gasifier was started up again, but 3.5 hours later Run 1-DB-J was terminated because of clinker formation which prevented the removal of char from the gasifier.

Clinker formation and plugging of the char slurry line still remained the most serious problems during the Run Sequence 1-DB-G through J. An inspection of the gasifier revealed a clinker in the cone area that was adhering to the control thermocouple and appeared to have formed between the cone wall and the thermowell. Clinkers also adhered to individual thermocouples that were still located below the cone. Individual thermocouples were repositioned above the

PLANT OPERATIONS - cont'd

Runs 1-DB-G, 1-DB-H, 1-DB-I, 1-DB-J - cont'd

cone and the control thermocouple was moved away from the wall. The char slurry recycle pump was rebuilt because a hard deposit continued to form on the pump's internals. The impact mill was repaired and a new set of hammers was installed.

PLANT OPERATIONS - cont'd

Runs 1-DB-K, 1-DB-L

The objectives of Runs 1-DB-K and 1-DB-L were identical, namely to obtain carbon conversions of 70% or more. The following conditions were expected to yield the required conversion: bed temperature of 1,500°F, bed height of 15 feet, coal feed rate of 2.0-2.5 tons/hour and a superficial steam velocity of 0.45 ft/sec.

Run 1-DB-K started on April 15, 1977. Immediately, with only steam introduction, a high differential pressure of 10 psi was observed across the gasifier cone. In spite of this, it was decided to continue with the run to obtain cyclone data. For the first 10 hours, the operation was at the above conditions. An attempt was then made to improve the cyclone performance by reducing the purges in the cyclone dip leg, since it was suspected that the purges used previously were too high to allow the cyclone to function properly. Approximately 45 minutes after the purges in the cyclone dip leg were reduced the bed density, which had been steady at 20 lbs./cu. ft., stabilized at 10 to 12 lbs./cu. ft. indicating the cyclone was returning fines to the bed. With the lower bed densities, the bed height increased to 20 feet. About 3 hours later problems developed in withdrawing char from the gasifier. After an additional 2 hours of operation the run was terminated as it became impossible to remove char from the gasifier because of clinker formation. The gasifier was then depressurized. An inspection revealed that 46 of the 128 nozzles in the cone were solidly plugged which probably caused the high differential pressure originally observed.

PLANT OPERATIONS - cont'd

Runs 1-DB-K, 1-DB-L - cont'd

Run 1-DB-L started on April 27, 1977. Coal and oxygen feeds were halted briefly after less than 3 hours of operation, again due to difficulty in withdrawing char from the gasifier. After solid circulation was re-established, with bed temperatures maintained at 1,400°F, the bed density dropped to 12 lbs./cu. ft. within 4 hours, indicating the cyclone was again functioning. The bed height increased to 21 feet. Two hours later loss of the filtrate circulation pump caused a run interruption of about 90 minutes. During the remaining 7 hours of the run it became more and more difficult to remove char from the gasifier. The run was terminated when the gasifier cone was plugged due to clinker formation and char could no longer be removed.

Major problems encountered during these two runs were poor bed level control and char withdrawal, low bed densities, loss of the filtrate circulation pump, and clinker formation. An inspection of the gasifier cone revealed that a clinker had formed and appeared to be attached to the buckled area in the shroud and also to the control thermowell.

Modifications and repair work after Run 1-DB-L included raising the control thermowell to 18 inches above the cone, repair of a hole in the cyclone, replacement of distorted sections of the Incoloy 800 shroud, installation of a thermocouple in the char cooler standpipe, and installation of a pressure differential instrument across the cyclone.

PLANT OPERATIONS - cont'd

Runs 1-DB-M, 1-DB-N

The objectives of Runs 1-DB-M and 1-DB-N were to study the effect of cyclone performance and cyclone dip leg purges upon the gasifier bed density, and learn how to control bed levels in gasifier and char cooler. In order to meet these objectives, the gasifier was operated at 1,300°F to ensure no clinker formation. It was planned to increase bed temperatures after these objectives were achieved.

Run 1-DB-M started on May 16, 1977. As the bed temperature increased to 1,300°F the bed density dropped from 18-20 lbs./cu. ft. to 6-8 lbs./cu. ft. The newly installed d/p cell across the cyclone showed a differential pressure of 60 inches of water, indicating that the cyclone was performing. Operation of the gasifier during this run was characterized by fluctuations in the coal feed rate which in turn caused considerable difficulties in the control of the gasifier bed temperature and bed height. The run was terminated on May 17 after approximately 26.5 hours of continuous operation because of char slurry line plugging.

Run 1-DB-N started on May 20, 1977. As in the previous run the bed temperature was held at 1,300°F. The run was terminated on May 27, when a crack developed in one of the Incoloy 800 gasifier nozzles, which caused the gasifier to be shut down and depressurized. During this period, 242 tons of dried coal were gasified and coal and oxygen were fed for a total of 83.5 hours. Ten continuous operation periods with run lengths between 3.5 and 17 hours were achieved. Operation of the gasifier during this run was

PLANT OPERATIONS - cont'd

Runs 1-DB-M, 1-DB-N - cont'd

characterized by low bed densities and low carbon conversions. Control of the gasifier bed height was also difficult and was not achieved.

During the runs the cyclone appeared to be working as fines carry-over were minimal and the fines that did carry over were mostly less than 200 mesh. As the bed temperatures were brought to 1,300°F, the bed densities dropped from 18-20 lbs./cu. ft. to 8-10 lbs./cu. ft. and at one time went as low as 4 lbs./cu. ft. Carbon conversions during both runs were, as expected, between 43 and 47% due to the low bed temperature of 1,300°F. Bed levels were approximately 20 ft. Attempts to reduce or increase bed levels were not successful.

Throughout both runs, there were frequent recurrences of old problems causing interruption in the operation. The rupture disc between gas scrubbing and the char cooler failed repeatedly. Problems with pumps included a plugged suction strainer, leaking seals, damaged shafts and vapor locking. Some valves had eroded trims and some were leaking, and as in previous runs, considerable difficulty developed with various plugged coal and char transfer lines.

After termination of Run 1-DB-N the plant remained out of operation for the entire months of June and July in order to replace all Incoloy 800 nozzles on the gasifier. It was determined by C-E Metallurgical Laboratory and confirmed by Argonne National Laboratory that nozzle 50 which caused the

PLANT OPERATIONS - cont'd

Runs 1-DB-M, 1-DB-N - cont'd

shutdown of Run 1-DB-N failed due to stress corrosion cracking. In all 22 Incoloy 800 nozzles which were found to be sensitized, were replaced with carbon steel nozzles that are monel overlaid.*

During the outage, all mechanical equipment was overhauled, the thermal oxidizer was rebricked, and a new burner was installed in the unit. The char cooler standpipe trickle valve was replaced by a slot valve. The 2-inch char cooler standpipe at the outlet of the gasifier cone was replaced with a 3-inch pipe. The char cooler standpipe purges were converted from steam to CO₂. A steam heater to heat the CO₂ transfer gas was installed and steam purges were added to the eight bottom nozzles of the gasifier distributor cone to maintain fluidization at the outlet of the cone while minimizing oxygen concentration in this area. The pretreater was connected to the gasifier and two ceramic plug valves were installed in the pretreater outlet line between pretreater and gasifier.

*See Reference (2), Appendix I

PLANT OPERATIONS - cont'd

Run 1-DB-O

The objectives of Run 1-DB-O were to commission the pretreater with the gasifier and to adjust the char cooler standpipe purges and differential pressure to optimize the removal of solids (including fines) from the gasifier to the char cooler. It was decided to maintain the gasifier bed temperature at 1,300°F during this procedure to minimize clinker formation. The objective thereafter was to increase the gasifier bed temperature as required to achieve 70% or more carbon conversion at coal feed rates from 2.0 to 3.0 tons/hr.

Run 1-DB-O started on August 5, 1977, with the coal being fed through the pretreater to the gasifier. There were some difficulties at the beginning with removal of solids from the gasifier. The newly installed standpipe slot valve required a stroke adjustment before reasonable solids flow was established. After 2.5 hours of operation, problems with temperature instrumentation developed which were resolved after about 1 hour. The run continued for additional 4 hours and was interrupted by a failure of a rupture disc between the plenum zone and the char cooler. Over the next four days oxygen and coal were fed to the gasifier for additional 42 hours. However, 9 outages occurred during this 42 hour period of operation due to repeated failures of this rupture disc. Improper machining of the rupture disc holder faces was determined to be the cause of the repeated failures. The flanges were re-machined and disc failures ceased. Up to this time the gasifier bed

PLANT OPERATIONS - cont'd

Run 1-DB-O - cont'd

temperature was held to a maximum of 1,300°F and the coal feed varied between 1.5 and 2.0 tons/hr. These conditions were maintained until the purges of the char cooler standpipe were adjusted and the slot valve was placed on automatic control.

On August 10, 1977 the gasifier bed temperature was raised to 1,400°F and on August 11 to 1,500°F. At temperatures of 1,500°F, carbon conversions of over 70% were achieved. From August 9 to 13 the plant operated for a total of 97 hours with only a few minor interruptions. The feed was stopped on August 13 because of low CO₂ header pressure which disrupted the Petrocarb feed system. A malfunction of the level controller on the CO₂ gas holder caused loss of CO₂ header pressure.

During this period of operation, no bed was maintained in the char cooler. It was found that operation of the char cooler without a bed reduced the pressure fluctuations in the high pressure char slurry tank and resulted in better overall control of the char removal system.

The pretreater operated well except that temperature in the bottom of the bed fluctuated sharply. It was found that better temperature control could be obtained when the steam flow to the pretreater was increased to 0.4 ft/sec. The steam flow to the gasifier was also increased in an attempt to prevent clinker formation. The increased steam/coal ratio helped to obtain higher carbon conversions. Steam

PLANT OPERATIONS - cont'dRun 1-DB-0 - cont'd

without oxygen was added for the first time to the cone through the bottom ring of nozzles at the outlet of the distributor cone.

Oxygen and coal were again fed to the pretreater on August 14, 1977 but the operation was interrupted immediately due to plugging of the char slurry transfer lines. Operation was started again 4 hours later and halted after 5 hours of operation because of failure of the char slurry recycle water pump. After water circulation was re-established the operation was continuous for 47 hours. Bed temperatures and coal feed rates were held at 1,500°F and 2.5 tons/hr., respectively until the system became stable. Then the temperature and coal feed rate were increased to 1,550°F and 3.0 tons/hr., respectively. At 3.0 tons/hr. the coal feed became unsteady, causing serious temperature fluctuations in the gasifier: between 1,500°F and 1,610°F. This condition lasted for about six hours. When the coal feed rate was decreased to about 2.5 tons/hr., the system stabilized again. Four hours later Run 1-DB-0 was terminated because char could not be moved from the gasifier. Subsequent investigation revealed clinkers in both the gasifier and the pretreater. The clinker in the pretreater did not hinder the operation, since the clinker was below the feed point in the pretreater. The clinker in the bottom of the gasifier cone prevented the removal of char and eventually caused the shutdown of the plant. A small piece of flat metal was also found in the Petrocarb venturi which probably caused the

PLANT OPERATIONS - cont'd

Run 1-DB-O - cont'd

unsteady coal feed rate during the last 6 hours of operation. It is surmised that the fluctuation in coal feed resulted in the severe temperature fluctuations in the gasifier and caused the clinker formation in the gasifier.

During Run 1-DB-O the plant processed 465 tons of Rosebud coal and produced 19 million standard cubic feet of raw gas. The gasifier produced gas for approximately 190 hours. Two long, continuous operating periods of 97 and 47 hours were achieved. Carbon conversions between 75% and 78% were achieved for extended periods of operation at coal feed rates of 2 to 3 tons/hr.

Major problems encountered during the run were: repeated rupture disc failures early in the run due to improperly machined rupture disc holder faces, low CO₂ header pressure which disrupted the Petrocarb feed system, failure of the high pressure filtrate recycle pump, clinker formation, and foreign objects in the Petrocarb venturi that resulted in coal feed fluctuation and subsequently in temperature fluctuations in the gasifier. Control of gasifier bed levels continued to be a problem and will require attention in future runs.

The successful completion of this run finished the planned operation with western sub-bituminous coal. After termination of Run 1-DB-O the plant was prepared for the gasification of Illinois No. 6 coal.

VI. EQUIPMENT MODIFICATIONS

The equipment modifications discussed in this section were made either immediately prior to the start of Run Series 1-DB or during outages between individual runs of the Run Series. Only modifications of significance which were done to eliminate equipment problems and/or improve plant operations are discussed in this report. Routine maintenance work is not reported. The equipment modifications are discussed by plant sections.

EQUIPMENT MODIFICATIONS - cont'dRaw Coal Handling

The raw coal handling equipment operated smoothly during Run Series 1-DB and no equipment modifications were made.

Coal Grinding and Dry Coal Storage

Problems in the coal grinding and dry coal storage area were eliminated as modifications were made to the dust collector, flash drying impact mill and air heater.

A switch, causing repeated shutdowns due to false indication of high dust levels in the dust collector, was successfully replaced with a torque level switch.

Continued plugging of the flash drying impact mill feed chute feed chute was eliminated by installing a scraper in the chute.

A water spray system was installed in the air heater outlet in order to keep a vent temperature shutdown from occurring when the coal feed is interrupted. The system is activated by high vent temperature and initiates water spray into the system.

All expansion joints in the coal grinding system were replaced with stainless steel joints.

Petrocarb System

Sequence pressure switches of the Petrocarb system, located in storage injectors, were modified to operate on pneumatic output from new transmitters instead of direct process pressure. This prevented the frequent outages

EQUIPMENT MODIFICATIONS - cont'dPetrocarb System - cont'd

of the Petrocarb automatic sequencing previously experienced. Rotameter purges were installed on all pressure and instrument sensing lines.

The pretreater was commissioned prior to the last run of Run Series 1-DB. Therefore, preceding Run 1-DB-0, the coal feed line was moved from the gasifier to the pretreater.

Gasifier

Major changes made in the gasifier area included modifications of the coal injection piping, internal cyclone, and char cooler standpipe, relocation of thermocouples, unplugging of the bottom nozzles in the distributor cone for steam injection, change of standpipe and dipleg steam purges to CO₂ and replacement of 22 gasifier nozzles.

Prior to Run Series 1-DB piping was installed in the gasifier to provide for deep bed injection of coal feed in order to reduce tar production and carryover of fines and tar to the scrubber section. The piping terminated 6 feet above the distribution cone break line in the gasifier. This was later changed to 9' 8" above the cone line, and a splash plate was installed 8 inches below the pipe to achieve better solids dispersal through the bed and to prevent the coal from bypassing to the cone outlet.

The internal cyclone was modified by installing an additional purge and a steam eductor in the line under the cyclone in an attempt to help return fines to the bed. The eductor plugged and showed signs of erosion and was, therefore,

EQUIPMENT MODIFICATIONS - cont'dGasifier - cont'd

removed after only one run. To assure that wet steam was not causing a problem with fines return from the cyclone, the purges on the cyclone dip leg were changed from steam to CO₂. A hole developed in the cone section of the cyclone, due to erosion, and a new cyclone was installed. A differential pressure instrument was also placed in service across the cyclone.

The plugs in the 8 bottom nozzles in the gasifier distributor cone were removed and steam injection was installed on these 8 nozzles in order to aid in lowering the oxygen concentration in the apex of the cone.

Four thermowells were relocated from the cone area in the gasifier to 12 inches above the cone break to prevent clinker formation which apparently was forming on the thermowell surfaces. Subsequently all thermowells in the gasifier cone were relocated above the cone break line to help prevent clinker formation. A thermocouple was also installed in the char cooler standpipe in order to determine by temperature readings the presence of solids flow through the standpipe.

The lower section of the shroud in the gasifier was found to be cracked and buckled and appeared to be a source of clinker formation. The shroud was first repaired by welding the cracks and later replaced when it cracked and buckled again.

EQUIPMENT MODIFICATIONS - cont'd

Gasifier - cont'd

The char cooler standpipe purges were converted from steam to CO₂ to assure that a dry purge was used in this line. The 2-inch char cooler standpipe was replaced with a 3-inch pipe. In an attempt to obtain better control of the char removal rate from the gasifier, the trickle valve was replaced by a slot valve.

An Incoloy 800 nozzle on the gasifier leaked while the vessel was in operation. Investigations concluded that the nozzle failed due to stress corrosion cracking. These findings made it necessary to replace all 22 Incoloy 800 nozzles with carbon steel nozzles overlaid with Monel*.

Condensate collection pots were installed on gasifier instrumentation purges to collect and remove moisture condensing in sensing lines.

Gas Scrubbing

As a trial, pumps in the gas scrubbing area (raw gas scrubber and venturi scrubber circulating pumps) were hardfaced to resist erosion. Solenoid operated actuators with remote control switches were installed on the suction and discharge isolation valves of the gas scrubbing pumps to ensure that these pumps could be valved off in case of an emergency.

A bypass was installed around the venturi scrubber circulating water control valve after the valve failed resulting in loss of circulating water.

*See Reference (2), Appendix I.

EQUIPMENT MODIFICATIONS - cont'd

Gas Scrubbing - cont'd

A second water wash venturi scrubber was installed in the inlet vapor feed line to the raw gas scrubber to improve the removal of fines from the gas stream.

Modifications were made to the scrubber surge drum to improve its solids removal capability. The 24 inch internal pot in the venturi scrubber side of the scrubber drum, designed to prevent plugging of the pump suction, was replaced with a 6 inch diameter flood nipple. The baffle separating this side of the drum from the rest was removed for one run and subsequently replaced with a smaller one. The inlet line from the first venturi scrubber was cut so as to terminate above the liquid level and a splash plate was added to maintain quiescent conditions. These modifications were done in an attempt to minimize the solids concentration in the venturi scrubber circulating water flow and to facilitate blowing down the drum free of floating solids.

High Pressure Char Slurry System and Char Filtration

The char slurry centrifugal recycle water pump failed repeatedly during the Run Series 1-DB due to fines in the filtrate. A new positive displacement piston type pump was installed as primary char slurry recycle water pump. The centrifugal pump will be used as stand-by in the future.

Tearing of filter cloths due to deterioration and the inability to dewater the char slurry also caused problems in the filter area. Cyclone separators and suction filters

EQUIPMENT MODIFICATIONS - cont'd

High Pressure Char Slurry System and Char Filtration - cont'd

were installed on the suction end of the char slurry recycle water pump. A new type of filter cloth was used on filters. The filter bags were made of polypropylene and manufactured by the National Filter Media Corp. The operation sequence was modified to allow both vacuum pumps to operate together and thereby improve the dewatering capacity.

A vent was added to the high pressure char slurry tank via a new split range differential pressure control system. This was done to improve differential pressure control.

Thermal Oxidizer

The thermal oxidizer was unable to vaporize water at design rates and spalling of refractory occurred from time to time.

The thermal oxidizer was modified to allow for use of No. 2 Fuel Oil as the primary fuel. A new type of burner was installed and a cone diffuser was replaced with baffles at the burner combustion air inlet in order to increase the pressure drop and shorten the flame. Refractory was replaced with refractory that could withstand 3300°F. Since these modifications were implemented water could be vaporized at the design rate of 30 gallons per minute. Refractory life, however, is still undetermined and appears to be a problem.

Utilities

The condensate recovery system was modified by installing an atmospheric condensate tank at the deaerator and a pump with level control and conductivity analyzer so that plant

EQUIPMENT MODIFICATIONS - cont'd

Utilities - cont'd

condensate could be returned to the deaerator. Equipment has been ordered to return more plant condensate through this system to the boiler.

A CO₂ heater was installed to aid in preheating the pretreater before the introduction of steam.

The fire water main line was shut down and fire main sectionalizing valves installed.

Additional CO₂ and steam metering orifices and instrumentation were installed to achieve better process material balance.

The capacity of the liquid CO₂ vaporization system was doubled by rearranging piping and installing new vaporizers and tank heaters.

Pollution Control

Concrete pads were poured under major process areas to collect potentially contaminated liquid effluents. Trenches direct the runoff waters to two holding tanks where samples may be taken before deciding whether to incinerate or discharge the water. Areas padded include gas scrubbing, Benfield, Stretford, shift conversion, char filtration and the main pipe alley.

A concrete pond was constructed to collect waste water and/or char slurry, thereby allowing continued operation if the thermal oxidizer or char filters were to shut down.

EQUIPMENT MODIFICATIONS - cont'd

Pollution Control - cont'd

The vent lines from the decanter and the waste water receiver were routed to the thermal oxidizer. During Run Series 1 (free fall coal feeding) vapors were emitted from these vessels and escaped to the atmosphere. Following the modification, any vapors generated were oxidized in the thermal oxidizer.

VII. EQUIPMENT FAILURE ANALYSIS

For the purpose of this discussion the equipment and components are categorized into three groups:

- major coal gasification equipment, specifically designed or used for coal gasification,
- major standard equipment, manufactured for general industrial use,
- minor components, such as standard or special valves, components parts and piping.

Major Coal Gasification Equipment

Refractory

The refractory in the gasifier was inspected after each shutdown. Spalling of the refractory surface layer has occurred from time to time. The refractory is nine inches thick and is made up of two layers. The six inch underlayer is an insulating castable alumina-silica of 50 lbs./ft³ density. The three inch surface layer is a dense erosion resistant castable alumina (94%) of 170 lbs./ft³ density. The spalling has occurred from the surface layer and was initiated at the edges of circumferential cracks in the unshrouded area of the gasifier. The spalled chunks were irregular in form and size. Typically they were approximately three to four inches in length and width and one quarter to one inch thick. Since chunks of this size are sufficient to plug the char cooler standpipe, a screen, in the shape of an upside-down cone, was installed over the standpipe outlet to prevent plugging.

EQUIPMENT FAILURE ANALYSIS - cont'd

Major Coal Gasification Equipment - cont'd

Shroud

Buckling and cracking of the reaction zone Incoloy 800 shroud has been a constant problem. The inner shroud was replaced and within a short time, buckling and cracking occurred again. The outer shroud also buckled, but has not been replaced. The shroud is manufactured by welding segments of plate together. They are then welded to the distribution cone. The buckling could result if the shroud temperature distribution is not even, causing thermal stresses, and from the fact that the shroud has been exposed to combustion of air and coal during the cool down process which has resulted in temperatures in excess of 2,000°F.

Cracks were also found in the gasifier shroud around the manway which provides access to the reaction zone. These were circumferential around the weld junction of the manway and the shroud. Attempts to repair the cracks by welding failed. Holes have been drilled at the ends of the cracks to retard propagation.

Gasifier Nozzles

Gasifier Nozzle No. 50 cracked while in operation and leaked on May 27, 1977. As a result of this failure, all nozzles with similar material, Incoloy 800, were cut off and replaced. Other Incoloy 800 fittings when removed were also found to contain minute cracks.

EQUIPMENT FAILURE ANALYSIS - cont'dMajor Coal Gasification EquipmentGasifier Nozzles - cont'd

A comprehensive report with the title "Gasifier Nozzle Replacement and Certification at the Synthane Coal Gasification Plant" was issued*. The failure was attributed to be caused by stress corrosion. It is suspected that during heat treatment of the carbon steel vessel, the Incoloy 800 material became sensitized, making it susceptible to corrosive fluids and gases.

All of the Incoloy 800 nozzle fittings were replaced with carbon steel fittings lined with Monel weld overlay. The weld joints were Inconel filler metal. The original nozzle configurations were not duplicated but simplified to accommodate the Monel weld overlay and field welding of the Monel liners.

Cyclone

The gasifier cyclone failed after approximately 600 hours of service due to erosion of the cone section. A hole approximately one quarter by one inch long was discovered on May 5, 1977 in the lower part of the cone section. The cyclone, made of Incoloy 800, is eight inches in diameter and connects with a conical transition piece to a three inch diameter discharge line. The overall length of the cyclone including the conical section is twenty-eight inches. The unit was patched temporarily while a new cyclone was fabricated to replace it.

General

Internal and external inspections have been made of all other vessels either visually or ultrasonically. No defects other than those reported above were found.

*See Reference (2), Appendix I.

EQUIPMENT FAILURE ANALYSIS - cont'd

Major Standard Equipment

Scrubber Pumps

The gas scrubbing recycle pumps required repairs frequently due to failures of bearings, seals, broken shafts, worn cases and impellers. These pumps handle recycle scrubber water which at times contains high percentage of solids. They operate at 3,600 rpm, 600 psig in and 740 psig out.

Prior to Run Series 1-DB these pumps were disassembled for replacement of seals and bearings. Inspection of the pump components revealed that the pump cases were worn to such an extent that the performance of the pumps was greatly reduced. Various methods were tried to improve this situation. Five cases were coated for tests. These cases were tested on three 60 HP pumps (venturi scrubber recycle pump and spare and scrubber tower recycle pump) operating at 3,600 rpm.

First, a 3/16 inch stainless steel plate shaped to fit the pump case was installed as liner in one of the pumps. This procedure was not successful. After approximately 45 hours of operation the liner was found to be thoroughly eroded.

Second, the cases were cleaned up by grinding, and then a soft metal "butter pass" was welded on, followed by an overlay with a hard surface material, with a hardness of Rockwell C-60. This procedure was also not successful since the hard surface material cracked. It was feared that the cracks would propagate into the cast steel cases and cause pump failures.

EQUIPMENT FAILURE ANALYSIS - cont'd

Major Standard Equipment

Scrubber Pumps - cont'd

In the third method only one type of weld rod (COOR-ALLOY 101 made by Coordinated Industries) was used, resulting in a medium hardness of approximately Rockwell C-34 to 40. The composition of the weld metal is Ni (88%), Fe (5%), Mn (3%), Cu (3%), Si (1%). The cases of three pumps were built up by welding several passes on them in Lummus Maintenance Shop. The welded metal was inspected for cracks by dye penetration. No rejectable areas could be found. The wear resistance of these cases has been satisfactory. They have been in service since June 1977.

A fourth method, similar to the third, was tried by the Industry Services Division of Westinghouse Electric Corporation. The venturi scrubber recycle pump case was built up by welding with a Martensitic chrome steel which deposited with a hardness of Rockwell C-52 to 56. The deposits were free of cracks. The pump was removed from service after 200 hours of service on November 8, 1977 because of erosion around the outer edge of the case. The area was repaired by Lummus using COOR-ALLOY 101 weld rod and is still in service (March 1978).

During outages between runs, all of the pumps were inspected. Those with the weld overlay of COOR-ALLOY 101 rod have displayed very good erosion/corrosion resistance. It was concluded that this coating must be applied to all carbon steel surfaces in the pump which are exposed to the

EQUIPMENT FAILURE ANALYSIS - cont'd

Major Standard Equipment

Scrubber Pumps - cont'd

recycle scrubber water to inhibit erosion and corrosion. All gas scrubbing recycle pump cases, with the exception of the one treated by Westinghouse, are presently receiving the COOR-ALLOY 101 weld rod coating.

BFW Pumps

The high pressure boiler feed water pumps are "Sundyne" single stage centrifugal pumps, manufactured by Sundstrand, with inlet pressure of approximately 10 psig, and outlet pressure of approximately 1,300 psig. The pumps operate at 16,900 rpm. One failure which occurred was caused by a breaking off of a fastener head. The fastener, one of three, held a V bearing in thrust position. The bearing and fasteners were replaced.

Char Slurry Recycle Pump

The char slurry recycle water pump tripped out several times due to excessive amperage. Inspection after disassembly revealed that it was plugged with char and pump components were coated with a black, hard varnish material. The unit is a 13 stage, centrifugal pump driven by a 60 HP 3,600 rpm motor. The pump handles water from the filters and is subjected to fines which are carried through the filters and cause excessive wear and plugging. High concentrations of char, 20% or more due to failure of the filter cloth, have plugged the impellers on several occasions. Because of the repeated failure of this centrifugal pump, a positive displacement piston type pump, manufactured by Wilson-Schneider, was installed as the primary unit. The multi-stage centrifugal pump is now used as spare unit for future runs.

EQUIPMENT FAILURE ANALYSIS - cont'd

Major Standard Equipment

Char Slurry Recycle Pump - cont'd

The slurry filter feed pumps, driven by 2 HP, 1,800 rpm motors, have experienced many mechanical seal failures. The seals were replaced with a plastic packing, Black No. Univert 7000 and Teflon Ramilon Nr4586, both three-eighth inches square. This improved the situation. However, shaft wear due to packing contact has resulted. The shafts require periodic repair or replacement due to wear. Worn shafts are machined, hard chrome plated and reground to size.

Thermal Oxidizer

The thermal oxidizer refractory has required periodic repair or replacement of the castable refractory in the fire box area. The most successful material to date has been blue-ram HS manufactured by C-E Refractories.

EQUIPMENT FAILURE ANALYSIS - cont'dMinor Component FailuresValve at Coal Feed Hopper

A 2-inch ball valve at the exit port of the pressurized primary injector coal feed hopper failed by complete fracture of the valve stem. The failure was mechanical in nature. Surface nicks were observed at the junction between the valve stem and valve body. These surface defects provided the initiation sites for the crack. The seizure of the ball, made of overhardened 410 SS, was the cause of the failure.

The seizure was due to pitting corrosion of the ball-valve surfaces that had been in contact with the pulverized coal. This appeared to be due to a chemical interaction between the coal and the steel and not mechanical erosive wear. The pitting was not involved in the failure. All valve parts were shipped to the manufacturer. The Argonne National Laboratory examined the valve part briefly and issued a failure analysis report on the subject*.

Char Slurry Line

The one inch char slurry transfer line downstream of the high pressure char slurry tank wore thin in locations immediately downstream of socket weld fittings. Ultrasonic inspection of the line did not discover the thin spots because they were located near the socket weld fittings. However, when a leak developed, the pipe was cut out and examined, inspection revealed thinning next to the socket weld fitting. A smooth internal surface seems to be essential for this type of slurry line. Socket welds have by specification a one sixteenth inch gap between the socket fitting and

*See Reference (3), Appendix I.

EQUIPMENT FAILURE ANALYSIS - cont'dMinor Component FailuresChar Slurry Line - cont'd

the end the pipe. The probable cause of the thinning is a combination of erosion and corrosion. The pH value of the slurry was 5 or sometimes even less. The carbon steel was subject to corrosion under these acidic conditions. Any oxide coating, which tends to protect the virgin steel from corrosion was destroyed by erosion, thus accelerating the corrosion process.

Control Valves

Erosion problems existed with three differently designed control valves used for depressurizing high pressure mixed phase streams containing coal fines. One control valve is used to control level in the scrubber surge drum. This valve handles scrubber water containing fines that are carried over from the gasifier through the cyclone separator and collected in the scrubber surge drum. Another valve controls the differential pressure between the gasifier and the char cooler. This stream contains mainly steam and entrained char from the char cooler fluidized bed. The third valve controls the level in the high pressure char slurry tank. The slurry of char and water flowing through this valve is let down from about 600 psig to atmospheric pressure.

Original valve trims were of ceramic or of stainless steel coated with stellite. Various materials have been tested in each of these valves. Upgraded trims of tungsten carbide have significantly improved valve life*.

*See Reference (4), Appendix I.

SECTION VIIIDiscussion of Operating ResultsTable of Contents

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VIII. DISCUSSION OF OPERATING RESULTS

Data Presentation

Test Directive No. 1 contained a list of parameters to be measured and/or calculated. The list applies to Test Directive No. 1-DB as well and required accumulation of data on operating conditions of the coal feed system, pretreater, gasifier and char cooler (temperatures, pressures, feed rates); calculations of various gasifier and char cooler fluid bed properties; rates and compositions of effluent gas, liquid and solids; carbon conversions; material balances, etc. These data were collected either directly by means of instruments or from samples which were analyzed in the laboratory.

A statistical analysis of ground and dried Montana Rosebud coal used for the gasification Run Series 1 and 1-DB is presented in Appendix I. The analysis was performed by the laboratory according to ASTM D-3176. The analysis data have been used to calculate carbon conversions and other values of significance for the evaluation of the pilot plant operations.

Figures 4 and 5 illustrate the locations of the key instruments used for gathering process data. The instruments used for measuring the various variables were standard, commercially available units with at least 0.5 to 1% accuracy. Reliable commercial instruments for measuring the solids flows were not available during the period of Run Series 1-DB. Efforts are being made, for future runs, to acquire devices that measure solids flow continuously and to improve the performance and reliability of other instruments which are used under extremely severe operating conditions.

DISCUSSION OF OPERATING RESULTS - cont'd

Data Presentation - cont'd

Process data are presented in Appendix II and are identified by run number and corresponding steady state periods. The results of all necessary calculations, a graphical representation of the data, material balances and other important information required to evaluate the performance of the runs are also included in Appendix II.

Figure 6 shows the locations from which samples were taken for laboratory analyses. The type of samples obtained from these points, the sampling methods used and sample point symbols are listed on Table 2.

The laboratory analyses of the samples other than coal analyses are presented in Appendix III. The data are subdivided into groups and identified by run number and sample point symbol. It should be noted that there are two sets of data for some of the gas scrubbing area water samples. In these cases solids contained in liquid samples were separated from the liquid by filtration and analyzed.

Table 2Samples for Laboratory Analysis

<u>Sample Point Symbol</u>	<u>Material</u>	<u>Procedure</u>
C1	Raw Coal	Grab Sample
C1A	Raw Coal	C-1 Composite
C7	Ground Coal	Automatic Sampler
C7A	Ground Coal	C-7 Composite
G2	Char Filter Cake	Grab Sample
S1	Product Gas	Bomb Sample
SC2	Product Gas	Bomb Sample
S2U	Scrubber Surge Tank Water	Grab Sample
S3	Venturi Scrubber Recycle Water	Grab Sample
S4	Raw Gas Scrubber Recycle Water	Grab Sample
S5	Blowdown, Scrubber Surge Drum	Grab Sample

Figure 4. Synthene Pilot Plant Instrumentation - RUN SERIES I-DB

Figure 5. Location of Thermocouples in Synthane
Gasifier - RUN SERIES I-DB

Figure 6. Location of Sample Points - RUN SERIES I-DB

DISCUSSION OF OPERATING RESULTS - cont'd

Calculation Procedures

A total of 29 steady state periods ranging from 1 hour and 30 minutes to 14 hours and 54 minutes were obtained during the Run Series 1-DB. The criteria used for defining steady state periods were that the following variables remain steady within the limits of their average values shown:

Coal feed rate	$\pm 15\%$
Fluidizing steam flow	$\pm 5\%$
Oxygen flow to gasifier	$\pm 2\%$
Gasifier bed temperature	$\pm 15^{\circ}\text{F}$

Bed height and bed density were excluded in the definition of steady state periods in order to achieve a unified definition of steady state for all runs. Fluctuations in bed height and density are discussed in other sections of this report. Table 3 lists all 29 steady state periods, their duration and corresponding 1-DB Run number, together with the values of the four key variables. A complete set of calculated values and other important data are presented in Appendix II for each steady state period.

The values shown on process data sheets and on graphical representations in Appendix II represent the average gasifier operating conditions for the entire duration of a steady state period. The calculations were performed by computer from direct instrument readings. The computer recorded data were supplemented with information from control room charts and log sheets as required.

Table 3

Steady State Periods of Run Series 1-DB

<u>Steady State Period No.</u>	<u>Run No. 1-DB</u>	<u>Steady State Duration</u> (Hours)	<u>Coal Feed</u> (Lb/Hr)	<u>Fluidizing Steam</u> (Lb/Hr)	<u>Oxygen Feed</u> (SCFH)	<u>Gasifier Bed Temperature</u> (°F)
1	A	5.7	4,580	7,621	17,939	1,414
2	B	4.4	4,860	6,884	19,053	1,481
3	B	4.4	4,880	7,018	19,499	1,503
4	B	12.9	4,820	6,888	19,104	1,499
5	C	5.2	6,600	6,369	19,367	1,497
6	C	3.2	5,640	6,399	17,979	1,498
7	D	5.4	4,400	6,479	18,125	1,502
8	D	4.4	4,400	6,454	17,852	1,500
9	G	3.0	5,450	6,170	19,582	1,496
10	H	1.5	5,550	6,060	18,579	1,485
11	H	4.0	5,550	5,959	18,926	1,490
12	H	5.2	4,070	5,863	16,140	1,495
13	I	2.1	5,640	5,333	17,459	1,491
14	M	1.9	4,000	6,881	14,410	1,322
15	N	1.9	4,050	7,184	14,010	1,294
16	N	3.8	4,050	6,785	13,183	1,283
17	N	1.9	4,050	6,797	13,255	1,297
18	N	1.7	3,650	6,783	12,660	1,295
19	N	1.7	4,300	6,828	12,510	1,289

Table 3 - cont'd

Steady State Periods of Run Series 1-DB

<u>Steady State Period No.</u>	<u>Run No. 1-DB</u>	<u>Steady State Duration</u> (Hours)	<u>Coal Feed</u> (Lb/Hr)	<u>Fluidizing Steam</u> (Lb/Hr)	<u>Oxygen Feed</u> (SCFH)	<u>Gasifier Bed Temperature</u> (°F)
20	0	2.8	3,010	6,611	12,661 *	1,300
21	0	5.5	3,900	6,603	11,647 *	1,309
22	0	3.6	4,590	6,255	13,358 *	1,400
23	0	2.4	3,840	7,226	15,688 *	1,518
24	0	5.9	4,100	7,297	16,585 *	1,508
25	0	14.9	5,040	7,110	17,435 *	1,503
26	0	5.9	4,290	6,368	16,976 *	1,505
27	0	4.4	5,000	7,166	19,789 *	1,540
28	0	3.4	5,170	7,160	19,519 *	1,544
29	0	2.4	5,270	7,240	19,448 *	1,541

*Although the pretreater was in operation during these steady state periods, the flow rates shown are gasifier feed rates only.

DISCUSSION OF OPERATING RESULTS - cont'dCalculation Procedures - cont'd

Since no devices were available for the continuous measurement of solids flows, special procedures were used to calculate the coal feed rate to the gasifier and the char removal rate as accurately as possible. The unique design which combines the gasifier and char cooler in one vessel requires certain calculations which are specific to the Synthane plant. A discussion of these calculations and the definition of some terms follows below:

1. Coal Feed

The coal feed rate to the gasifier is one of the most important variables. The accuracy of its measurement affects many of the calculations which are made to evaluate the coal gasification operation. Since no device was available for measurement of the instantaneous coal feed rate, other methods were used to calculate the average rate as accurately as possible.

The coal feed rate was determined by monitoring the weight of individual coal batches over a definite period of time. The estimated error of this method is $\pm 10\%$ provided the run is of significant duration. In order to improve the accuracy, weights of the coal batches were averaged over the longest period of time during which the coal feed rate remained steady. The steadiness of the feed rate could be monitored by pressure drop readings in the transport line. Attempts were made to correlate the coal feed rate with the pressure drop measured between the primary injector and the

DISCUSSION OF OPERATING RESULTS - cont'd

Calculation Procedures

1. Coal Feed - cont'd

gasifier. This method was unreliable due mainly to pressure fluctuations in the system and unreliable pressure drop readings. It was, therefore, used as a guide only. In most cases, the time interval used for calculating the coal feed rate exceeded the duration of steady state periods.

2. Char Removal from Char Cooler

The char removal rate, as presented in the process data summaries in the Appendix, was calculated from an ash balance around the gasifier. It was assumed that all of the ash entering the system with the coal feed left the system with the char which is recovered in the filtration area. This would normally be a valid representation of the combined amount of char removed in the filter area and the scrubber system. Operating experience has shown that at times solids carried over to the gas scrubbing area from the gasifier had ash content different from the char removed from the filters. Since the carryover rate was not measured, the calculated char removal rate for these cases may be in error. Attempts to estimate the char removal rate and the char carryover rate separately have produced inconclusive results.

3. Standpipe Steam

Standpipe steam to the gasifier was calculated from a steam balance around the char cooler. The difference between the feed steam and the steam leaving the char cooler to the thermal oxidizer was assumed to be flowing up or down the char cooler standpipe. It was assumed in the calculations

DISCUSSION OF OPERATING RESULTS - cont'dEvaluation ProceduresStandpipe Steam - cont'd

that steam neither flows into the char cooler from the downcomer nor leaves with the char to the filtration area. This assumption may, however, not be completely valid.

4. Superficial Velocities

The superficial velocity at the bottom of the gasifier was calculated from the total flow which in turn was obtained by adding up, before the start of reactions, the feed steam, oxygen, the various purge and aeration flows below the gasifier cone line and the standpipe steam. The gasifier bottom bed temperature was used to calculate gas densities.

The velocities at the top of the gasifier bed and at the gasifier outlet were obtained by calculating the gasifier overhead gas and steam flow rates at the appropriate temperature and vessel geometry from the product gas flow rate, and the waste water flow rate in the scrubbing area. The mid-bed velocity is the average of the top and bottom bed velocities.

5. Carbon Conversions

Carbon conversions were calculated by two different methods. The first method is based on an ash balance between coal feed and char produced and assumes that the entire ash entering the gasifier with the coal feed undergoes no change and is removed completely with the char in the filtration area. The second method is based on a carbon balance between the various gasifier inlet streams and the product gas make.

DISCUSSION OF OPERATING RESULTS - cont'd

Calculation Procedures - cont'd

6. Equivalent Methane

The equivalent methane production rates were calculated by assuming that all of the hydrocarbons higher than methane found in the product gas are in theory hydrogenated and converted into methane. The theoretical amount of methane was then added to the actual amount of methane produced in the gasifier. The sum is the equivalent methane production rate.

7. Ultimate Methane

The ultimate methane production rate is the equivalent methane production rate plus the theoretical amount of methane which can be produced from the remaining carbon monoxide and hydrogen after shift conversion.

8. Useful Gas

Useful gas is defined as the sum of all constituents of the product gas with a heating value.

DISCUSSION OF OPERATING RESULTS - cont'd

Evaluation Methods

In the next subsection the Run Series 1-DB is evaluated technically. The effect of the operating conditions of the gasifier on coal conversion, product gas composition and yields is analyzed. In order to discuss these effects in proper perspective, however, it is necessary to review the methods which were used in the technical evaluation process and to point out the limitations of the measurements which were made with the available instrumentation.

1. Waste Water Flow

The flow meter which measures the recovered waste water in the gas scrubbing area performed poorly during the entire Run Series. In addition, frequent unmeasured blowdowns from the scrubber system to prevent solids accumulation made accurate measurements of waste water flow rates even more difficult. Also, the pump seal water was often not measured and at times erratic. These inaccuracies adversely affected water balance calculations. Therefore, steam decompositions calculated from water balances were, in most cases, unrealistic. The waste water flow measurements also affect the calculation of gas flows in the gasifier, and thereby the superficial velocities at the mid-bed and top of the gasifier.

2. Char Cooler Steam Flow

The operation of the flow meter which measures the steam leaving the char cooler improved over Run Series 1

DISCUSSION OF OPERATING RESULTS - cont'd

Evaluation Methods

2. Char Cooler Steam Flow - cont'd

but was still erratic at times. Readings of this flow meter affect the amount of steam calculated to be flowing up or down the char cooler standpipe. This, in turn, affects the calculated superficial velocity at the bottom of the gasifier. It is estimated that the standpipe steam can alter the superficial velocity by as much as 15%. The char cooler steam flow measurements affect also calculations of steam to coal ratios and steam decomposition.

3. Product Gas Flow

The flow meters which measure the raw gas flow from the gas scrubbing area fluctuated approximately $\pm 15\%$. It has been difficult to estimate quantitatively the effect of the fluctuations on the accuracy of such calculations as carbon conversion on a gas basis, equivalent methane produced, and useful gas yield.

In addition, at times, the actual temperature of the product gas flowing through this instrument was considerably different from that at which it was calibrated. The temperature instrument normally used for making temperature corrections to the flow meter was not operating during Runs 1-DB-G through 1-DB-J. Therefore, temperatures from other instruments were used to calculate manually the average raw gas flows for steady state periods 9 through 13. These flow quantities were then entered into the computer for completing other calculations for these steady state periods.

DISCUSSION OF OPERATING RESULTS - cont'd

Evaluation Methods - cont'd

4. Bed Height and Bed Density

The gasifier bed height and bed density were obtained by measuring the pressure drop through the entire bed and a section of the bed. The reliability of the instruments for these measurements was greatly improved during the latter part of the Run Series 1-DB and subsequently functioned well.

5. Carbon Conversions

The carbon conversions which were calculated from gas analysis data were corrected for CO₂ entering the gasifier via the Petrocarb primary injector, transport line, and various purges and aeration taps. While the gas entering the transport line is directly measured by an orifice meter, the gasifier purge and aeration gas flows are measured by rotameters that are less accurate. The gas entering the gasifier via the Petrocarb primary injector has probably the greatest influence of all CO₂ streams entering the gasifier on the accuracy of carbon conversion calculations. This quantity is not measured directly. It is assumed for calculation purposes that all the gas entering the primary injector, as measured by an orifice meter, ultimately flows into the gasifier. Neglecting to correct for this quantity can increase the calculated carbon conversion from gas analysis by as much as 10 percent.

In calculating the carbon conversion from char sample analysis, the assumption was made that no char or ash is entrained from the gasifier to the scrubbing area. However, during all of the Run Series 1-DB entrainment of solids to

DISCUSSION OF OPERATING RESULTS - cont'dEvaluation Methods5. Carbon Conversions - cont'd

the scrubbing area persisted to some degree. Under these conditions, the carbon conversions calculated for those steady state periods for which the ultimate analysis of the char and entrained solids are identical or about identical, are valid.

The char conversion calculations are further affected by the time the char spent in the equipment downstream of the gasifier before a sample is taken. The char samples used for calculating the carbon conversion were obtained from the char filter. Thus a char sample taken at a specific time reflects the conditions in the gasifier at a previous point in time. This point in time depends on the operating history of the system. When operating conditions in the system are steady over the time period under consideration for sampling, carbon conversions calculated from gas analysis and char analysis are comparable. Procedures are now being developed to obtain samples of char which will more closely reflect the conditions in the gasifier.

DISCUSSION OF OPERATING RESULTS - cont'd

Effect of Process Conditions on Operating Results

This subsection discusses the effect of such process conditions as bed height, space velocity, steam to coal ratio and temperature on operating results (carbon conversion, steam decomposition, product gas composition and yields, and waste water analysis).

Attempts were made to correlate various operating variables in a meaningful way. The quantity and variance of available data points, however, were insufficient for the development of definitive correlations between key variables for developing a mathematical model with statistical significance and reliability by regression analysis.

The effects of selected process conditions on important operating results are shown in Figures 7 to 29. (These figures are located at the end of this section.) In the absence of established functional relationships between the various parameters, straight lines have been drawn through the data points (with the exception of Figures 17 and 18).

Operations of the Synthane pilot plant in the future will probably provide added data for the development of more accurate and reliable correlations between process conditions and operating results.

Effect of Bed Height and Space Velocity

According to the run data the height of the fluidized bed in the gasifier, which is proportional to the contact time between gaseous reactants and coal, appeared to have no

DISCUSSION OF OPERATING RESULTS - cont'd

Effect of Process Conditions on Operating Results

Effect of Bed Height and Space Velocity - cont'd

effect on such operating results as carbon conversion and steam decomposition. Therefore, it was attempted to correlate the space velocity, which is also a function of the contact time between gases and coal in the fluid bed to the gas composition. The result is shown on Figure 7 for a constant temperature. The figure suggests that under operating conditions the data were taken, chemical equilibrium is being approached in the reaction system of the gasifier. If the reaction system is controlled by chemical reaction rates, a variation in the gas composition, steam composition and carbon conversion with space velocity should be expected. Studies of variation of steam decomposition and carbon conversion with space velocity, however, were inconclusive and are, therefore, not reported here. If the approach to chemical equilibrium is slow, a false indication of equilibrium may be obtained. Despite this possibility the discussions in the following parts of this section are based on the assumption that equilibrium is reached, although it may be a pseudo condition only.

Effect of Feed Steam to Coal Feed Ratio

All the steam entering the gasifier below the fluid bed was considered to take part in gasification reactions. This included steam from the pretreater (when in operation), various purges and the steam calculated as standpipe steam. Figures 8 to 18 show the effect of varying the steam to coal feed ratio on such operating results as gas composition, gas

DISCUSSION OF OPERATING RESULTS - cont'dEffect of Process Conditions on Operating ResultsEffect of Feed Steam to Coal Feed Ratio - cont'd

yield, carbon conversion, and steam decomposition for two approximate temperatures: 1,300°F and 1,500°F. The quantity of available data points at 1,300°F is inadequate. However, these data were included on some of the graphs in order to support the observation of trends made during the study. The figures indicate that the hydrogen concentration (Figure 9) in the product gas increases with the steam to coal feed ratio, whereas the carbon monoxide concentration (Figure 8) decreases. Consequently, as shown in Figure 10, the hydrogen to carbon monoxide ratio increases with increasing steam to coal ratio.

Methane concentration (Figure 11) in the product gas shows different trends at the two temperatures. As shown in Figure 11 at 1,500°F the methane concentration decreases with increasing steam to coal feed ratio while at 1,300°F it appears to increase. One may tend to attribute the latter to the data being insufficient at the lower temperature for identifying the correct trend. However, as discussed later in this report, the methane concentration in the product gas, when plotted versus temperature, goes through a maximum at about 1,400°F. It is, therefore, probable that the trend lines shown in Figure 11 are correct.

Total raw gas yield, useful gas yield, ultimate methane yield and carbon conversion by char analysis and gas analysis as well are also found to increase with increasing steam to coal feed ratio. These trends are shown on Figures 12 to 17.

DISCUSSION OF OPERATING RESULTS - cont'dEffect of Process Conditions on Operating ResultsEffect of Feed Steam to Coal Feed Ratio - cont'd

Equivalent methane yield is the summation of all hydrocarbons in the raw gas expressed in terms of methane. Considering that hydrocarbons other than methane are only a very small percentage of the gas, equivalent methane yield in essence represents the product of the methane concentration and the raw gas yield. Examination of Figures 11 and 12 shows that these two variables have opposite trends with increasing steam to coal ratio. Moreover, it is expected that the actual dependence of raw gas yield on steam to coal ratio is exponential even though straight lines have been drawn in the figures. Thus, initially, the raw gas yield increases rapidly with increasing steam to coal ratio but at higher steam to coal ratios, the effect is less pronounced to insignificant. The methane concentration may be expected to behave in a similar manner but with an opposite (negative) slope. The product of these two variations is, therefore, dependent on the relative slopes of the plots of these variables against the steam to coal ratio and may exhibit an inflection point which is anticipated to be a maximum. In fact, the data points in Figure 17 appear to fit a curve with a maximum better than a straight line or any other type of curve. The data at 1,300°F appear to have an increasing trend but more data are needed for establishing a definite trend in this direction.

The dependence of steam decomposition on steam to coal ratio is shown in Figure 18. As discussed earlier, the inability to find any correlation between gasifier bed height and carbon conversion suggests approach to chemical

DISCUSSION OF OPERATING RESULTS - cont'd

Effect of Process Conditions on Operating Results

Effect of Feed Steam to Coal Feed Ratio - cont'd

equilibrium in the gasifier. Under these conditions, increasing the steam flow relative to the coal feed rate is expected to exponentially increase the amount of steam decomposed. Steam decomposition, defined as the percent of steam feed to the gasifier that has reacted, initially increases with increasing steam to coal ratio. However, with further increase in steam to coal ratio, the actual amount of steam decomposed by the reaction tends to remain constant while the total steam feed continues to increase. The net result is that the steam decomposition, as defined, decreases. Thus, steam decomposition is expected to peak out with increasing steam to coal ratio as shown in Figure 18. The exact steam to coal ratio at which the maximum in steam decomposition occurs and the value of the maximum itself may be somewhat different from that shown in the figure. It is also expected to change with temperature. Additional data will aid in identifying the nature of the curve more exactly.

Effect of Temperature

Initial attempts to correlate operating results with temperature data indicated that at least some of the variables have a non-linear dependency on temperature. It was, therefore, decided to plot, for evaluation purposes, the logarithm of the operating results versus the logarithm of the gasifier bed temperature.

DISCUSSION OF OPERATING RESULTS - cont'd

Effect of Process Conditions on Operating Results

Effect of Temperature - cont'd

All operating results, with the exception of methane concentration and hydrogen to carbon monoxide ratio, increase with increasing temperature. In the absence of any established theories for these trends, it was decided to draw straight lines through the available data points. The slope of these lines indicate the exponential dependency of the operating variables in question on temperature. The exponent represents an order of magnitude only. Other temperature terms with lower or higher exponents and of relatively minor importance may exist. Some credibility to this approach in evaluating the data is obtained by examining the results for the hydrogen and carbon monoxide concentration plots. As shown on Figures 19 and 20 the former is proportional to $T^{1.62}$ and the latter to $T^{6.2}$. Thus the hydrogen to carbon monoxide ratio is expected to be proportional to $T^{-4.6}$. This agrees well with the slope of -4.58 found by plotting the logarithm of the hydrogen to carbon monoxide ratio versus the logarithm of temperature (Figure 21). The reliability of this method is again demonstrated in Figures 22 to 24 where carbon conversions from char analyses, gas analyses and the combined results respectively, show approximately the same temperature dependency of $T^{1.64}$ to $T^{1.89}$.

The temperature dependency of steam decomposition, gas yield, equivalent methane, ultimate methane and useful gas are shown on Figures 25 to 29.

DISCUSSION OF OPERATING RESULTS - cont'dEffect of Process Conditions on Operating ResultsEffect of Temperature - cont'd

The methane concentration (Figure 30) appears to go through a maximum at about 1,400°F. Figure 11 showed a change from an increasing methane concentration trend to a decreasing trend with increasing steam to coal ratio between 1,300°F and 1,500°F. It is conceivable that the maximum methane concentration occurs at a temperature where the dependency of the methane concentration on steam to coal feed ratio reverses its trend.

The maximum in methane concentration with increasing temperature can also be predicted from chemical equilibrium considerations. Thus, the steam carbon reaction, being endothermic, produces higher hydrogen concentration with increasing temperature which in turn promotes the methane reaction. The resulting tendency for increasing methane concentration with increasing temperature is, however, counteracted by the exothermic nature of the later reaction. The final methane concentration being the combination of the two opposing tendencies, may exhibit a maximum or a minimum depending on their relative magnitudes. The maximum, shown in Figure 30, suggests that at low temperatures, the shift in equilibrium due to increasing hydrogen concentration is more prominent than the effect of the equilibrium constant. However, at higher temperatures the reverse is happening.

DISCUSSION OF OPERATING RESULTS - cont'dEffect of Process Conditions on Operating Results - cont'dEffect of Deep Bed Coal Feed Injection

Analysis of the water from the three compartments of the scrubber surge tank demonstrated the success of the deep bed injection mode of introducing coal into the gasifier. No tars or oils were detected in the gasifier overhead product during all runs of the Run Series 1-DB. Water samples collected from the gas scrubbing area were analyzed primarily for phenol content, chemical oxygen demand (COD), and total suspended solids. The analytical results are shown in Appendix III.

Phenol content was measured during Runs 1-DB-A through 1-DB-D in trace amounts up to 5 ppm. This is a significant reduction from the 35 - 71,100 ppm of phenol measured during the free fall mode of coal feeding operation of Run 1-T. The COD was reduced from 5,000 - 20,000 ppm in Run 1-T to 70 - 800 ppm in Runs 1-DB-A through 1-DB-D. Figures 31 and 32 (located at the end of this section) present a comparison of phenol and COD data as a function of elapsed run time of Run 1-T (free fall mode of coal feed) with Runs 1-DB-A through 1-DB-D (deep bed injection mode of coal feed). The reduction of phenol and COD were obtained by subjecting the volatile components of the coal to high temperatures by means of feeding the coal directly into the hot fluidized bed through deep bed injection.

Table 4 presents salient gasification data of Run 1-T (free fall coal feed to gasifier) and data from steady state periods 14 to 17 and 6, 9 to 11, and 13 of Run Series 1-DB (deep bed injection coal feed to gasifier). Variations in the

TABLE 4
COMPARISON OF SYNTHANE PILOT PLANT GASIFICATION DATA

<u>Run No.</u>	<u>1-T</u>	<u>1-DB*</u>	<u>1-DB**</u>
Ground coal feed, ton/hr	2.52	2.00 - 2.03	2.73 - 2.82
Gasifier O ₂ /ground coal, SCF/lb	2.32	3.25 - 3.60	3.32 - 3.85
Gasifier steam/ground coal, lb/lb	1.12	1.60 - 1.75	0.99 - 1.18
Gasifier bed height, ft	15.0	14.0 - 24.1	12.1 - 19.7
Gasifier bed density, lb/ft ³	19.3	7.0 - 20.3	14.7 - 20.2
Gasifier bed temperature, °F	1,437	1,280 - 1,320	1,485 - 1,505
Gasifier top temperature, °F	608	1,145 - 1,174	1,048 - 1,226
Equivalent CH ₄ /MAF coal, SCF/lb	2.52	2.31 - 2.81	2.63 - 3.77
Carbon conversion (char analyses),%	57.4	43.4 - 48.2	52.7 - 61.7
Carbon conversion (gas analysis),%	--	47.3 - 51.2	52.9 - 62.6
Raw gas production, dry, SCFD	102,000	92,100-99,330	123,500-136,500
Dry Gas analysis, mole %			
CO ₂	51.5	63.7 - 64.8	50.4 - 56.5
CO	6.0	2.8 - 4.3	7.4 - 9.6
H ₂	31.0	22.5 - 23.7	24.7 - 27.9
CH ₄	10.0	7.1 - 8.7	10.1 - 10.8
C ₂ H ₆	0.9	0.7 - 1.0	0.2 - 1.3
H ₂ S	0.3	0.1 - 0.8	0.0 - 0.3
N ₂	0.3	0.0	0.0 - 0.3

* Data from steady state periods 14-17

**Data from steady state periods 6, 9-11, 13

DISCUSSION OF OPERATING RESULTS - cont'd

Effect of Process Conditions on Operating Results

Effect of Deep Bed Coal Feed Injection - cont'd

operating conditions preclude a direct comparison of operating results. However, as shown on the table, deep bed injection of coal into the gasifier bed requires more oxygen to maintain the same bed temperature. This is attributed to higher exit gas temperature with the deep bed mode of operation. In the free fall coal feed system, the hot gas rising from the bed served to preheat the fresh coal, thus resulting in a lower exit gas temperature. Despite the increased oxygen usage, deep bed injection of coal has, as discussed earlier, the advantage of successfully reducing many operating difficulties, without compromising the viability of the Synthane Process.

As a standard test the solids filtered from scrubber surge tank water and char taken from various pieces of scrubbing system equipment after shutdown are analyzed. Carbon conversions of 27 to 44% based on ash balance and carbon in feed coal were found for these solids during runs of Run Series 1. Higher conversions in the order of 46 to 76% were determined for these solids during Run Series 1-DB. It is likely that deep bed injection of coal feed causes the coal fines to be exposed longer to high temperatures before they are entrained from the bed as compared to the free fall coal feeding method. This would explain the higher carbon conversions of the entrained solids with the deep bed injection coal feeding method.

DISCUSSION OF OPERATING RESULTS - cont'dEffect of Equipment Modifications on Plant Operations

Prior to Run Series 1-DB piping was installed in the gasifier to provide for deep-bed injection of the coal feed to the gasifier. This resulted in a number of changes in the operating characteristics of the Synthane gasifier when compared to the free-fall method of coal feed. The characteristics affected include oxygen requirements and gasifier fluid bed density. The carry-over of solids from the gasifier into the gas scrubbing area and the problem of clinker formation have both persisted into the Run Series 1-DB. The operating results obtained during the deep-bed injection test runs have, however, provided added insight toward the causes of the problems as well as suggestions for their solution.

An increase in oxygen requirements on a per pound of coal basis was noted when comparing the operation of deep bed injection coal feeding (Run Series 1-DB) to the operation with free fall coal feeding (Run Series 1), at same operating temperatures and steam/coal ratios. The increased oxygen requirement is the result of changing the source of preheat for the coal and CO₂ feed mixture from countercurrent heat exchange with the effluent gas to the reaction area directly within the fluidized bed. The transfer of preheat location is readily evidenced by higher effluent gas temperatures during the Run Series 1-DB. With free fall mode of coal feed these temperatures were normally about 600°F while with deep bed injection these temperatures increased to 1,000°F and higher. An efficient recovery system should be developed for this waste heat in order to maximize the overall process efficiency.

DISCUSSION OF OPERATING RESULTS - cont'dEffect of Equipment Modifications on Plant Operations - cont'd

The primary purpose of injecting the coal feed directly into the hot fluidized bed was to reduce the production of tars, phenols, and other organics formed during the free-fall runs. These compounds had been found to condense in the gas scrubbing area and, when mixed with char fines, caused severe plugging problems in the scrubbing system. Analysis of the gas scrubbing system water did reveal a dramatic drop in both phenol content and chemical oxygen demand, the relative amounts varying with gasifier operating temperature. However, the entrainment and carry-over of solids from the gasifier continued to be a problem, although they no longer plugged the cyclone dipleg. Analysis of the run data has shown an inter-relationship between the problems of solids carry-over, proper cyclone operation, gasifier fluid bed density, gasifier fluid bed height control, and char removal from the gasifier.

Depending upon the operating philosophy adopted for the internal cyclone of the gasifier during Run Series 1-DB, the gasifier fluid bed density was observed to vary from the range of 15 to 20 lbs./ft³ reported in Run Series 1, to very low densities in the range of 4 to 5 lbs./ft³. For the first deep bed injection run, a steam eductor was installed on the cyclone dipleg as a means of returning fines to the fluid bed. Operation of this eductor at a steam flow rate significantly less than the design rate resulted in the cyclone itself becoming plugged with large lumps of agglomerated carbonaceous material. Inspection of the dipleg, however,

DISCUSSION OF OPERATING RESULTS - cont'dEffect of Equipment Modifications on Plant Operations - cont'd

revealed no traces of condensed tars or oils. Carry-over of a substantial quantity of solids to the scrubbing area continued after the installation of the eductor. The fluid bed density was constant at these conditions at approximately 18 lbs./ft³.

Between Run 1-DB-D and Run 1-DB-E, the eductor was removed and the purges and dipleg were returned to their original design. In addition a steam purge was added at the bottom outlet of the cyclone. The purge was put into service during start-up until the gasifier overhead temperature exceeded 900°F to prevent condensation of the tars and oils in the cyclone. As expected, post-run inspection revealed an unobstructed cyclone dipleg. The bed density, however, gradually declined from 20 lbs./ft³. to 10 lbs./ft³. after the purge was removed from service.

Runs 1-DB-F through 1-DB-J demonstrated that, while operating the gasifier in the deep-bed injection mode, the fluid bed density could be controlled by allowing fines to be returned to the bed. In subsequent Runs (1-DB-K to 1-DB-O) attempts were made to determine the proper purge rate to the cyclone dipleg for maximum efficiency. A differential pressure indicator was installed across the cyclone to aid in the evaluation of its performance. The instrument indicated proper operation of the cyclone at bed densities in the 15 to 20 lbs./ft³. range, as well as in the 7 to 10 lbs./ft³. range. As bed density dropped to values ranging from 4 to 5 lbs./ft³., the instrument began to display spikes in the cyclone differential pressure readings, indicating unstable operation. Regardless of the stability of the cyclone operation,

DISCUSSION OF OPERATING RESULTS - cont'd

Effect of Equipment Modifications on Plant Operations - cont'd

however, solids were still found in the scrubbing equipment after the termination of each run.

Control of the gasifier fluid bed height during Run Series 1 was maintained, although poorly, by controlling the gasifier-char cooler differential pressure, and the char-cooler bed height. During deep-bed injection runs in which the bed density remained in the range of 15 to 20 lbs./ft³, it became increasingly easier to control the gasifier bed height in this manner. As the fluid bed density dropped to lower values, however, this method of bed height control and solids inventory did not function adequately.

It was observed that as the bed density dropped, the bed height increased. Attempts to lower the bed height by increasing the char removal rate to the char-cooler resulted in another decrease in density. The bed height remained the same or increased in some cases but did not decrease. Reversing this procedure, decreasing the char removal rate, lowered the fluid bed height while increasing the density. The latter operation resulted in a bed of increasing density until such time as the static head would overcome the standpipe/char cooler resistances. At this point, a large char dump occurred, leaving a low density fluid bed in the gasifier again.

These observations were strong indications that, while the cyclone was removing fines from the gas stream, these re-injected fines were being retained in the bed. The

DISCUSSION OF OPERATING RESULTS - cont'dEffect of Equipment Modifications on Plant Operations - cont'd

effects of varying the char removal rate also indicated that only the coarser particles were being removed from the bed via the char cooler standpipe. In order to overcome the problem of fluid bed height control associated with low bed density, a study was started for determining the optimum char cooler standpipe purge rates. It was reasoned that successful removal of fines via the standpipe is the first step toward control of bed density, bed height, and solids carry-over. However, completion of the test program for gasification of Montana Rosebud coal interrupted this study before being fully instituted. It is, therefore, highly recommended that the study be continued during future gasification runs.

A second study is also recommended which would investigate whether a char cooler vessel is actually needed. During Run 1-DB-0 there was no fluid bed of char in the char cooler for approximately fifty percent of the run, causing, apparently, no detrimental effects to either the process or equipment. The primary purpose of the char cooler is to cool the char prior to slurrying and filtration. It should be investigated whether it is possible to cool the char directly in the transfer line. While considerable economic benefits could be realized from the elimination of the char cooler vessel, careful consideration must be given to operation at process conditions other than those already studied, as well as to the implications such equipment changes would have for future means of controlling the gasifier bed height.

DISCUSSION OF OPERATING RESULTS - cont'dEffect of Equipment Modifications on Plant Operations - cont'd

The most important problem of the gasifier operations during both the Run Series 1 and Run Series 1-DB was the persistent formation and growth of clinkers in the gasifier cone area. Present theory attributes clinker formation to the combination of localized overheating of ash (char) particles and the existence of stagnant areas in the fluidized beds. Such stagnant areas provide a residence time of sufficient duration for fusion of the overheated particles. A study of the cone area of the Synthane gasifier by PERC revealed the existence of stagnant particles in the areas between the gas distributor nozzles of the cone. Thermocouples protruding into the cone volume acted as nuclei for clinker growth.

Throughout the Run Series 1 and in early runs of Run Series 1-DB, clinker formation was consistently observed on thermocouples extended into the cone area, and between these thermocouples and the gasifier wall. The thermocouples were removed from this area prior to Run 1-DB-M, and this, of course, effectively eliminated formation of clinkers on these thermocouples. However, this did not eliminate the overall clinker problem within the cone. Only Runs 1-DB-M and 1-DB-N were completed without any evidence of clinker formation.

The difference between Runs 1-DB-M and 1-DB-N and the other runs of the test program was the operation of the gasifier at 1,300°F bed temperature. Runs both before and after Runs 1-DB-M and 1-DB-N had been made at temperatures

DISCUSSION OF OPERATING RESULTS - cont'd

Effect of Equipment Modifications on Plant Operations - cont'd

ranging from 1,400°F to 1,550°F. The oxygen concentration in the cone area was considerably reduced at the lower bed temperature. It seems, therefore, very likely that the formation of clinkers in the gasifier cone area is dependent upon oxygen concentration in the cone area and/or operating temperature in the gasifier.

This can be supported, although not definitively, by examining Run 1-DB-O. Run 1-DB-O, the first run in which the pretreater was in operation, was the longest run to date in the Synthane pilot plant. The run was terminated by the formation of a clinker localized over the gasifier char outlet. Operating temperatures during this run, ranged from 1,300°F to 1,610°F. Operation of the pretreater resulted in a distribution of the oxygen feed between pretreater and gasifier, thereby lowering the oxygen concentration in the gasifier cone area relative to earlier operations at similar temperatures. Development of problems with char removal from the gasifier, normally attributed to the onset of clinker growth, occurred only after an operating temperature of 1,610°F was observed. This temperature exceeded the desired temperature of 1,550°F and was probably caused by fluctuations in the coal feed rate. At this temperature, the oxygen concentration in the gasifier cone reached values similar to those of other clinker-forming runs. It is assumed that the high temperature in combination with the high oxygen concentration caused the clinker formation in the gasifier during Run 1-DB-O.

DISCUSSION OF OPERATING RESULTS - cont'd

Effect of Equipment Modifications on Plant Operations - cont'd

In view of the observations made during Run Series 1-DB relative to clinker formation, some modifications to the gasifier operation are recommended for future runs. The oxygen distribution system within the gasifier has been re-designed with a secondary distributor above the cone volume. Installation of such a system would allow control of the oxygen concentration in the critical areas of the fluidized bed. Operation of the gasifier at superficial gas velocities higher than the previous 0.5 foot per second should also be considered. Increasing the steam flow rate would lower the oxygen concentration and may aid in the destruction of stagnant areas within the combustion zone.

DISCUSSION OF OPERATING RESULTS - cont'dMaterial Balance

Elemental and overall material balances are presented in Appendix II for each of the steady state periods obtained during Run Series 1-DB. Closure of the balances is satisfactory in many cases. The overall closure of 18 of the 29 steady state periods is within 95% to 105%. The results, however, must be interpreted carefully. Insufficient and, in some instances, inadequate instrumentation made certain assumptions and estimations necessary in determining many of the flow rates. The following areas are sources of potential errors:

- 1) Coal Feed rate - No direct measurement of instantaneous coal feed rate.
- 2) Steam and CO₂ Purges - Measurement by rotameters for the earlier runs made estimation of average flow rates necessary. Although flow transmitters were installed later, flow rates in excess of the transmitter ranges again required average flow rates to be estimated.
- 3) CO₂ from the Primary Injector - No direct measurement. It is assumed that 100% of the CO₂ fed to the primary injector is transferred to the gasifier with the coal feed.
- 4) Seal Water and Boiler Feed Water Purges - Measurement by rotameters only, required estimation of average flows for the material balances.

DISCUSSION OF OPERATING RESULTS - cont'd

Material Balance - cont'd

- 5) . Carry-over - No direct measurement. Carry-over to scrubbing area is assumed to be zero.
- 6) Char Removal Rate - No direct measurement. This flow is calculated based on an ash balance assuming no carry-over to scrubbing area.
- 7) Steam Flow from Char Cooler - Readings of the flow recorder have continued to be highly erratic and unreliable.
- 8) Waste Water Flow - Large fluctuations in readings of the flow indicator and unmeasured blowdowns from the scrubber surge tank have made the waste water flow measurement the largest single source of error in both process calculations and material balances.
- 9) Raw Gas Scrubber Effluent - Occasional problems with the flow recorder and its compensating instruments, such as excessive water content of the raw gas or malfunctioning thermocouples, have resulted in a source of error for some of the steady state calculations.

The relative contribution of errors to the material balance of each of the above areas varied from one steady state period to another. In some cases, unreliable measurements may have compensated each other to yield a satisfactory overall closure. The validity of the material balance may be judged by examining the individual component of the balances. In many cases the balances are satisfactory.

DISCUSSION OF OPERATING RESULTS - cont'dConclusions

Run Series 1-DB has demonstrated that the Synthane Process is a viable route to coal gasification with carbon conversions of 70% or greater. The general operability of the system is good and has been improved significantly since Run Series 1.

The single most important advantage of deep-bed injection of the coal feed over the free fall feed method is the significant reduction of tars, phenols, and other pollutants in the gasifier effluent. The considerably cleaner raw gas produced can result in much simpler and lower cost gas scrubbing and effluent treatment equipment. This advantage may be offset, however, in part by the cost of equipment for heat recovery of the higher temperature effluent gas and higher oxygen requirement associated with deep-bed coal injection.

Operating problems which have persisted into the Run Series 1-DB include control of the gasifier bed height, clinker formation in the gasifier, and high solids carry-over from the gasifier to the gas scrubbing system. Bed height control has improved over runs conducted under Test Directive No. 1 to the extent that steady heights may now be maintained for extended periods of time. Control, however, in the sense that changes in the bed height can be made at will, has yet to be attained. Clinker formation continued to be the major cause of run termination during the Run Series 1-DB. Steps toward correcting this problem are being taken and include the design of a secondary oxygen distributor and the intent to increase the superficial velocities through the gasifier bed.

DISCUSSION OF OPERATING RESULTS - cont'd

Conclusions - cont'd

Solids carried into the gas scrubbing system also continued to create equipment operating problems. Continuation of a program to optimize the char cooler standpipe purge rates for the removal of fines from the fluid bed should help to ease these problems. Other means for the controlled removal of fines from the fluidized bed to the char slurry area while removing the coarser char particles at the same time should also be studied.

Run Series 1-DB was also characterized by considerably lower gasifier fluid bed densities than in Run Series 1. This phenomena is being investigated along with its possible relationship to the bed height and solids carryover problems.

In view of the progress made in Run Series 1-DB in overcoming problems encountered during Run Series 1, additional time and effort should be expended towards the solution of the few remaining operating problems.

It has been demonstrated that the Synthane Process is capable of gasifying Western coal at suitable carbon conversions and producing a raw gas of satisfactory quality for extended periods of time. Additional studies of the process, however, on western, non-caking coals should be done in order to improve the process further. This should include a study to determine the economic advantages of various gas scrubbing and effluent treating systems versus relatively

DISCUSSION OF OPERATING RESULTS - cont'd

Conclusions - cont'd

high oxygen consumption. It should also be investigated whether a char cooler is actually needed or whether it is possible to cool the char directly in the transfer line. Elimination of the char cooler would result in economic benefits to the Synthane process. More operating data should be obtained in order to study more accurately the effect of operating conditions on operating results.

Prior to commercialization of the Synthane Process other studies should be done which are beyond the scope of the current pilot plant operation contract. A suitable waste heat recovery system should be studied to efficiently utilize the high temperature gasifier effluents associated with deep bed coal feed injection. Studies should also be carried out toward the optimization of the process.

Figure 7. Effect of Space Velocity on Gas Composition at 1495° F ± 15° F

Figure 8. Effect of Steam/Coal Ratio on CO Concentration at Constant Temperature

Figure 9. Effect of Steam/Coal Ratio on H₂ Concentration at Constant Temperature

Figure 10. Effect of Steam/Coal Ratio on H₂/CO Ratio at Constant Temperature

Figure 11. Effect of Steam/Coal Ratio on CH₄ Concentration at Constant Temperature

Figure 12. Effect of Steam/Coal Ratio on Raw Gas Yield at Constant Temperature

Figure 13. Effect of Steam/Coal Ratio on Useful Gas Yield at Constant Temperature

Figure 14. Effect of Steam/Coal Ratio on Ultimate CH₄ Yield at Constant Temperature

Figure 15. Effect of Steam/Coal Ratio on Carbon Conversion at $1495^{\circ}\text{F} \pm 15^{\circ}\text{F}$

Figure 16. Effect of Steam/Coal Ratio on Carbon Conversion at $1495^{\circ}\text{F} \pm 15^{\circ}\text{F}$

Figure 17. Effect of Steam/Coal Ratio on Equivalent CH₄ at Constant Temperature

Figure 18. Effect of Steam/Coal Ratio on Steam Decomposition at 1495°F ± 15°F

Figure 19. Effect of Temperature on H_2 Concentration at
Steam/Coal Ratio of 2.0 Lb/Lb maf $\pm 8.5\%$

Figure 20. Effect of Temperature on CO Concentration at
Steam/Coal Ratio of 2.0 Lb/Lb mat. $\pm 8.5\%$

Figure 21. Effect of Temperature on H_2/CO Ratio at
 Steam/Coal Ratio of 2.0 Lb/Lb maf $\pm 8.5\%$

Figure 22. Effect of Temperature on Carbon Conversion at
Steam/Coal Ratio of 2.0 Lb/Lb maf. $\pm 8.5\%$

Figure 23. Effect of Temperature on Carbon Conversion at
Steam/Coal Ratio of 2.0 Lb/Lb maf $\pm$ 8.5 %

Figure 24. Effect of Temperature on Carbon Conversion at
Steam/Coal Ratio of 2.0 Lb/Lb maf $\pm 8.5\%$

Figure 25. Effect of Temperature on Steam Decomposition at
Steam/Coal Ratio of 2.0 Lb/Lb maf $\pm$ 8.5 %

Figure 26. Effect of Temperature on Raw Gas Yield at
Steam/Coal Ratio at 2.0 Lb/Lb maf $\pm$ 8.5 %

Figure 26. Effect of Temperature on Raw Gas Yield at
Steam/Coal Ratio at 2.0 Lb/Lb maf $\pm 8.5\%$

Figure 27. Effect of Temperature on Equivalent CH₄ Yield at
Steam/Coal Ratio at 2.0 Lb/Lb maf $\pm$ 8.5 %

Figure 27. Effect of Temperature on Equivalent CH₄ Yield at
Steam/Coal Ratio at 2.0 Lb/Lb maf $\pm$ 8.5 %

Figure 28. Effect of Temperature on Ultimate CH₄ Yield at
Steam/Coal Ratio of 2.0 Lb/Lb maf $\pm$ 8.5 %

Figure 29. Effect of Temperature on Useful Gas Yield at
Steam/Coal Ratio of 2.0 Lb/Lb maf $\pm$ 8.5 %

Figure 30. Effect of Temperature on CH_4 Concentration at
Steam/Coal Ratio of 2.0 $\text{Lb/Lb maf} \pm 8.5\%$

PHENOL, mg/liter

Figure 31. Effect of Operating Mode on Phenol Content of Scrubber Surge Tank Water

COD, mg/liter

Figure 32. Effect of Operating Mode on Chemical Oxygen Demand for Scrubber Surge Tank Water

APPENDIX I.

Table of Contents

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GLOSSARY OF TERMS

BFW	Boiler feed water
Carbon Conversion	Percentage of carbon in coal feed converted to gaseous and liquid products.
Clinker	Rock-like material, primarily organic in nature, formed from the ash in coal by fusion under gasification conditions.
COD	Chemical Oxygen Demand - the amount of oxygen consumed under specific conditions in the oxidation of the organic and oxidizable inorganic matter contained in industrial waste water.
Deep Bed Injection	The process of introducing the fresh coal feed to the gasifier at a point submerged deep in the fluidized bed.
Dip Leg	A 3" pipe which allows the solids separated in the gasifier internal cyclone to drain into the fluidized bed.
DOE	Department of Energy
Downcomer	Pipe below char cooler used to remove char.
Equivalent Methane	Total hydrocarbon produced expressed as Methane = $(CH_4 + 2C_2H_6 + 3C_3H_8 + \dots \text{etc.})$
ERDA	Energy Research and Development Administration
Free Fall	The process of introducing fresh coal feed at a point above the gasifier fluidized bed and allowing the coal to free fall through the vapor space before reaching the bed.
MAF Coal	Moisture and ash free coal.
PERC	Pittsburgh Energy Research Center
Slot Valve	A modified trickle valve used to control the rate of char removal from the gasifier.
Space Velocity	Number of bed volumes of gaseous reactants fed to the gasifier via plenum per minute.

GLOSSARY OF TERMS - cont'd

Standpipe	A two-inch pipe that allows solids to drain from the gasifier to the char cooler.
Standpipe Trickle Valve	A standard trickle valve modified after Run 1-P to actuate the flapper mechanically for controlling the gasifier bed level.
Steady State Period	The criteria used for defining steady state periods were that the coal feed rate, fluidizing steam flow, oxygen flow to gasifier and gasifier bed temperature remain steady within specified limits.
Superficial Velocity	Velocity of gases as if flowing through an empty vessel under prevailing condition at the location of interest.
Ultimate Methane	The theoretical amount of methane that can be obtained by converting all the hydrocarbons, carbon monoxide and hydrogen to methane after shift conversion, if necessary.
Useful Gas	Represents the total quantity of product gas with all components having a heating value.

Instrument Codes

<u>Variable</u>	<u>Indicator</u>	<u>Recorder</u>	<u>Indicating Controller</u>	<u>Recording Controller</u>	<u>Switch</u>
Differential Pressure	PDI	PDR	PDIC	PDRC	PDS
Flow	FI	FR	FIC	FRC	FS
Level	LI	LR	LIC	LRC	LS
Pressure	PI	PR	PIC	PRC	PS
Temperature	TI	TR	TIC	TRC	TS

UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
SYNTHANE PILOT PLANT
4800 FORBES AVENUE
PITTSBURGH, PENNSYLVANIA 15213

CCDMB
Eve
WPM

January 18, 1977

Mr. S. E. Carson
Plant Manager
The Lummus Company
P. O. Box 18076
Pittsburgh, PA 15236

SUBJECT: TEST DIRECTIVE NO. 1-DB

Dear Mr. Carson:

This letter will serve to officially transmit to you Test Directive No. 1-DB for the operation of the SYNTHANE Coal Gasification Pilot Plant.

Very truly yours,

Robert Lewis
ERDA Project Manager
SYNTHANE Pilot Plant

Attachment

Test Directive No. 1-DB (30)

cc: E. L. Clark w/att.
W. P. Haynes (2) w/att
J. P. Strakey w/att
J. Fletcher w/o att.
File

RL:djl

RECEIVED

JAN 18 1977

S. E. CARSON

E.R.D.A. SYNTHANE PILOT PLANT
TEST DIRECTIVE: RUN NO. 1-DB
DATE: 1/14/77

Objective: To gasify Montana Rosebud subbituminous coal at 600 psig for a steady state period of a minimum of 24 hours at a carbon conversion of about 67% to test the gasifier system operability and reliability, to determine product compositions and yields and gasifier throughput. During this run, coal will be injected below the bed surface through a dip tube to reduce tar production and fines carryover. A process feasibility test of five to seven days should be attempted on this run and each subsequent run. The run should be terminated by a voluntary shutdown and then the gasifier should be inspected for signs of slag, erosion, corrosion, refractory deterioration and cyclone plugs.

Test Conditions:

1. Coal Handling. Rosebud coal should be ground to 20 by 0 mesh with not more than 30% through 200 mesh. Ground coal should be dried to below 10% moisture (ASTM method) and preferably as low a moisture content as possible to reduce oxygen consumption.
2. Pretreatment. The pretreater is not needed and should be bypassed.
3. Coal Injection. During this run, coal should be injected below the bed surface with a dip tube. The dip tube should be located 4" to 6" off the gasifier shroud and terminate about 6' above the cone line, pointing vertically downwards. The velocity should be kept in the range of 20 to 40 ft/sec to prevent short circuiting of fresh coal to the char withdrawal line.
4. Petrocarb. Ground coal should be transported from the storage injector to the gasifier with CO₂. Total transport velocity in the lift line should be below 40 ft/sec. The CO₂ will be provided from the CO₂ storage system since the Benfield system will not be operated to recover the CO₂ from the product gas. The coal feed rate should be three tons/hour.
5. Gasification. Bed height will be controlled at 10 ft. Every effort should be made to maintain a stable bed height (+ 1 ft) to allow kinetic analyses of gasifier performance to be made. Fluidizing steam velocity will be 0.4 ft/sec. Bed temperature should initially be brought to 1450° F, until carbon conversion is determined, and raised in 25° F increments until the desired conversion is obtained. Final temperatures should not exceed 1550° F.
6. Char Cooler. Fluidizing velocity (base of char cooler) should be 0.3 ft/sec. Temperature should be held at 525° to 600° F.

-2-

RUN NO. 1-DB

7. Char Removal. The alternate high pressure slurry system should be used since the lock hopper system is not available.
8. Raw Gas Scrubbing. The venturi and water wash section of the raw gas scrubber should be operated as revised.
9. Downstream Processing. After the water wash, product gas will be sent directly to the flare without the use of gas clean-up equipment.
10. Analytical. After reaching 1450° F coal, char and gas samples are to be taken every two hours and analyzed to establish carbon conversion. Condensate should also be sampled to determine suspended solids. Samples of waste water from the scrubber surge tank should be taken every four hours and saved for analysis of pollutants. If possible, tar samples should also be obtained every four hours and saved for analysis.
11. Parameters to be Reported. The list of gasifier calculations transmitted with Test Directive #1 should be made and reported to the extent possible. CO₂ flow from the Petrocarb system will be estimated for the run since flow measurement devices are not yet installed.
12. Operating Procedure. This should follow the detailed Operating Manual.
13. Alteration of Conditions. Carbon conversion should be determined as soon as possible through at least two samples and then a meeting should be held with the ERDA SYNTHANE Operating Committee to determine changes to be made to achieve the desired carbon conversion of 67%.

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Statistical Analysis of Ground Rosebud Coal

As per ASTM D-3176, the hydrogen and oxygen, on an as received basis, contain hydrogen and oxygen present in moisture. On a moisture free basis, the hydrogen and oxygen have been adjusted to eliminate the hydrogen and oxygen present in moisture.

A. Ground Rosebud Coal - As Received

<u>Component</u>	<u># of Samples</u>	<u>Mean</u>	<u>Standard Deviation</u>
Moisture	107	6.76 wt. %	+ 1.85
Volatiles	107	34.83 wt. %	+ 1.00
Ash	107	10.57 wt. %	+ 0.67
Hydrogen	44	4.87 wt. %	+ 0.15
Carbon	44	62.20 wt. %	+ 1.04
Nitrogen	44	0.95 wt. %	+ 0.10
Sulfur	44	0.81 wt. %	+ 0.09
BTU/lb	44	10,545	+ 201

B. Ground Rosebud Coal - Moisture Free

<u>Component</u>	<u># of Samples</u>	<u>Mean</u>	<u>Standard Deviation</u>
Volatiles	107	37.32 wt. %	+ 0.89
Ash	107	11.32 wt. %	+ 0.69
Hydrogen	44	4.45 wt. %	+ 0.11
Carbon	44	66.2 wt. %	+ 0.75
Nitrogen	44	0.99 wt. %	+ 0.12
Sulfur	44	0.85 wt. %	+ 0.12
BTU/lb	44	11,213	+ 231

Statistical Analysis of Ground Rosebud Coal - cont'd

C. Ground Rosebud Coal - Sieve Analysis

<u>U.S. Mesh Size</u>	<u># of Samples</u>	<u>Mean</u>	<u>Standard Deviation</u>
+ 20	168	0.38 wt. %	+ 0.18
+ 30	168	6.99 wt. %	+ 4.77
+ 50	168	40.57 wt. %	+ 3.46
+ 60	168	46.63 wt. %	+ 3.74
+ 100	168	68.39 wt. %	+ 11.18
+ 140	168	76.80 wt. %	+ 7.10
+ 200	168	83.55 wt. %	+ 7.78
+ 325	168	90.21 wt. %	+ 3.31
- 325	168	9.79 wt. %	+ 3.32

D. Ground Rosebud Coal - Coulter Counter

<u>Microns</u>	<u># of Samples</u>	<u>Mean</u>	<u>Standard Deviation</u>
+ 50.8	71	12.55 wt. %	+ 8.35
+ 40.3	71	30.80 wt. %	+ 11.12
+ 32.0	71	48.66 wt. %	+ 11.95
+ 25.2	71	65.82 wt. %	+ 11.15
+ 20.2	71	79.41 wt. %	+ 7.46
+ 16.0	71	88.65 wt. %	+ 5.29
+ 12.7	71	92.91 wt. %	+ 4.03
+ 10.08	71	95.74 wt. %	+ 3.15
+ 8.0	71	97.27 wt. %	+ 2.36
+ 6.35	71	97.85 wt. %	+ 2.43
+ 5.04	71	98.32 wt. %	+ 2.01
+ 4.0	71	98.92 wt. %	+ 0.83

REFERENCES

- (1) "Synthane Pilot Plant, Run Report No. 1," issued by C-E Lummus, Bloomfield, New Jersey, March 1978.
- (2) J. D. Jewell, "Gasifier Nozzle Replacement and Certification at the Synthane Coal Gasification Plant" issued by C-E Lummus, Bloomfield, New Jersey, December 27, 1977.
- (3) D.M. Bailey, A.W. Massa, O.D. Runnels and P.C. Strebinger "Valve Applications at the Synthane Plant in Mixed Phase Erosive Service," presented at Workshop on Valves for Solids Handling Service in Coal Conversion, Morgantown, West Virginia, November 14-16, 1977.
- (4) S. Danyluk and G.M. Dragel, "EBV Ball-Valve Stem Failure--Synthane Coal Gasification Pilot Plant: Failure Report," issued by Argonne National Laboratory, Argonne, Illinois, January, 1977.

APPENDIX II - PROCESS DATA

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A	Steady State Period	1 - 5
B	Steady State Period	6 - 10
C	Steady State Period	11 - 15
D	Steady State Period	16 - 20
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G	Material Balances

RUN 1 - DB STEADY STATE PERIOD NO. 2.

	GAS STREAMS					
	2	3	9	10	11	14
SCFH	14172.8	136515.0	204565.2	19052.8	10906.3	64009.0
MW	44	28.12	18	32	18	18
LB/HR	1643.2	10113.6	9702.7	1606.6	517.3	3036.0

	LIQUID STREAMS			
LB/HR	4	5	6	13
H2O	4186.3			0.0
OIL		0.0		
TAR			0.0	

	SOLID STREAMS		
	1	7	15
LB/HR (AS RECEIVED)	4860.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	4531.		1725.

LB TOTAL STEAM/LB MF COAL	2.14
LB TOTAL OXYGEN/LB MF COAL	0.35
SCF ULTIMATE CH4/LB MF COAL	5.40
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	63.60
GAS BASIS	74.48
CASIFIER TOP SUPRFL VEL, FPS	0.615
VOL PCT O2 IN TOTAL FEED GAS	8.52
STREAM NOS. 8 AND 12 LB/HR	1147.9

STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	1.0
C	63.8
N	0.4
O	4.7
S	0.3
ASH	29.8

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H2	26.16
MOL PCT-CO	7.86
MOL PCT-CO2	51.55
MOL PCT-CH4	9.30
MOL PCT-C2H6	0.38
MOL PCT-N2	0.10
MOL PCT-NH3	0.00
MOL PCT-H2S	0.48
MOL PCT-H2O	4.17
MOL PCT-O2	0.00

RUN 1 - DB STEADY STATE PERIOD NO. 3.

	2	3	9	10	11	14
SCFH	14780.8	137476.9	208395.2	19498.8	10163.9	64219.8
MW	44	27.73	18	32	18	18
LB/HR	1713.7	10046.8	9884.4	1644.2	482.1	3046.0

	4	5	6	13
LB/HR				
H2O	4236.9			0.0
OIL		0.0		
TAR			0.0	

	1	7	15
LB/HR (AS RECEIVED)	4880.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	4550.		1344.

STREAM NO. 3			
LB TOTAL STEAM/LB MF COAL	2.17	AVERAGE GAS COMPOSITION	
LB TOTAL OXYGEN/LB MF COAL	0.36	MOLE PERCENT - WET BASIS	
SCF ULTIMATE CH4/LB MF COAL	5.53		
AVERAGE CARBON CONV WEIGHT PCT		MOL PCT-H2	27.07
CHAR BASIS	75.43	MOL PCT-CO	8.19
GAS BASIS	75.84	MOL PCT-CO2	50.76
GASIFIER TOP SUPRFL VEL, FPS	0.621	MOL PCT-CH4	9.54
VOL PCT O2 IN TOTAL FEED GAS	8.56	MOL PCT-C2H6	0.29
STREAM NOS. 8 AND 12 LB/HR	1147.9	MOL PCT-N2	0.10
		MOL PCT-NH3	0.00
		MOL PCT-H2S	0.39
		MOL PCT-H2O	3.67
		MOL PCT-O2	0.00
STREAM NO. 15			
CHAR ANALYSIS WT PCT - DRY BASIS			
H	0.7		
C	55.5		
N	0.3		
O	4.6		
S	0.5		
ASH	38.4

RUN 1 - DB STEADY STATE PERIOD NO. 4.

	2	3	9	10	11	14
SCFH	14146.5	132056.9	196067.8	19104.3	19619.2	64051.2
MW	44	27.62	18	32	18	18
LB/HR	1640.2	9611.0	9299.7	1610.9	930.6	3038.0

	4	5	6	13
LB/HR				
H2O	4375.6			0.0
OIL		0.0		
TAR			0.0	

	1	7	15
LB/HR (AS RECEIVED)	4820.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	4494.		1679.

LB TOTAL STEAM/LB MF COAL	2.07
LB TOTAL OXYGEN/LB MF COAL	0.36
SCF ULTIMATE CH4/LB MF COAL	5.25
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	64.39
GAS BASIS	69.27
GASIFIER TOP SURFCL VEL, FPS	0.613
VOL PCT O2 IN TOTAL FEED GAS	8.86
STREAM NOS. 8 AND 12 LB/HR	1147.9

STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	1.0
C	63.6
N	0.5
O	4.3
S	0.2
ASH	30.3

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H2	25.68
MOL PCT-CO	8.03
MOL PCT-CO2	42.51
MOL PCT-CH4	9.43
MOL PCT-C2H6	0.19
MOL PCT-N2	0.09
MOL PCT-NH3	0.00
MOL PCT-H2S	0.37
MOL PCT-H2O	6.60
MOL PCT-O2	0.00

RUN 1 - DB STEADY STATE PERIOD NO. 5.

	GAS STREAMS					
	2	3	9	10	11	14
SCFH	14623.9	141498.2	137968.6	19366.8	53977.9	53045.7
MW	44	28.43	18	32	18	18
LB/HR	1695.5	10589.4	6544.0	1633.0	2560.2	2516.0

	LIQUID STREAMS			
LB/HR	4	5	6	13
H2O	6712.3			0.0
OIL		0.0		
TAR			0.0	

	SOLID STREAMS		
LB/HR (AS RECEIVED)	1	7	15
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	6154.		2641.

		STREAM NO. 3		
LB TOTAL STEAM/LB MF COAL		1.06	AVERAGE GAS COMPOSITION	
LB TOTAL OXYGEN/LB MF COAL		0.27	MOLE PERCENT - WET BASIS	
SCF ULTIMATE CH ₄ /LB MF COAL		4.18		
AVERAGE CARBON CONV WEIGHT PCT				
CHAR BASIS		56.46	MOL PCT-H ₂	24.63
GAS BASIS		56.43	MOL PCT-CO	8.62
GASIFIER TOP SUPRFCL VEL, FPS		0.804	MOL PCT-CO ₂	51.16
VOL PCT O ₂ IN TOTAL FEED GAS		12.31	MOL PCT-CH ₄	9.19
STREAM NOS. 8 AND 12 LB/HR		1147.9	MOL PCT-C ₂ H ₆	0.38
STREAM NO. 15			MOL PCT-N ₂	0.09
CHAR ANALYSIS WT PCT - DRY BASIS			MOL PCT-NH ₃	0.00
H		1.1	MOL PCT-H ₂ S	0.66
C		67.7	MOL PCT-H ₂ O	5.24
N		0.4	MOL PCT-O ₂	0.00
O		4.2		
S		0.2		
ASH		26.4		

FOR STEADY STATE PERIOD 1
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 1:30 2/24/77
ENDING TIME 7:12 2/24/77

FOR STEADY STATE PERIOD 2
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 6:2 2/25/77
ENDING TIME 10:26 2/25/77

FOR STEADY STATE PERIOD 3
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 10:32 2/25/77
ENDING TIME 14:56 2/25/77

FOR STEADY STATE PERIOD 4
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 18:2 2/25/77
ENDING TIME 6:56 2/26/77

FOR STEADY STATE PERIOD 5
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 19:17 2/27/77
ENDING TIME 0:29 2/28/77

AVERAGE CALCULATION VALUES

RUN 1 - DB

A B B B C

STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	1	2	3	4	5
GASIFICATION CALCULATIONS							
84	X0001	COAL FEED RATE PPH	4580.00	4860.00	4880.00	4820.00	6600.00
220	P256	GSFR VESSEL PRESS PSIG	596.354	595.848	596.186	595.738	596.466
235	P295	GASIFIER PRESSURE PSIG	598.384	582.951	586.163	582.522	586.070
550	CSFTG	STEAM FLOW TO GASF LB/HR	7681.00	6944.00	7078.00	6948.00	6429.00
227	F203	GSFR O2 FEED RATE SCFH	17939.1	19052.8	19498.8	19104.3	19366.8
581	CSCCTG	STNPIPE STM TO GSFR PPH	2422.10	2758.70	2806.36	2351.66	114.974
345	T205	GASIFIER BED AT 18" DEGF	1413.87	1481.01	1502.45	1498.82	1497.47
424	C2FBDG	GSF FLD BED DNSTY LB/FT3	18.0787	16.3080	15.2751	14.8370	16.5190
425	C2FBHG	GSF FLD BED HEIGHT FT	16.6046	9.89113	11.6355	13.9202	11.0614
572	CGBV	GASIFIER BED VOLUME FT3	124.897	77.8497	90.1290	106.886	86.4292
427	C2SIG	GSF SOLIDS INVENTORY LB	2260.59	1267.02	1376.66	1584.01	1429.60
426	C2SRTG	GSF SOLIDS RES TIME MIN	31.7618	16.7762	18.1533	21.1475	13.9386
429	C2SCG2	GASF COAL FEED PPH/FT2	647.808	687.412	690.240	681.754	933.522
428	C2SCG1	GASF COAL FEED PPH/FT3	36.6702	62.4279	54.1446	45.0950	76.3631
526	C2GPD	GSF PRESS DROP "H2O/FTBD	3.49998	3.15379	2.93223	2.86250	3.17948
420	C2SVBG	GSF SUP VEL-BOT BED FPS	0.754483	0.759500	0.782328	0.737674	0.538801
423	C2SVOG	GSF SUP VEL-OUTLET FPS	0.562646	0.425646	0.451369	0.447161	0.560225
421	C2SVTG	GSF SUP VEL-TOP BED FPS	0.832845	0.614804	0.621080	0.613377	0.804009
422	C2SVMG	GSF SUP VEL-MEAN BED FPS	0.793664	0.687152	0.701704	0.675525	0.671405
584	CGSF02	GSF O2/RAW COAL SCF/LB	3.91684	3.92033	3.99566	3.96354	2.93436
433	C2SOG2	GASF O2/MF COAL SCF/LB	4.20082	4.20456	4.28535	4.25090	3.14711

AVERAGE CALCULATION VALUES

RUN 1 - DB

A

B

B

B

C

STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	1	2	3	4	5
435	C250G4	GASF O2/MAF COAL SCF/LB	4. 73792	4. 74214	4. 83327	4. 79441	3. 54949
585	CGSF03	GASF O2/RAW COAL LB/LB	0. 330274	0. 330568	0. 336920	0. 334212	0. 247430
432	C250G1	GASF O2/MF COAL LB/LB	0. 354219	0. 354534	0. 361347	0. 358443	0. 265369
434	C250G3	GASF O2/MAF COAL LB/LB	0. 399509	0. 399864	0. 407548	0. 404272	0. 299298
586	CGSMSM	GASF STM/RAW COAL SCF/LB	46. 4565	42. 0449	42. 6566	40. 6328	20. 8811
437	C255G2	GASF STM/MF COAL SCF/LB	49. 8357	45. 1032	45. 7594	43. 5885	22. 4000
439	C255G4	GASF STM/MAF COAL SCF/LB	56. 2075	50. 8700	51. 6101	49. 1616	25. 2641
587	CGSSTM	GASF STM/RAW COAL LB/LB	2. 20592	1. 99644	2. 02548	1. 92939	0. 991511
436	C255G1	GASF STM/MF COAL LB/LB	2. 36585	2. 14118	2. 17233	2. 06927	1. 06340
438	C255G3	GASF STM/MAF COAL LB/LB	2. 66834	2. 41495	2. 45008	2. 33385	1. 19936
555	CG02ST	GSF O2/STEAM SCF/SCF	0. 084	0. 093	0. 094	0. 098	0. 140
342	F255	WASTE WATER FLOW GPM	14. 6777	8. 37265	8. 47381	8. 75122	13. 4246
243	F221	TAR FLOW THRL OXDZR GPM	0. 000	0. 000	0. 000	0. 000	0. 000
245	F209	RW GS SCRBR EF 1000-SCFH	137. 093	136. 515	137. 477	132. 057	141. 498
574	CNRGG	RAW GAS FROM GASF SCFH	264832.	197848.	199875.	197377.	256039.
575	CTGFB	TOTAL GAS FROM BED SCFH	255263.	188278.	190305.	187807.	246470.
475	C2CI	GASF CARBON INVENTORY LB	1648. 77	808. 292	763. 909	1007. 32	967. 554
551	CCGPPH	CARBON GASIFIED PPH	1073. 06	1922. 50	2289. 43	1930. 37	2317. 82
594	C2GR4	GASF RATE LBC/HR-FT3BD	8. 59153	24. 6949	25. 4017	18. 0601	26. 8176
595	C2GR3	GASF RATE LBC/HR-LBCBD	0. 650823	2. 37847	2. 99699	1. 91634	2. 39555
455	C2MRG2	CH4 PROD GAS SCFH/FT3BD	97. 2859	162. 997	145. 454	116. 548	150. 466

AVERAGE CALCULATION VALUES

RUN 1 - DB

A B B B C

STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	1	2	3	4	5
454	C2MRG1	CH4 IN RAW GAS LBC/LBCBD	0.233026	0.496399	0.542637	0.391037	0.424997
451	C2CG1	CARBON CONVRSN (CHAR) %	37.6676	63.5973	75.4253	64.3877	56.4607
452	C2CG12	CARBON CONVRSN (GAS) %	75.8050	74.4777	75.8393	69.2735	56.4254
596	CUGYM	USEFL GAS YLD SCF/LB-MAF	14.3074	14.8472	15.3615	14.3623	11.1064
592	CECH4R	EQUIV CH4 SCF/LB-RAW	2.82323	2.83061	2.85355	2.69095	2.13616
591	CECH4M	EQUIV CH4 SCF/LB-MF	3.02792	3.03583	3.06043	2.88605	2.29104
579	CECH4C	EQUIV CH4 SCF/LB-MAF	3.41506	3.42399	3.45173	3.25505	2.58396
466	C2MYG4	GSF CH4 YLD-MAF CF/HR-LB	3.20914	3.15830	3.24954	3.12629	2.38346
577	CTUCH4	TOTAL ULTIMATE CH4 SCFH	21410.6	24483.8	25181.0	23577.6	25724.4
560	CUCH4R	ULT CH4/RAW COAL SCF/LB	4.67480	5.03782	5.16004	4.89161	3.89764
561	CUCH4M	ULT CH4/MF COAL SCF/LB	5.01373	5.40306	5.53415	5.24626	4.18023
562	CUCH4A	ULT CH4/MAF COAL SCF/LB	5.65478	6.09389	6.24174	5.91704	4.71470
450	C2SCG	STM CONV - H2O BALANCE %	40.8966	72.3549	72.6529	67.7334	23.0155
598	CSCH2	STM CONV - H2 BALANCE %	14.4375	13.7086	13.5370	12.7205	11.9116
552	CSPV	SPACE VELOCITY 1/MIN	2.49362	3.99500	3.55334	2.81500	2.44596
553	CSPT	SPACE TIME MIN	0.401024	0.250313	0.281425	0.355239	0.408837

AVERAGE CALCULATION VALUES

RUN 1 - DB

STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	A	B	B	B	C
			1	2	3	4	5
CHAR COOLER CALCULATIONS							
230	F205	CHR CLR STM FEED PPH	2759.00	3036.00	3046.00	3038.00	2516.00
234	F230	H2O FLW TO CHAR CLR GPH	7.048	0.000	0.000	0.000	0.000
336	F253	HP STM TO CHAR CLR. PPH	291.995	239.998	242.445	244.217	159.189
599	CFRPPH	CHAR REMOVAL RATE PPH	2434.62	1724.94	1344.26	1678.91	2640.91
341	F254	STM FLW FR CHAR CLR PPH	687.615	517.297	482.084	930.555	2560.22
372	F229	CHAR TRANSPORT STEAM PPH	0.000	0.000	0.000	0.000	0.000
224	P258	CHAR COOLER PRESS PSIG	599.677	598.772	599.667	599.088	599.554
346	T202	CHR CLR UPPR BD TMP DEGF	744.043	683.901	629.626	680.088	694.801
89	T20004	C. C. BD AT 19FT-2IN DEGF	670.116	639.501	562.391	593.045	569.562
487	C2FBDC	CC FLD BED DNSTY LB/FT3	20.8195	19.9296	20.5262	18.1575	18.6398
488	C2FBHC	CC FLD BED HEIGHT FT	14.3923	8.48229	11.0742	10.4340	5.77128
573	CCCBV	CHAR CLR BED VOLUME FT3	39.2911	24.1246	30.7828	29.0169	16.7146
490	C2SIC	CC SOLIDS INVENTORY LB	818.023	480.795	631.854	526.874	311.556
489	C2SRTC	CC SOLIDS RES TIME MIN	20.2134	16.4942	28.0678	18.7830	7.04518
520	C2SCC2	CC MF CHAR FD LB/HR-FT2	922.204	653.385	509.188	635.949	1000.35
499	C2SCC1	CC MF CHAR FD LB/HR-FT3	61.9636	71.5010	43.6691	57.8596	158.001
534	C2CPD	CC PRESS DROP "H2O/FTBD	4.00200	3.83100	3.94600	3.49000	3.58300
484	C2SSV	CC STEAM SUP VEL FPS	0.299214	0.313411	0.299287	0.312319	0.312669
485	C2WSV	CC VAP H2O SUP VEL FPS	0.007	0.000	0.000	0.000	0.000
590	CCATSM	CC ATM STM SUP VEL FPS	0.036	0.028	0.027	0.028	0.019
486	C2TSV	CC TOT STM SUP VEL FPS	0.341966	0.341330	0.326189	0.340777	0.331217

AVERAGE CALCULATION VALUES

RUN 1 - DB

A B B B C

STEADY STATE PERIOD

PTID.	NAME	DESCRIPTION	1	2	3	4	5
521	C2SCC3	CC MF CHR/RAW COAL LB/LB	0.531576	0.354925	0.275462	0.348321	0.400138
493	C2SSC3	CC STM/MF CHAR LB/LB	1.13324	1.76006	2.26594	1.80951	0.952701
588	CCCSTM	CC STM/RAW COAL LB/LB	0.602402	0.624691	0.624180	0.630290	0.381212
494	C2SSC4	CC STM/MF COAL LB/LB	0.646077	0.669982	0.669434	0.675987	0.408850
589	CCSTM	CC STM/MAF COAL LB/LB	0.728683	0.755645	0.755027	0.762417	0.461125
497	C2SWC3	CC H2O/MF CHAR LB/LB	0.024	0.000	0.000	0.000	0.000
498	C2SWC4	CC H2O/RAW COAL LB/LB	0.013	0.000	0.000	0.000	0.000

AVERAGE CALCULATION VALUES

RUN 1 - DB

A B B B C

STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	1	2	3	4	5
PRETREATER, GASIFIER COMBINED CALCULATIONS							
798	CMFRC	MF COAL/ RAW COAL LB/LB	0.932400	0.932400	0.932400	0.932400	0.932400
799	CMAFRC	MAF COAL/ RAW COAL LB/LB	0.826700	0.826700	0.826700	0.826700	0.826700
800	CTOTC1	TOTAL O2/RAW COAL SCF/LB	3.91684	3.92033	3.99566	3.96354	2.93436
801	CTOTC2	TOTAL O2/MF COAL SCF/LB	4.20082	4.20456	4.28535	4.25090	3.14711
802	CTOTC3	TOTAL O2/MAF COAL SCF/LB	4.73792	4.74214	4.83327	4.79441	3.54949
803	CTOTC4	TOTAL O2/RAW COAL LB/LB	0.330274	0.330568	0.336920	0.334212	0.247430
804	CTOTC5	TOTAL O2/MF COAL LB/LB	0.354219	0.354534	0.361347	0.358443	0.265369
805	CTOTC6	TOTAL O2/MAF COAL LB/LB	0.399509	0.399864	0.407548	0.404272	0.299298
806	CTSTC1	TTL STM/RAW COAL SCF/LB	46.4565	42.0449	42.6566	40.6328	20.8811
807	CTSTC2	TTL STM/MF COAL SCF/LB	49.8357	45.1032	45.7594	43.5885	22.4000
808	CTSTC3	TTL STM/MAF COAL SCF/LB	56.2075	50.8700	51.6101	49.1616	25.2641
809	CTSTC4	TTL STM/RAW COAL LB/LB	2.20592	1.99644	2.02548	1.92939	0.991511
810	CTSTC5	TTL STM/MF COAL LB/LB	2.36585	2.14118	2.17233	2.06927	1.06340
811	CTSTC6	TTL STM/MAF COAL LB/LB	2.66834	2.41495	2.45008	2.33385	1.19936
556	CT02ST	TTL O2/STEAM SCF/SCF	0.084	0.093	0.094	0.098	0.140

UPDATED AVERAGE GAS SAMPLE COMPOSITIONS

RUN 1 - DB

A B B B C

STEADY STATE PERIOD

COMPONENT	1		2		3		4		5	
	DRY	WET	DRY	WET	DRY	WET	DRY	WET	DRY	WET
MOLX-H2	26.20	24.19	27.30	26.16	28.10	27.07	27.50	25.68	26.00	24.63
MOLX-CO	6.70	6.19	8.20	7.86	8.50	8.19	8.60	8.03	9.10	8.62
MOLX-CO2	56.79	52.44	53.80	51.55	52.70	50.76	53.10	49.59	54.00	51.16
MOLX-CH4	9.60	8.86	9.70	9.30	9.90	9.54	10.10	9.43	9.70	9.19
MOLX-C2H6	0.30	0.28	0.40	0.38	0.30	0.29	0.20	0.19	0.40	0.38
MOLX-N2	0.10	0.09	0.10	0.10	0.10	0.10	0.10	0.09	0.10	0.09
MOLX-NH3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-H2S	0.30	0.28	0.50	0.48	0.40	0.39	0.40	0.37	0.70	0.66
MOLX-H2O	0.00	7.66	0.00	4.17	0.00	3.67	0.00	6.60	0.00	5.24
MOLX-O2	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C2H4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C3H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C3H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

UPSTR PRESS-(P227) PSIG	600.37	582.23	582.83	582.57	585.79
FLOW TEMP-(TI20010) DEGF	277.44	239.06	231.99	266.25	252.75
MOL WT. (WET)	28.29	27.95	27.60	27.49	28.20
DRY GAS MAKE, 1000-SCFH	126.59	130.83	132.43	123.35	134.08
WET GAS MAKE, 1000-SCFH	137.09	136.52	137.48	132.06	141.50
H2/CO MOL RATIO	3.91	3.33	3.31	3.20	2.86

MATERIAL BALANCES

ELEMENTAL AND OVERALL

RUN 1 - DB		STEADY STATE NO. 1						
FEED FLOW RATES (LB/HR)		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	TOTAL
MF COAL FEED RATE		2848.8	188.6	668.3	43.5	37.1	484.1	4270.4
COAL MOISTURE CONTENT		0.0	34.4	275.2	0.0	0.0	0.0	309.6
COAL FEED RATE		2848.8	223.0	943.5	43.5	37.1	484.1	4580.0
STEAM FLOW								
FLDZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR STM FEED RATE	F204	0.0	846.8	6774.2	0.0	0.0	0.0	7621.0
CHR CLR STM FEED	F205	0.0	306.6	2452.4	0.0	0.0	0.0	2759.0
HP STM TO CHAR CLR	F253	0.0	32.4	259.6	0.0	0.0	0.0	292.0
GASF STEAM PURGES	F278	0.0	62.2	497.8	0.0	0.0	0.0	560.0
CC STEAM PURGES	F279	0.0	16.1	128.9	0.0	0.0	0.0	145.0
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW								
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR O2 FEED RATE	F203	0.0	0.0	1512.7	0.0	0.0	0.0	1512.7
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW								
CO2 TRANSPORT FLOW	F6	494.7	0.0	1319.2	0.0	0.0	0.0	1813.9
CO2 FLOW TO FE-105	F7	176.7	0.0	471.2	0.0	0.0	0.0	647.9
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	120.8	0.0	322.1	0.0	0.0	0.0	442.9
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230	0.0	6.5	52.2	0.0	0.0	0.0	58.7
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		3640.9	1632.6	15844.8	43.5	37.1	484.1	21683.1

EFFLUENT FLOW RATES (LB/HR)								
CARRY OVER		CARRY	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	1775.7	43.5	107.7	16.0	7.5	484.1	2434.6
WASTE WATER FLOW	F255	0.0	815.4	6523.4	0.0	0.0	0.0	7338.9
STM FLW FR CHAR CLR	F254	0.0	76.4	611.2	0.0	0.0	0.0	687.6
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	2950.3	366.3	6863.4	9.4	32.0	0.0	10255.4
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		4726.0	1301.7	14105.8	25.4	39.5	484.1	20716.5

% CLOSURE (OUT/IN)(100)		129.8	79.7	89.0	58.4	106.5	100.0	95.5

MATERIAL BALANCES

ELEMENTAL AND OVERALL

FEED FLOW RATES (LB/HR)		RUN 1		DE	STEADY STATE		NO.	2	TOTAL
				CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH
MF COAL FEED RATE				3022.9	200.2	709.1	46.2	39.4	513.7
COAL MOISTURE CONTENT				0.0	36.5	292.0	0.0	0.0	0.0
COAL FEED RATE				3022.9	236.7	1001.2	46.2	39.4	513.7
STEAM FLOW									
FLDZNG STM TO PRTR	F284			0.0	0.0	0.0	0.0	0.0	0.0
GSFR STM FEED RATE	F204			0.0	764.9	6119.1	0.0	0.0	0.0
CHR CLR STM FEED	F205			0.0	337.3	2698.7	0.0	0.0	6884.0
HP STM TO CHAR CLR	F253			0.0	26.7	213.3	0.0	0.0	3036.0
GASF STEAM PURGES	F278			0.0	62.2	497.8	0.0	0.0	240.0
CC STEAM PURGES	F279			0.0	16.1	128.9	0.0	0.0	560.0
STM TRANSPORT FLOW	F1			0.0	0.0	0.0	0.0	0.0	145.0
CHAR TRANSPORT STEAM	F229			0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW									
OXYGEN TO PRTR	F285			0.0	0.0	0.0	0.0	0.0	0.0
GSFR O2 FEED RATE	F203			0.0	0.0	1606.6	0.0	0.0	0.0
TRANSPORT LINE O2	F289			0.0	0.0	0.0	0.0	0.0	1606.6
CARBON DIOXIDE FLOW									
CO2 TRANSPORT FLOW	F6			448.2	0.0	1195.1	0.0	0.0	0.0
CO2 FLOW TO FE-105	F7			180.8	0.0	482.1	0.0	0.0	1643.2
PRETREATER CO2 FLOW	F283			0.0	0.0	0.0	0.0	0.0	662.8
CO2 INST PURGE FLOW	F274			120.8	0.0	322.1	0.0	0.0	0.0
SEAL WATER AND BFW PURGES									
				0.0	138.9	1111.1	0.0	0.0	0.0
H2O FLW TO CHAR CLR	F230			0.0	0.0	0.0	0.0	0.0	1250.0
FILTRATE TO FA-401	F403			0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)				3772.6	1582.8	15375.8	46.2	39.4	513.7
EFFLUENT FLOW RATES (LB/HR)									
CARRY OVER	CARRY			0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH			1100.4	17.7	80.9	7.0	5.1	513.7
WASTE WATER FLOW	F255			0.0	465.1	3721.2	0.0	0.0	1724.9
STM FLW FR CHAR CLR	F254			0.0	57.5	459.8	0.0	0.0	4186.3
H2O FR CHR SLURRY TK	ZWCST			0.0	0.0	0.0	0.0	0.0	517.3
RW GS SCRBR EF	F209			2999.6	363.8	6626.8	9.7	55.2	0.0
TAR FLOW THRLM OXDZR	F221			0.0	0.0	0.0	0.0	0.0	10113.6
TOTAL EFFLUENT FLOW RATE (LB/HR)				4100.1	904.1	10888.7	16.8	60.3	513.7
% CLOSURE (OUT/IN)(100)				108.7	57.1	70.8	36.3	153.1	100.0

MATERIAL BALANCES

ELEMENTAL AND OVERALL

RUN 1 - DB

STEADY STATE NO. 3

FEED FLOW RATES (LB/HR)		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	TOTAL
MF COAL FEED RATE								
COAL MOISTURE CONTENT		3035.4	201.0	712.0	46.4	39.5	515.8	4550.1
COAL FEED RATE		0.0	36.7	293.2	0.0	0.0	0.0	329.9
		3035.4	237.7	1005.3	46.4	39.5	515.8	4880.0
STEAM FLOW								
FLDZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR STM FEED RATE	F204	0.0	779.8	6238.2	0.0	0.0	0.0	7018.0
CHR CLR STM FEED	F205	0.0	338.4	2707.6	0.0	0.0	0.0	3046.0
HP STM TO CHAR CLR	F253	0.0	26.9	215.5	0.0	0.0	0.0	242.4
GASF STEAM PURGES	F278	0.0	62.2	497.8	0.0	0.0	0.0	560.0
CC STEAM PURGES	F279	0.0	16.1	128.9	0.0	0.0	0.0	145.0
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW								
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR O2 FEED RATE	F203	0.0	0.0	1644.2	0.0	0.0	0.0	1644.2
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW								
CO2 TRANSPORT FLOW	F6	467.4	0.0	1246.3	0.0	0.0	0.0	1713.7
CO2 FLOW TO FE-105	F7	114.2	0.0	304.7	0.0	0.0	0.0	418.9
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	120.8	0.0	322.1	0.0	0.0	0.0	442.9
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		3737.8	1600.0	15421.6	46.4	39.5	515.8	21361.1
EFFLUENT FLOW RATES (LB/HR)								
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	745.9	9.6	61.3	4.3	7.3	515.8	1344.3
WASTE WATER FLOW	F255	0.0	470.8	3766.1	0.0	0.0	0.0	4236.9
STM FLW FR CHAR CLR	F254	0.0	53.6	428.5	0.0	0.0	0.0	482.1
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	3002.9	370.1	6571.9	9.8	44.7	0.0	10046.8
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		3748.8	904.1	10827.9	14.1	51.9	515.8	16110.1
% CLOSURE (OUT/IN)(100)		100.3	56.5	70.2	30.4	131.4	100.0	75.4

MATERIAL BALANCES

ELEMENTAL AND OVERALL

FEED FLOW RATES (LB/HR)		RUN 1 - DB		STEADY STATE NO. 4				
		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	TOTAL
MF COAL FEED RATE		2998.0	198.5	703.3	45.8	39.0	509.5	4494.2
COAL MOISTURE CONTENT		0.0	36.2	289.6	0.0	0.0	0.0	325.8
COAL FEED RATE		2998.0	234.7	992.9	45.8	39.0	509.5	4820.0
STEAM FLOW								
FLDZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR STM FEED RATE	F204	0.0	765.3	6122.7	0.0	0.0	0.0	6888.0
CHR CLR STM FEED	F205	0.0	337.6	2700.4	0.0	0.0	0.0	3038.0
HP STM TO CHAR CLR	F253	0.0	27.1	217.1	0.0	0.0	0.0	244.2
GASF STEAM PURGES	F278	0.0	62.2	497.8	0.0	0.0	0.0	560.0
CC STEAM PURGES	F279	0.0	16.1	128.9	0.0	0.0	0.0	145.0
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW								
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR O2 FEED RATE	F203	0.0	0.0	1610.9	0.0	0.0	0.0	1610.9
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW								
CO2 TRANSPORT FLOW	F6	447.3	0.0	1192.9	0.0	0.0	0.0	1640.2
CO2 FLOW TO FE-105	F7	172.9	0.0	461.0	0.0	0.0	0.0	633.9
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	120.8	0.0	322.1	0.0	0.0	0.0	442.9
SEAL WATER AND BFW PURGES								
		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0
H2O FLW TO CHAR CLR								
F230		0.0	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401								
F403		0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		3739.0	1582.0	15357.7	45.8	39.0	509.5	21273.0
EFFLUENT FLOW RATES (LB/HR)								
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	1067.7	16.5	72.6	8.5	4.2	509.5	1678.9
WASTE WATER FLOW	F255	0.0	486.2	3889.4	0.0	0.0	0.0	4375.6
STM FLW FR CHAR CLR	F254	0.0	103.4	827.2	0.0	0.0	0.0	930.6
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	2816.5	362.6	6337.0	9.2	41.6	0.0	9611.0
TAR FLOW THRML OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		3884.1	968.6	11126.2	17.7	45.8	509.5	16596.1
% CLOSURE (OUT/IN)(100)								
		103.9	61.2	72.4	38.5	117.3	100.0	78.0

MATERIAL BALANCES

ELEMENTAL AND OVERALL

FEED FLOW RATES (LB/HR)	RUN 1	DB	STEADY STATE NO. 5					TOTAL
			CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	
MF COAL FEED RATE			4105.2	271.8	963.0	62.7	53.5	6153.8
COAL MOISTURE CONTENT			0.0	49.6	396.6	0.0	0.0	446.2
COAL FEED RATE			4105.2	321.4	1359.6	62.7	53.5	6600.0
STEAM FLOW								
FLDZNG STM TO PRTR	F284		0.0	0.0	0.0	0.0	0.0	0.0
GSFR STM FEED RATE	F204		0.0	707.7	5661.3	0.0	0.0	6369.0
CHR CLR STM FEED	F205		0.0	279.6	2236.4	0.0	0.0	2516.0
HP STM TO CHAR CLR	F253		0.0	17.7	141.5	0.0	0.0	159.2
GASF STEAM PURGES	F278		0.0	62.2	497.8	0.0	0.0	560.0
CC STEAM PURGES	F279		0.0	16.1	128.9	0.0	0.0	145.0
STM TRANSPORT FLOW	F1		0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229		0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW								
OXYGEN TO PRTR	F285		0.0	0.0	0.0	0.0	0.0	0.0
GSFR O2 FEED RATE	F203		0.0	0.0	1633.0	0.0	0.0	1633.0
TRANSPORT LINE O2	F289		0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW								
CO2 TRANSPORT FLOW	F6		462.4	0.0	1233.1	0.0	0.0	1695.5
CO2 FLOW TO FE-105	F7		222.8	0.0	594.0	0.0	0.0	816.8
PRETREATER CO2 FLOW	F283		0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274		120.8	0.0	322.1	0.0	0.0	442.9
SEAL WATER AND BFW PURGES			0.0	138.9	1111.1	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230		0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401	F403		0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)			4911.2	1543.6	14918.9	62.7	53.5	22187.4
EFFLUENT FLOW RATES (LB/HR)								
CARRY OVER	CARRY		0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH		1787.4	28.1	111.6	9.8	6.4	2640.9
WASTE WATER FLOW	F255		0.0	745.8	5966.5	0.0	0.0	6712.3
STM FLW FR CHAR CLR	F254		0.0	284.5	2275.7	0.0	0.0	2560.2
H2O FR CHR SLURRY TK	ZWCST		0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209		3120.8	373.5	6932.0	9.9	79.1	10599.4
TAR FLOW THRLM OXDZR	F221		0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)			4908.2	1431.9	15285.8	19.8	85.5	22512.8
% CLOSURE (OUT/IN)(100)			99.9	92.8	102.5	31.5	159.9	101.5

LEGEND

STREAM NUMBER
 TEMPERATURE, DEG F
 PRESSURE, PSIG
 BED LEVEL, FEET
 DENSITY, LB/CU. FT.

RUN 1 - DB STEADY STATE PERIOD NO. 6.

GAS STREAMS

	2	3	9	10	11	14
SCFH	14643.2	131493.3	140939.9	17978.6	52326.7	53087.8
MW	44	28.78	18	32	18	18
LB/HR	1697.8	9972.7	6684.9	1516.0	2481.9	2518.0

LIQUID STREAMS

LB/HR	4	5	6	13
H2O	6063.2			0.0
OIL		0.0		
TAR			0.0	

SOLID STREAMS

	1	7	15
LB/HR (AS RECEIVED)	5640.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	5259.		2133.

LB TOTAL STEAM/LB MF COAL	1.27
LB TOTAL OXYGEN/LB MF COAL	0.29
SCF ULTIMATE CH4/LB MF COAL	4.37
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	59.62
GAS BASIS	62.57
GASIFIER TOP SURFCL VEL, FPS	0.727
VOL PCT O2 IN TOTAL FEED GAS	11.31
STREAM NOS. 8 AND 12 LB/HR	1147.9

STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	1.0
C	66.4
N	0.4
O	4.0
S	0.2
ASH	28.0

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H2	23.67
MOL PCT-CO	6.98
MOL PCT-CO2	53.28
MOL PCT-CH4	9.52
MOL PCT-C2H6	0.47
MOL PCT-N2	0.09
MOL PCT-NH3	0.00
MOL PCT-H2S	0.28
MOL PCT-H2O	5.69
MOL PCT-O2	0.00

RUN 1 - DB
STEADY STATE PERIOD NO. 7.

GAS STREAMS						
	2	3	9	10	11	14
SCFH	14434.8	130055.9	143021.5	18124.9	52090.6	53298.7
MW	44	27.58	18	32	18	18
LB/HR	1673.6	9452.9	6783.6	1528.3	2470.7	2528.0

LIQUID STREAMS			
LB/HR	4	5	6
H2O	7210.5		
OIL		0.0	
TAR			0.0

SOLID STREAMS		
LB/HR (AS RECEIVED)	1	15
PERCENT MOISTURE	6.8	
LB/HR (MOISTURE FREE)	4103.	1487.

LB TOTAL STEAM/LB MF COAL	1.65
LB TOTAL OXYGEN/LB MF COAL	0.37
SCF ULTIMATE CH4/LB MF COAL	5.25
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	65.64
GAS BASIS	72.98
GASIFIER TOP SURFCL VEL, FPS	0.801
VOL PCT O2 IN TOTAL FEED GAS	11.25
STREAM NOS. 8 AND 12 LB/HR	1147.9

STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	1.0
C	63.3
N	0.3
O	3.9
S	0.2
ASH	31.3

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H2	25.78
MOL PCT-CO	7.02
MOL PCT-CO2	49.71
MOL PCT-CH4	9.15
MOL PCT-C2H6	0.18
MOL PCT-N2	0.09
MOL PCT-NH3	0.00
MOL PCT-H2S	0.46
MOL PCT-H2O	7.60
MOL PCT-O2	0.00

RUN 1 - DB
STEADY STATE PERIOD NO. 8.

GAS STREAMS						
	2	3	9	10	11	14
SCFH	14404.7	127892.5	151037.1	17852.4	43460.1	53235.4
MW	44	27.74	18	32	18	18
LB/HR	1670.1	9350.1	7163.8	1505.3	2061.3	2525.0

	LIQUID STREAMS			
LB/HR	4	5	6	13
H ₂ O	7565.2			0.0
OIL		0.0		
TAR			0.0	

SOLID STREAMS			
	1	7	15
LB/HR (AS RECEIVED)	4400.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	4103.		1617.

STREAM NO. 3		AVERAGE GAS COMPOSITION	
LB TOTAL STEAM/LB MF COAL		MOLE PERCENT - WET BASIS	
1.75		MOL PCT-H ₂	26.55
LB TOTAL OXYGEN/LB MF COAL		MOL PCT-CO	6.97
0.37		MOL PCT-CO ₂	50.28
SCF ULTIMATE CH ₄ /LB MF COAL		MOL PCT-CH ₄	9.32
5.20		MOL PCT-C ₂ H ₆	0.19
AVERAGE CARBON CONV WEIGHT PCT		MOL PCT-N ₂	0.09
CHAR BASIS		MOL PCT-NH ₃	0.00
61.44		MOL PCT-H ₂ S	0.75
GAS BASIS		MOL PCT-H ₂ O	5.84
72.24		MOL PCT-O ₂	0.00
GASIFIER TOP SUPERF. VEL, FPS			
0.819			
VOL PCT O ₂ IN TOTAL FEED GAS			
10.57			
STREAM NOS. 8 AND 12 LB/HR			
1147.9			
STREAM NO. 15			
CHAR ANALYSIS WT PCT - DRY BASIS			
H	1.1		
C	65.3		
N	0.5		
O	4.1		
S	0.2		
ASH	28.8

RUN 1 - DB
STEADY STATE PERIOD NO. 9.

GAS STREAMS

	2	3	9	10	11	14
SCFH	14299.7	136500.0	133212.5	19581.5	53186.3	49279.2
MW	44	26.94	18	32	18	18
LB/HR	1657.9	9688.7	6318.4	1651.1	2522.7	2337.4

LIQUID STREAMS

LB/HR	4	5	6	13
H ₂ O	6622.6			0.0
OIL		0.0		
TAR			0.0	

SOLID STREAMS

LB/HR (AS RECEIVED)	1	7	15
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	5082.		2317.

LB TOTAL STEAM/LB MF COAL	1.24
LB TOTAL OXYGEN/LB MF COAL	0.32
SCF ULTIMATE CH ₄ /LB MF COAL	5.57
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	52.75
GAS BASIS	58.34
GASIFIER TOP SUPERFICIAL VEL, FPS	0.800
VOL PCT O ₂ IN TOTAL FEED GAS	12.82
STREAM NOS. 8 AND 12 LB/HR	1463.4

STREAM NO. 15
CHAR ANALYSIS WT PCT - DRY BASIS

H	1.2
C	69.1
N	0.5
O	4.1
S	0.1
ASH	24.9

STREAM NO. 3
AVERAGE GAS COMPOSITION
MOLE PERCENT - WET BASIS

MOL PCT-H ₂	25.92
MOL PCT-CO	8.45
MOL PCT-CO ₂	46.82
MOL PCT-CH ₄	10.03
MOL PCT-C ₂ H ₆	1.21
MOL PCT-N ₂	0.28
MOL PCT-NH ₃	0.00
MOL PCT-H ₂ S	0.19
MOL PCT-H ₂ O	7.11
MOL PCT-O ₂	0.00

RUN 1 - DB
STEADY STATE PERIOD NO. 10.

	2	3	9	10	11	14
SCFH	14344.2	129700.0	129081.9	18578.6	55215.7	49075.8
MW	44	28.35	18	32	18	18
LB/HR	1663.1	9687.7	6122.9	1566.6	2618.9	2327.7

	4	5	6	13
LB/HR				
H2O	8694.8			36.9
OIL		0.0		
TAR			0.0	

	1	7	15
LB/HR (AS RECEIVED)	5550.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	5175.		1981.

LB TOTAL STEAM/LB MF COAL	1.18
LB TOTAL OXYGEN/LB MF COAL	0.30
SCF ULTIMATE CH4/LB MF COAL	4.95
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	61.76
GAS BASIS	59.37
GASIFIER TOP SURFCL VEL, FPS	0.916
VOL PCT O2 IN TOTAL FEED GAS	12.58
STREAM NOS. 8 AND 12 LB/HR	1352.9

STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	1.0
C	66.6
N	0.5
O	2.0
S	0.4
ASH	29.6

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H2	23.04
MOL PCT-CO	7.57
MOL PCT-CO2	50.91
MOL PCT-CH4	9.99
MOL PCT-C2H6	1.21
MOL PCT-N2	0.00
MOL PCT-NH3	0.00
MOL PCT-H2S	0.19
MOL PCT-H2O	7.10
MOL PCT-O2	0.00

FOR STEADY STATE PERIOD 6
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 5:17 2/28/77
ENDING TIME 8:29 2/28/77

FOR STEADY STATE PERIOD 7
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 18:32 2/28/77
ENDING TIME 23:55 2/28/77

FOR STEADY STATE PERIOD 8
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 4:31 3/ 1/77
ENDING TIME 8:55 3/ 1/77

FOR STEADY STATE PERIOD 9
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 17:10 3/31/77
ENDING TIME 20:10 3/31/77

FOR STEADY STATE PERIOD 10
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 8:12 4/ 1/77
ENDING TIME 9:42 4/ 1/77

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID NAME DESCRIPTION

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GASIFICATION CALCULATIONS

84	XQ001	COAL FEED RATE	PPH	5640.00	4400.00	4400.00	5450.00	5550.00
220	P256	GSFR VESSEL PRESS	PSIG	596.229	596.153	596.047	596.486	595.572
235	P295	GASIFIER PRESSURE	PSIG	585.227	584.797	582.639	601.991	602.344
550	CSFTG	STEAM FLOW TO GASF	LB/HR	6459.00	6539.00	6514.00	6230.91	6120.02
227	F203	GSFR O2 FEED RATE	SCFH	17978.6	18124.9	17852.4	19581.5	18578.6
581	CSCCTG	STNPIPE STM TO GSFR	PPH	225.898	244.633	649.821	87.4727	2.92090
345	T205	GASIFIER BED AT 18"	DEGF	1497.61	1502.28	1499.99	1496.21	1484.60
424	C2FBDG	GSF FLD BED DNSTY	LB/FT3	14.7490	16.8577	16.4351	19.8471	19.8837
425	C2FBHG	GSF FLD BED HEIGHT	FT	12.3248	16.1979	17.2467	13.6112	12.1347
572	CGBV	GASIFIER BED VOLUME	FT3	95.2408	123.038	130.230	103.308	93.4341
427	C2SIG	GSF SOLIDS INVENTORY	LB	1413.81	2066.34	2133.33	2047.56	1860.44
426	C2SRTG	GSF SOLIDS RES TIME	MIN	16.1310	30.2202	31.2000	24.1763	21.5711
429	C2SCG2	GASF COAL FEED	PPH/FT2	797.737	622.348	622.348	770.863	785.007
428	C2SCG1	GASF COAL FEED	PPH/FT3	59.2183	35.7613	33.7863	52.7551	59.4002
526	C2GPD	GSF PRESS DROP "H2O/FTBD		2.86074	3.22818	3.16457	3.86411	3.84319
420	C2SVBG	GSF SUP VEL-BOT BED	FPS	0.544460	0.552880	0.578859	0.522233	0.502551
423	C2SVOG	GSF SUP VEL-OUTLET	FPS	0.510004	0.561146	0.570818	0.501648	0.645075
421	C2SVTG	GSF SUP VEL-TOP BED	FPS	0.727055	0.801327	0.818792	0.800284	0.916391
422	C2SVMG	GSF SUP VEL-MEAN BED	FPS	0.635757	0.677103	0.698825	0.661258	0.709471
584	CGSF02	GSF O2/RAW COAL	SCF/LB	3.18769	4.11929	4.05737	3.59293	3.34750
433	C2SOG2	GASF O2/MF COAL	SCF/LB	3.41880	4.41795	4.35153	3.85343	3.59020

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	6	7	8	9	10
435	C2SOG4	GASF O2/MAF COAL SCF/LB	3. 85592	4. 98281	4. 90791	4. 34612	4. 04924
585	CGSF03	GASF O2/RAW COAL LB/LB	0. 268790	0. 347345	0. 342123	0. 302961	0. 282266
432	C2SOG1	GASF O2/MF COAL LB/LB	0. 288278	0. 372528	0. 366928	0. 324927	0. 302731
434	C2SOG3	GASF O2/MAF COAL LB/LB	0. 325137	0. 420159	0. 413842	0. 366471	0. 341438
586	CGSMSM	GASF STM/RAW COAL SCF/LB	24. 9616	32. 4688	34. 2885	24. 4156	23. 2340
437	C2SSG2	GASF STM/MF COAL SCF/LB	26. 7773	34. 8306	36. 7827	26. 1915	24. 9240
439	C2SSG4	GASF STM/MAF COAL SCF/LB	30. 2010	39. 2840	41. 4856	29. 5403	28. 1108
587	CGSSTM	GASF STM/RAW COAL LB/LB	1. 18527	1. 54173	1. 62814	1. 15934	1. 10323
436	C2SSG1	GASF STM/MF COAL LB/LB	1. 27120	1. 65351	1. 74618	1. 24339	1. 18322
438	C2SSG3	GASF STM/MAF COAL LB/LB	1. 43373	1. 86493	1. 96945	1. 40237	1. 33450
555	CG02ST	GSF O2/STEAM SCF/SCF	0. 127675	0. 126841	0. 118304	0. 147125	0. 144046
342	F255	WASTE WATER FLOW GPM	12. 1265	14. 4210	15. 1303	13. 2451	17. 3897
243	F221	TAR FLOW THRML OXDZR GPM	0. 000	0. 000	0. 000	0. 000	0. 000
245	F209	RW GS SCRBR EF 1000-SCFH	131. 493	130. 056	127. 892	136. 500	129. 700
574	CNRGG	RAW GAS FROM GASF SCFH	232362.	255091.	260399.	249151.	286003.
575	CTGFB	TOTAL GAS FROM BED SCFH	222793.	245522.	250829.	239582.	276433.
475	C2CI	GASF CARBON INVENTORY LB	939. 109	1307. 08	1392. 08	1415. 59	1239. 56
551	CCGPPH	CARBON GASIFIED PPH	2091. 39	1796. 32	1681. 54	1788. 10	2132. 17
594	C2GR4	GASF RATE LBC/HR-FT3BD	21. 9590	14. 5997	12. 9120	17. 3085	22. 8201
595	C2GR3	GASF RATE LBC/HR-LBCBD	2. 22700	1. 37430	1. 20793	1. 26314	1. 72010
455	C2MRG2	CH4 PROD GAS SCFH/FT3BD	131. 498	96. 6924	91. 5413	132. 553	138. 627

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	6	7	8	9	10
454	C2MRG1	CH4 IN RAW GAS LBC/LBCBD	0. 421684	0. 287800	0. 270787	0. 305876	0. 330405
451	C2CG1	CARBON CONVRSN (CHAR) %	59. 6165	65. 6357	61. 4417	52. 7479	61. 7645
452	C2CG12	CARBON CONVRSN (GAS) %	62. 5730	72. 9792	72. 2447	58. 3408	59. 3707
596	CUGYM	USEFL GAS YLD SCF/LB-MAF	11. 4623	15. 0647	15. 1290	13. 8177	11. 8172
592	CECH4R	EQUIV CH4 SCF/LB-RAW	2. 44393	2. 81744	2. 82327	3. 11920	2. 89982
591	CECH4M	EQUIV CH4 SCF/LB-MF	2. 62112	3. 02171	3. 02797	3. 34535	3. 11006
579	CECH4C	EQUIV CH4 SCF/LB-MAF	2. 95625	3. 40806	3. 41512	3. 77308	3. 50771
466	C2MYG4	GSF CH4 YLD-MAF CF/HR-LB	2. 68605	3. 27063	3. 27740	3. 03933	2. 82301
577	CTUCH4	TOTAL ULTIMATE CH4 SCFH	22959. 7	21529. 7	21333. 4	28314. 0	25625. 7
560	CUCH4R	ULT CH4/RAW COAL SCF/LB	4. 07088	4. 89311	4. 84850	5. 19522	4. 61724
561	CUCH4M	ULT CH4/MF COAL SCF/LB	4. 36602	5. 24787	5. 20003	5. 57189	4. 95200
562	CUCH4A	ULT CH4/MAF COAL SCF/LB	4. 92425	5. 91885	5. 86489	6. 28430	5. 58515
450	C2SCG	STM CONV - H2O BALANCE %	32. 9855	15. 3214	16. 4172	19. 2455	-14. 6277
598	CSCH2	STM CONV - H2 BALANCE %	12. 5223	18. 3084	18. 3536	22. 0702	15. 5923
552	CSPV	SPACE VELOCITY 1/MIN	2. 26813	1. 78424	1. 77844	1. 97185	2. 10326
553	CSPT	SPACE TIME MIN	0. 440891	0. 560462	0. 562290	0. 507138	0. 475452

AVERAGE CALCULATION VALUES

RUN 1 - DB

C D D G H
STEADY STATE PERIOD

PTID NAME DESCRIPTION

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CHAR COOLER CALCULATIONS

230	F205	CHR CLR STM FEED	PPH	2518.00	2528.00	2525.00	2337.36	2327.71
234	F230	H2O FLW TO CHAR CLR	GPH	0.000	0.000	0.000	0.000	4.865
336	F253	HP STM TO CHAR CLR	PPH	189.796	187.330	186.165	272.783	253.612
599	CFRPPH	CHAR REMOVAL RATE	PPH	2132.79	1486.79	1617.17	2316.90	1981.06
341	F254	STM FLW FR CHAR CLR	PPH	2481.90	2470.70	2061.35	2522.67	2618.93
372	F229	CHAR TRANSPORT STEAM	PPH	0.000	0.000	0.000	0.000	0.000
224	P258	CHAR COOLER PRESS	PSIG	599.094	599.726	599.574	592.786	592.910
346	T202	CHR CLR UPPR BD TMP	DEGF	675.319	725.653	727.991	729.246	703.344
89	T20004	C.C. BD AT 19FT-2IN	DEGF	582.197	636.382	651.095	643.666	622.280
487	C2FBDC	CC FLD BED DNSTY	LB/FT3	17.4671	19.3976	18.3314	22.3680	20.8961
488	C2FBHC	CC FLD BED HEIGHT	FT	5.99549	8.14999	7.39818	6.83559	7.95756
573	CCCBV	CHAR CLR BED VOLUME	FT3	17.1996	22.8232	21.5246	19.4048	22.0556
490	C2SIC	CC SOLIDS INVENTORY	LB	300.426	442.716	394.576	434.048	460.876
489	C2SRTC	CC SOLIDS RES TIME	MIN	8.46564	17.9386	14.2359	11.2642	14.1815
520	C2SCC2	CC MF CHAR FD	LB/HR-FT2	807.875	563.178	612.563	877.613	750.400
499	C2SCC1	CC MF CHAR FD	LB/HR-FT3	124.003	65.1437	75.1311	119.398	89.8210
534	C2CPD	CC PRESS DROP	"H2O/FTBD	3.35800	3.72900	3.52400	4.30000	4.01700
484	C2SSV	CC STEAM SUP VEL	FPS	0.307509	0.323083	0.323666	0.286994	0.281688
485	C2WSV	CC VAP H2O SUP VEL	FPS	0.000	0.000	0.000	0.000	0.004
590	CCATSM	CC ATM STM SUP VEL	FPS	0.022	0.021	0.023	0.034	0.031
486	C2TSV	CC TOT STM SUP VEL	FPS	0.329483	0.344023	0.346380	0.320594	0.316920

AVERAGE CALCULATION VALUES

RUN 1 - DB

STEADY STATE PERIOD

			C	D	D	G	H
PTID	NAME	DESCRIPTION	6	7	8	9	10
521	C2SCC3	CC MF CHR/RAW COAL LB/LB	0.378154	0.337907	0.367538	0.425119	0.356947
493	C2SSC3	CC STM/MF CHAR LB/LB	1.18061	1.70031	1.56137	1.00883	1.17498
588	CCCSTM	CC STM/RAW COAL LB/LB	0.446454	0.574545	0.573864	0.428873	0.419407
494	C2SSC4	CC STM/MF COAL LB/LB	0.478822	0.616201	0.615469	0.459967	0.449814
589	CCSTM	CC STM/MF COAL LB/LB	0.540044	0.694987	0.694162	0.518777	0.507327
497	C2SWC3	CC H2O/MF CHAR LB/LB	0.000	0.000	0.000	0.000	0.020
498	C2SWC4	CC H2O/RAW COAL LB/LB	0.000	0.000	0.000	0.000	0.007

AVERAGE CALCULATION VALUES

RUN 1 - DB

C

D

D

G

H

STEADY STATE PERIOD

PTID NAME DESCRIPTION

6

7

8

9

10

PRETREATER, GASIFIER COMBINED CALCULATIONS

798	CMFRC	MF COAL/ RAW COAL LB/LB	0. 932400	0. 932400	0. 932400	0. 932400	0. 932400
799	CMAFRC	MAF COAL/ RAW COAL LB/LB	0. 826699	0. 826700	0. 826700	0. 826700	0. 826700
800	CTOTC1	TOTAL O2/RAW COAL SCF/LB	3. 18769	4. 11929	4. 05737	3. 59293	3. 34750
801	CTOTC2	TOTAL O2/MF COAL SCF/LB	3. 41880	4. 41795	4. 35153	3. 85343	3. 59020
802	CTOTC3	TOTAL O2/MAF COAL SCF/LB	3. 85592	4. 98281	4. 90791	4. 34612	4. 04924
803	CTOTC4	TOTAL O2/RAW COAL LB/LB	0. 268790	0. 347345	0. 342123	0. 302961	0. 282266
804	CTOTC5	TOTAL O2/MF COAL LB/LB	0. 288278	0. 372528	0. 366928	0. 324927	0. 302731
805	CTOTC6	TOTAL O2/MAF COAL LB/LB	0. 325137	0. 420159	0. 413842	0. 366471	0. 341438
806	CTSTC1	TTL STM/RAW COAL SCF/LB	24. 9616	32. 4688	34. 2885	24. 4156	23. 2340
807	CTSTC2	TTL STM/MF COAL SCF/LB	26. 7773	34. 8306	36. 7827	26. 1915	24. 9240
808	CTSTC3	TTL STM/MAF COAL SCF/LB	30. 2010	39. 2840	41. 4856	29. 5403	28. 1108
809	CTSTC4	TTL STM/RAW COAL LB/LB	1. 18527	1. 54173	1. 62814	1. 15934	1. 10323
810	CTSTC5	TTL STM/MF COAL LB/LB	1. 27120	1. 65351	1. 74618	1. 24339	1. 18322
811	CTSTC6	TTL STM/MAF COAL LB/LB	1. 43373	1. 86493	1. 96945	1. 40237	1. 33450
556	CTO2ST	TTL O2/STEAM SCF/SCF	0. 127675	0. 126841	0. 118304	0. 147125	0. 144046

UPDATED AVERAGE GAS SAMPLE COMPOSITIONS

RUN 1 - DB

C

D

D

G

H

STEADY STATE PERIOD

COMPONENT

6

7

8

9

10

DRY WET

DRY WET

DRY WET

DRY WET

DRY WET

MOL%-H2	25.10	23.67	27.90	25.78	28.20	26.55	27.90	25.92	24.80	23.04
MOL%-CO	7.40	6.98	7.60	7.02	7.40	6.97	9.10	8.45	8.15	7.57
MOL%-CO2	56.50	53.28	53.80	49.71	53.40	50.28	50.40	46.82	54.80	50.91
MOL%-CH4	10.10	9.52	9.90	9.15	9.90	9.32	10.80	10.03	10.75	9.99
MOL%-C2H6	0.50	0.47	0.20	0.18	0.20	0.19	1.30	1.21	1.30	1.21
MOL%-N2	0.10	0.09	0.10	0.09	0.10	0.09	0.30	0.28	0.00	0.00
MOL%-NH3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOL%-H2S	0.30	0.28	0.50	0.46	0.80	0.75	0.20	0.19	0.20	0.19
MOL%-H2O	0.00	5.69	0.00	7.60	0.00	5.84	0.00	7.11	0.00	7.10
MOL%-O2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOL%-C2H4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOL%-C3H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOL%-C3H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOL%-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOL%-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

UPSTR PRESS-(P227) PSIG	587.24	584.96	585.13	574.19	574.95
FLOW TEMP-(TI20010) DEGF	257.79	275.28	259.09	270.00	270.00
MOL WT. (WET)	28.69	27.43	27.49	26.87	28.28
DRY GAS MAKE, 1000-SCFH	124.01	120.18	120.43	126.80	120.49
WET GAS MAKE, 1000-SCFH	131.49	130.06	127.89	136.50	129.70
H2/CO MOL RATIO	3.39	3.67	3.81	3.07	3.04

AVERAGED CHAR ANALYSIS
MOISTURE - FREE BASIS

RUN 1 - DB

	C	D	D	G	H
	6	7	8	9	10
STEADY STATE PERIOD					
PROXIMATE ANALYSIS					

VOLATILE MATTER	8.1	7.0	9.3	7.6	7.3
FIXED CARBON	64.0	61.5	62.1	67.6	63.1
ASH	28.0	31.3	28.8	24.9	29.6

ULTIMATE ANALYSIS

HYDROGEN	1.0	1.0	1.1	1.2	1.0
CARBON	66.4	63.3	65.3	69.1	66.6
NITROGEN	0.4	0.3	0.5	0.5	0.5
OXYGEN	4.0	3.9	4.1	4.1	2.0
SULFUR	0.2	0.2	0.2	0.1	0.4
ASH	28.0	31.3	28.8	24.9	29.6

HEAT OF COMBUSTION

HHV - BTU/LB	9257.5	8627.0	9056.3	10008.0	7390.0

MATERIAL BALANCES

ELEMENTAL AND OVERALL

FEED FLOW RATES (LB/HR)		RUN 1 - DB		STEADY STATE NO. 6				
		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	TOTAL
MF COAL FEED RATE		3508.1	232.3	822.9	53.6	45.7	596.1	5258.7
COAL MOISTURE CONTENT		0.0	42.4	338.9	0.0	0.0	0.0	381.3
COAL FEED RATE		3508.1	274.7	1161.8	53.6	45.7	596.1	5640.0
STEAM FLOW								
FLDZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR STM FEED RATE	F204	0.0	711.0	5688.0	0.0	0.0	0.0	6399.0
CHR CLR STM FEED	F205	0.0	279.8	2238.2	0.0	0.0	0.0	2518.0
HP STM TO CHAR CLR	F253	0.0	21.1	168.7	0.0	0.0	0.0	189.8
GASF STEAM PURGES	F278	0.0	62.2	497.8	0.0	0.0	0.0	560.0
CC STEAM PURGES	F279	0.0	16.1	128.9	0.0	0.0	0.0	145.0
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW								
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR O2 FEED RATE	F203	0.0	0.0	1516.0	0.0	0.0	0.0	1516.0
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW								
CO2 TRANSPORT FLOW	F6	463.0	0.0	1234.7	0.0	0.0	0.0	1697.8
CO2 FLOW TO FE-105	F7	163.9	0.0	437.0	0.0	0.0	0.0	600.8
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	120.8	0.0	322.1	0.0	0.0	0.0	442.9
SEAL WATER AND BFW PURGES								
		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0
H2O FLW TO CHAR CLR								
	F230	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401								
	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		4255.7	1503.8	14504.3	53.6	45.7	596.1	20959.2
EFFLUENT FLOW RATES (LB/HR)								
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	1416.7	21.1	84.5	9.4	5.0	596.1	2132.8
WASTE WATER FLOW	F255	0.0	673.7	5389.5	0.0	0.0	0.0	6063.2
STM FLW FR CHAR CLR	F254	0.0	275.8	2206.1	0.0	0.0	0.0	2481.9
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	2941.3	347.4	6610.1	9.2	31.4	0.0	9972.7
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		4358.0	1317.9	14290.3	18.6	36.4	596.1	20650.6
% CLOSURE (OUT/IN)(100)		102.4	87.6	98.5	34.7	79.6	100.0	98.5

MATERIAL BALANCES

ELEMENTAL AND OVERALL

		RUN 1 - DB		STEADY STATE NO. 7						
FEED FLOW RATES (LB/HR)		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	TOTAL		
MF COAL FEED RATE		2736.8	181.2	642.0	41.8	35.6	465.1	4102.6		
COAL MOISTURE CONTENT		0.0	33.0	264.4	0.0	0.0	0.0	297.4		
COAL FEED RATE		2736.8	214.3	906.4	41.8	35.6	465.1	4400.0		
STEAM FLOW										
FLDZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
GSFR STM FEED RATE	F204	0.0	719.9	5759.1	0.0	0.0	0.0	6479.0		
CHR CLR STM FEED	F205	0.0	280.9	2247.1	0.0	0.0	0.0	2528.0		
HP STM TO CHAR CLR	F253	0.0	20.8	166.5	0.0	0.0	0.0	187.3		
GASF STEAM PURGES	F278	0.0	62.2	497.8	0.0	0.0	0.0	560.0		
CC STEAM PURGES	F279	0.0	16.1	128.9	0.0	0.0	0.0	145.0		
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
OXYGEN FLOW										
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
GSFR O2 FEED RATE	F203	0.0	0.0	1528.3	0.0	0.0	0.0	1528.3		
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
CARBON DIOXIDE FLOW										
CO2 TRANSPORT FLOW	F6	456.4	0.0	1217.2	0.0	0.0	0.0	1673.6		
CO2 FLOW TO FE-105	F7	151.9	0.0	405.0	0.0	0.0	0.0	556.9		
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
CO2 INST PURGE FLOW	F274	120.8	0.0	322.1	0.0	0.0	0.0	442.9		
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0		
H2O FLW TO CHAR CLR		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
FILTRATE TO FA-401		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
TOTAL FEED FLOW RATES (LB/HR)		3465.9	1453.1	14289.5	41.8	35.6	465.1	19751.0		
EFFLUENT FLOW RATES (LB/HR)										
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
CHAR REMOVAL RATE	CFRPPH	940.5	14.8	57.6	5.1	3.7	465.1	1486.8		
WASTE WATER FLOW	F255	0.0	801.2	6409.3	0.0	0.0	0.0	7210.5		
STM FLW FR CHAR CLR	F254	0.0	274.5	2196.2	0.0	0.0	0.0	2470.7		
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
RW GS SCRBR EF	F209	2725.1	361.2	6253.1	8.9	50.7	0.0	9452.9		
TAR FLOW THRML OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
TOTAL EFFLUENT FLOW RATE (LB/HR)		3665.6	1451.7	14916.2	14.1	54.4	465.1	20620.8		
% CLOSURE (OUT/IN)(100)		105.8	99.9	104.4	33.6	152.6	100.0	104.4		

MATERIAL BALANCES

ELEMENTAL AND OVERALL

RUN 1 - DB		STEADY STATE NO. 8						
FEED FLOW RATES (LB/HR)		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	TOTAL
MF COAL FEED RATE		2736.8	181.2	642.0	41.8	35.6	465.1	4102.6
COAL MOISTURE CONTENT		0.0	33.0	264.4	0.0	0.0	0.0	297.4
COAL FEED RATE		2736.8	214.3	906.4	41.8	35.6	465.1	4400.0
STEAM FLOW								
FLDZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR STM FEED RATE	F204	0.0	717.1	5736.9	0.0	0.0	0.0	6454.0
CHR CLR STM FEED	F205	0.0	280.6	2244.4	0.0	0.0	0.0	2525.0
HP STM TO CHAR CLR	F253	0.0	20.7	165.5	0.0	0.0	0.0	186.2
GASF STEAM PURGES	F278	0.0	62.2	497.8	0.0	0.0	0.0	560.0
CC STEAM PURGES	F279	0.0	16.1	128.9	0.0	0.0	0.0	145.0
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW								
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR O2 FEED RATE	F203	0.0	0.0	1505.3	0.0	0.0	0.0	1505.3
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW								
CO2 TRANSPORT FLOW	F6	455.5	0.0	1214.6	0.0	0.0	0.0	1670.1
CO2 FLOW TO FE-105	F7	155.7	0.0	415.2	0.0	0.0	0.0	570.9
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	120.8	0.0	322.1	0.0	0.0	0.0	442.9
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		3468.8	1449.9	14248.2	41.8	35.6	465.1	19709.4
EFFLUENT FLOW RATES (LB/HR)								
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	1055.3	18.5	66.9	7.7	3.8	465.1	1617.2
WASTE WATER FLOW	F255	0.0	840.6	6724.6	0.0	0.0	0.0	7565.2
STM FLW FR CHAR CLR	F254	0.0	229.0	1832.3	0.0	0.0	0.0	2061.3
H2O FR CHR-SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	2707.9	353.0	6112.8	8.9	81.2	0.0	9350.1
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		3763.1	1441.0	14736.5	16.6	85.0	465.1	20593.7
% CLOSURE (OUT/IN)(100)		108.5	99.4	103.4	39.8	238.5	100.0	104.5

MATERIAL BALANCES

ELEMENTAL AND OVERALL

FEED FLOW RATES (LB/HR)		RUN 1 - DB		STEADY STATE NO. 9					TOTAL	
		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH			
MF COAL FEED RATE		3389.9	224.5	795.2	51.8	44.1	576.1	5081.6		
COAL MOISTURE CONTENT		0.0	40.9	327.5	0.0	0.0	0.0	368.4		
COAL FEED RATE		3389.9	265.4	1122.7	51.8	44.1	576.1	5450.0		
STEAM FLOW										
FLDZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
GSFR STM FEED RATE	F204	0.0	685.7	5485.3	0.0	0.0	0.0	6170.9		
CHR CLR STM FEED	F205	0.0	259.7	2077.6	0.0	0.0	0.0	2337.4		
HP STM TO CHAR CLR	F253	0.0	30.3	242.5	0.0	0.0	0.0	272.8		
GASF STEAM PURGES	F278	0.0	62.2	497.8	0.0	0.0	0.0	560.0		
CC STEAM PURGES	F279	0.0	17.8	142.2	0.0	0.0	0.0	160.0		
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
OXYGEN FLOW										
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
GSFR O2 FEED RATE	F203	0.0	0.0	1651.1	0.0	0.0	0.0	1651.1		
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
CARBON DIOXIDE FLOW										
CO2 TRANSPORT FLOW	F6	452.2	0.0	1205.8	0.0	0.0	0.0	1657.9		
CO2 FLOW TO FE-105	F7	292.0	0.0	778.7	0.0	0.0	0.0	1070.7		
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
CO2 INST PURGE FLOW	F274	202.7	0.0	540.6	0.0	0.0	0.0	743.4		
SEAL WATER AND BFW PURGES										
		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0		
H2O FLW TO CHAR CLR										
F230		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
FILTRATE TO FA-401										
F403		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
TOTAL FEED FLOW RATES (LB/HR)		4336.8	1460.0	14855.4	51.8	44.1	576.1	21324.2		
EFFLUENT FLOW RATES (LB/HR)										
CARRY OVER										
CARRY		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
CHAR REMOVAL RATE	CFRPPH	1601.8	28.6	95.1	12.2	3.2	576.1	2316.9		
WASTE WATER FLOW	F255	0.0	735.8	5886.7	0.0	0.0	0.0	6622.6		
STM FLW FR CHAR CLR	F254	0.0	280.3	2242.4	0.0	0.0	0.0	2522.7		
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
RW GS SCRBR EF	F209	2923.1	409.4	6284.1	28.1	21.4	0.0	9688.7		
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
TOTAL EFFLUENT FLOW RATE (LB/HR)		4524.9	1454.1	14508.3	40.3	24.5	576.1	21150.8		
% CLOSURE (OUT/IN)(100)		104.3	99.6	97.7	77.8	55.6	100.0	99.2		

MATERIAL BALANCES

ELEMENTAL AND OVERALL

FEED FLOW RATES (LB/HR)		RUN 1 - DB		STEADY STATE NO. 10				10	
		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	TOTAL	
MF COAL FEED RATE		3452.1	228.6	809.8	52.7	45.0	586.6	5174.8	
COAL MOISTURE CONTENT		0.0	41.7	333.5	0.0	0.0	0.0	375.2	
COAL FEED RATE		3452.1	270.3	1143.3	52.7	45.0	586.6	5550.0	
STEAM FLOW									
FLOZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
GSFR STM FEED RATE	F204	0.0	673.3	5386.7	0.0	0.0	0.0	6060.0	
CHR CLR STM FEED	F205	0.0	258.6	2069.1	0.0	0.0	0.0	2327.7	
HP STM TO CHAR CLR	F253	0.0	28.2	225.4	0.0	0.0	0.0	253.6	
GASF STEAM PURGES	F278	0.0	62.2	497.8	0.0	0.0	0.0	560.0	
CC STEAM PURGES	F279	0.0	17.8	142.2	0.0	0.0	0.0	160.0	
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
OXYGEN FLOW									
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
GSFR O2 FEED RATE	F203	0.0	0.0	1566.6	0.0	0.0	0.0	1566.6	
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARBON DIOXIDE FLOW									
CO2 TRANSPORT FLOW	F6	453.6	0.0	1209.5	0.0	0.0	0.0	1663.1	
CO2 FLOW TO FE-105	F7	233.1	0.0	621.7	0.0	0.0	0.0	854.8	
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CO2 INST PURGE FLOW	F274	172.6	0.0	460.3	0.0	0.0	0.0	632.9	
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0	
H2O FLW TO CHAR CLR	F230	0.0	4.5	36.0	0.0	0.0	0.0	40.5	
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL FEED FLOW RATES (LB/HR)		4311.4	1453.8	14469.7	52.7	45.0	586.6	20919.3	
EFFLUENT FLOW RATES (LB/HR)									
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CHAR REMOVAL RATE	CFRPPH	1319.9	19.4	38.8	9.3	7.0	586.6	1981.1	
WASTE WATER FLOW	F255	0.0	966.1	7728.7	0.0	0.0	0.0	8694.8	
STM FLW FR CHAR CLR	F254	0.0	291.0	2327.9	0.0	0.0	0.0	2618.9	
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
RW GS SCRBR EF	F209	2907.2	368.6	6369.8	0.1	20.3	0.0	9687.7	
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL EFFLUENT FLOW RATE (LB/HR)		4227.2	1645.1	16465.3	9.5	27.3	586.6	22982.5	
% CLOSURE (OUT/IN)(100)		98.0	113.2	113.8	17.9	60.7	100.0	109.9

RUN 1 - DB STEADY STATE PERIOD NO. 11.

GAS STREAMS

	2	3	9	10	11	14
SCFH	14243.9	129800.0	127955.4	18926.2	54092.0	49190.7
MW	44	28.28	18	32	18	18
LB/HR	1651.5	9673.2	6069.0	1595.9	2565.6	2333.2

LIQUID STREAMS

LB/HR	4	5	6	13
H ₂ O	6085.0			24.0
OIL		0.0		
TAR			0.0	

SOLID STREAMS

	1	7	15
LB/HR (AS RECEIVED)	5550.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	5175.		2024.

LB TOTAL STEAM/LB MF COAL	1.17
LB TOTAL OXYGEN/LB MF COAL	0.31
SCF ULTIMATE CH ₄ /LB MF COAL	4.62
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	61.30
GAS BASIS	58.56
GASIFIER TOP SUPERFOL VEL, FPS	0.724
VOL PCT O ₂ IN TOTAL FEED GAS	12.89
STREAM NOS. 8 AND 12 LB/HR	1374.0

STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	1.0
C	66.0
N	0.4
O	3.1
S	0.4
ASH	29.0

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H ₂	22.99
MOL PCT-CO	8.59
MOL PCT-CO ₂	50.82
MOL PCT-CH ₄	10.03
MOL PCT-C ₂ H ₆	0.28
MOL PCT-N ₂	0.09
MOL PCT-NH ₃	0.00
MOL PCT-H ₂ S	0.09
MOL PCT-H ₂ O	7.10
MOL PCT-O ₂	0.00

RUN 1 - DB
STEADY STATE PERIOD NO. 12.

GAS STREAMS						
	2	3	9	10	11	14
SCFH	15469.4	105000.0	129868.4	16139.9	49764.3	49261.0
MW	44	28.97	18	32	18	18
LB/HR	1793.6	8016.1	6159.8	1360.9	2360.4	2336.5

LIQUID STREAMS			
LB/HR	4	5	6
H2O	9274.5		
OIL		0.0	
TAR			0.0

SOLID STREAMS		
LB/HR (AS RECEIVED)	1	7
PERCENT MOISTURE	6.8	
LB/HR (MOISTURE FREE)	3795.	1382.

LB TOTAL STEAM/LB MF COAL	1.62
LB TOTAL OXYGEN/LB MF COAL	0.36
SCF ULTIMATE CH4/LB MF COAL	4.50
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	65.18
GAS BASIS	58.40
GASIFIER TOP SURFCL VEL, FPS	0.881
VOL PCT O2 IN TOTAL FEED GAS	11.05
STREAM NOS. 8 AND 12 LB/HR	1423.7
STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	0.8
C	63.8
N	0.4
O	3.7
S	0.3
ASH	31.1

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H2	22.85
MOL PCT-CO	7.43
MOL PCT-CO2	53.96
MOL PCT-CH4	8.45
MOL PCT-C2H6	0.19
MOL PCT-N2	0.01
MOL PCT-NH3	0.00
MOL PCT-H2S	0.00
MOL PCT-H2O	7.11
MOL PCT-O2	0.00

RUN 1 - DB

STEADY STATE PERIOD NO. 13.

	2	3	9	10	11	14
SCFH	15451.9	123500.0	124309.0	17458.9	44305.4	49364.5
MW	44	28.04	18	32	18	18
LB/HR	1791.5	9125.6	5896.1	1472.2	2101.4	2341.4

	4	5	6	13
LB/HR				
H ₂ O	7539.0			0.0
OIL		0.0		
TAR			0.0	

	1	7	15
LB/HR (AS RECEIVED)	5640.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	5259.		2264.

STREAM NO. 3		STREAM NO. 15	
LB TOTAL STEAM/LB MF COAL		CHAR ANALYSIS WT PCT - DRY BASIS	
LB TOTAL OXYGEN/LB MF COAL		H	1.1
SCF ULTIMATE CH ₄ /LB MF COAL		C	68.0
AVERAGE CARBON CONV WEIGHT PCT		N	0.5
CHAR BASIS		O	3.7
GAS BASIS		S	0.3
GASIFIER TOP SUPP FL VEL, FPS		ASH	26.3
VOL PCT O ₂ IN TOTAL FEED GAS		MOL PCT-H ₂	
STREAM NOS. 8 AND 12 LB/HR		MOL PCT-CO	
		MOL PCT-CO ₂	
		MOL PCT-CH ₄	
		MOL PCT-C ₂ H ₆	
		MOL PCT-N ₂	
		MOL PCT-NH ₃	
		MOL PCT-H ₂ S	
		MOL PCT-H ₂ O	
		MOL PCT-O ₂

RUN 1 - DB STEADY STATE PERIOD NO. 14.

	GAS STREAMS					
	2	3	9	10	11	14
SCFH	17084.0	99095.0	141202.9	14409.5	67994.2	59929.9
MW	44	30.37	18	32	18	18
LB/HR	1980.8	7930.6	6697.4	1215.0	3225.0	2842.5

	LIQUID STREAMS			
LB/HR	4	5	6	13
H2O	6000.0			0.0
OIL		0.0		
TAR			0.0	

	SOLID STREAMS		
LB/HR (AS RECEIVED)	1	7	15
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	3730.		1966.

LB TOTAL STEAM/LB MF COAL	1.80
LB TOTAL OXYGEN/LB MF COAL	0.33
SCF ULTIMATE CH4/LB MF COAL	3.55
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	43.41
GAS BASIS	50.18
GASIFIER TOP SUPRFCL VEL, FPS	0.588
VOL PCT O2 IN TOTAL FEED GAS	9.26
STREAM NOS. 8 AND 12 LB/HR	1838.5

STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	1.7
C	71.6
N	0.4
O	4.5
S	0.3
ASH	21.5

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H2	20.85
MOL PCT-CO	3.98
MOL PCT-CO2	59.02
MOL PCT-CH4	8.06
MOL PCT-C2H6	0.65
MOL PCT-N2	0.00
MOL PCT-NH3	0.00
MOL PCT-H2S	0.09
MOL PCT-H2O	7.35
MOL PCT-O2	0.00

RUN 1 - DB
STEADY STATE PERIOD NO. 15.

GAS STREAMS

	2	3	9	10	11	14
SCFH	16867.9	99329.8	147808.2	14009.8	67728.7	55137.7
MW	44	30.44	18	32	18	18
LB/HR	1955.7	7968.1	7010.7	1181.3	3212.4	2615.2

LIQUID STREAMS

LB/HR	4	5	6	13
H ₂ O	6000.0			0.0
OIL		0.0		
TAR			0.0	

SOLID STREAMS

	1	7	15
LB/HR (AS RECEIVED)	4050.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	3776.		1912.

LB TOTAL STEAM/LB MF COAL	1.86
LB TOTAL OXYGEN/LB MF COAL	0.31
SCF ULTIMATE CH ₄ /LB MF COAL	3.09
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	47.25
GAS BASIS	51.19
GASIFIER TOP SUPRFL VEL, FPS	0.559
VOL PCT O ₂ IN TOTAL FEED GAS	8.66
STREAM NOS. 8 AND 12 LB/HR	1326.5

STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	1.9
C	69.5
N	0.7
O	5.2
S	0.3
ASH	22.4

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H ₂	20.53
MOL PCT-CO	2.57
MOL PCT-CO ₂	58.72
MOL PCT-CH ₄	7.44
MOL PCT-C ₂ H ₆	0.86
MOL PCT-N ₂	0.00
MOL PCT-NH ₃	0.00
MOL PCT-H ₂ S	0.50
MOL PCT-H ₂ O	9.38
MOL PCT-O ₂	0.00

FOR STEADY STATE PERIOD 11
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 10:30 4/ 1/77
ENDING TIME 14:30 4/ 1/77

FOR STEADY STATE PERIOD 12
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 6:30 4/ 2/77
ENDING TIME 11:42 4/ 2/77

FOR STEADY STATE PERIOD 13
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 22:24 4/ 2/77
ENDING TIME 0:28 4/ 3/77

FOR STEADY STATE PERIOD 14
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 15:50 5/17/77
ENDING TIME 17:44 5/17/77

FOR STEADY STATE PERIOD 15
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 19: 2 5/24/77
ENDING TIME 20:56 5/24/77

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID NAME DESCRIPTION

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GASIFICATION CALCULATIONS

84	XQ001	COAL FEED RATE	PPH	5550.00	4070.00	5640.00	4000.00	4050.00
220	P256	GSFR VESSEL PRESS	PSIG	596.351	591.533	589.972	605.610	610.884
235	P295	GASIFIER PRESSURE	PSIG	603.430	596.683	597.940	585.586	599.883
550	CSFTG	STEAM FLOW TO GASF	LB/HR	6018.74	5921.88	5393.10	6941.05	7244.03
227	F203	GSFR O2 FEED RATE	SCFH	18926.2	16139.9	17458.9	14409.5	14009.8
581	CSCCTG	STNPIPE STM TO GSFR	PPH	50.2979	237.888	502.979	-243.675	-233.362
345	T205	GASIFIER BED AT 18"	DEGF	1489.81	1495.21	1490.74	1321.90	1293.62
424	C2FBDG	GSF FLD BED DNSTY	LB/FT3	19.4430	17.1632	20.1540	20.2873	7.01899
425	C2FBHG	GSF FLD BED HEIGHT	FT	15.9389	14.4191	19.7465	14.0612	22.7644
572	CGBV	GASIFIER BED VOLUME	FT3	120.467	109.868	147.304	107.368	169.950
427	C2SIG	GSF SOLIDS INVENTORY	LB	2347.71	1892.56	2975.84	2187.27	1182.69
426	C2SRTG	GSF SOLIDS RES TIME	MIN	27.2208	29.9229	33.9531	35.1877	18.7916
429	C2SCG2	GASF COAL FEED	PPH/FT2	785.007	575.672	797.737	565.771	572.843
428	C2SCG1	GASF COAL FEED	PPH/FT3	46.0707	37.0444	38.2883	37.2549	23.8306
526	C2GPD	GSF PRESS DROP "H2O/FTBD		3.76093	3.29992	3.86895	3.90699	1.31590
420	C2SVBG	GSF SUP VEL-BOT BED	FPS	0.500461	0.503438	0.487793	0.475249	0.482783
423	C2SV0G	GSF SUP VEL-OUTLET	FPS	0.492798	0.613719	0.561180	0.427230	0.416856
421	C2SVTG	GSF SUP VEL-TOP BED	FPS	0.724229	0.881354	0.810838	0.587649	0.558599
422	C2SVMG	GSF SUP VEL-MEAN BED	FPS	0.612345	0.692396	0.649316	0.531449	0.520691
584	CQSF02	GSF O2/RAW COAL	SCF/LB	3.41012	3.96557	3.09555	3.60237	3.45920
433	C2SOG2	GASF O2/MF COAL	SCF/LB	3.65736	4.25307	3.31998	3.86354	3.71000

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	11	12	13	14	15
435	C2SOG4	GASF O2/MAF COAL SCF/LB	4. 12498	4. 79686	3. 74447	4. 35753	4. 18435
585	CGSFO3	GASF O2/RAW COAL LB/LB	0. 287547	0. 334382	0. 261021	0. 303757	0. 291685
432	C2SOG1	GASF O2/MF COAL LB/LB	0. 308394	0. 358626	0. 279946	0. 325780	0. 312832
434	C2SOG3	GASF O2/MAF COAL LB/LB	0. 347825	0. 404479	0. 315739	0. 367433	0. 352831
586	CGSMSM	GASF STM/RAW COAL SCF/LB	23. 0294	31. 8733	22. 0162	35. 2616	36. 4554
437	C2SSG2	GASF STM/MF COAL SCF/LB	24. 7046	34. 1917	23. 6176	37. 8265	39. 1071
439	C2SSG4	GASF STM/MAF COAL SCF/LB	27. 8633	38. 5634	26. 6373	42. 6629	44. 1073
587	CGSSTM	GASF STM/RAW COAL LB/LB	1. 09352	1. 51346	1. 04540	1. 67434	1. 73103
436	C2SSG1	GASF STM/MF COAL LB/LB	1. 17280	1. 62318	1. 12120	1. 79574	1. 85653
438	C2SSG3	GASF STM/MAF COAL LB/LB	1. 32275	1. 83072	1. 26455	2. 02533	2. 09390
555	CGO2ST	GSF O2/STEAM SCF/SCF	0. 148	0. 124	0. 141	0. 102	0. 095
342	F255	WASTE WATER FLOW GPM	12. 1700	18. 5489	15. 0780	12. 0000	12. 0000
243	F221	TAR FLOW THRML OXD2R GPM	0. 000	0. 000	0. 000	0. 000	0. 000
245	F209	RW GS SCRBR EF 1000-SCFH	129. 800	105. 000	123. 500	99. 0950	99. 3298
574	CNRGG	RAW GAS FROM GASF SCFH	231128.	273512.	255455.	198632.	198867.
575	CTGFB	TOTAL GAS FROM BED SCFH	221558.	263942.	245886.	189063.	189297.
475	C2CI	GASF CARBON INVENTORY LB	1549. 85	1207. 20	2023. 93	1566. 31	822. 009
551	CCGPPH	CARBON GASIFIED PPH	2116. 24	1650. 07	1968. 60	1080. 06	1190. 29
594	C2GR4	GASF RATE LBC/HR-FT3BD	17. 5670	15. 0187	13. 3643	10. 0594	7. 00381
595	C2GR3	GASF RATE LBC/HR-LBCBD	1. 36545	1. 36686	0. 972663	0. 689556	1. 44803
455	C2MRG2	CH4 PROD GAS SCFH/FT3BD	108. 103	80. 7716	80. 1868	74. 3923	43. 5116

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	11	12	13	14	15
454	C2MRG1	CH4 IN RAW GAS LBC/LBCBD	0. 265692	0. 232442	0. 184537	0. 161246	0. 284453
451	C2CG1	CARBON CONVRSN (CHAR) %	61. 3030	65. 1805	56. 1162	43. 4106	47. 2507
452	C2CG12	CARBON CONVRSN (GAS) %	58. 5568	58. 3977	52. 9324	50. 1829	51. 1939
596	CUGYM	USEFL GAS YLD SCF/LB-MAF	11. 8527	12. 1440	11. 2277	10. 0504	9. 31638
592	CECH4R	EQUIV CH4 SCF/LB-RAW	2. 47840	2. 27800	2. 17711	2. 32072	2. 24957
591	CECH4M	EQUIV CH4 SCF/LB-MF	2. 65809	2. 44315	2. 33496	2. 48898	2. 41266
579	CECH4C	EQUIV CH4 SCF/LB-MAF	2. 99795	2. 75553	2. 63350	2. 80722	2. 72114
466	C2MYG4	GSF CH4 YLD-MAF CF/HR-LB	2. 83834	2. 63747	2. 53332	2. 41544	2. 20862
577	CTUCH4	TOTAL ULTIMATE CH4 SCFH	23912. 2	17073. 0	22297. 0	13230. 7	11665. 3
560	CUCH4R	ULT CH4/RAW COAL SCF/LB	4. 30850	4. 19483	3. 95337	3. 30767	2. 88032
561	CUCH4M	ULT CH4/MF COAL SCF/LB	4. 62088	4. 49896	4. 24000	3. 54748	3. 08915
562	CUCH4A	ULT CH4/MAF COAL SCF/LB	5. 21169	5. 07419	4. 78212	4. 00105	3. 48412
450	C2SCG	STM CONV - H2O BALANCE %	24. 906	-23. 478	0. 048	33. 087	34. 671
598	CSCH2	STM CONV - H2 BALANCE %	13. 1509	9. 44685	11. 0485	9. 40628	8. 85605
552	CSPV	SPACE VELOCITY 1/MIN	1. 61890	1. 82266	1. 29860	1. 79508	1. 15980
553	CSPT	SPACE TIME MIN	0. 617704	0. 548650	0. 770060	0. 557080	0. 862217

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID NAME DESCRIPTION

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CHAR COOLER CALCULATIONS

230	F205	CHR CLR STM FEED	PPH	2333.16	2336.49	2341.40	2842.53	2615.23
234	F230	H2O FLW TO CHAR CLR	GPH	3.168	0.000	0.000	0.000	0.000
336	F253	HP STM TO CHAR CLR	PPH	256.371	261.756	263.017	138.819	363.841
599	CFRPPH	CHAR REMOVAL RATE	PPH	2023.56	1381.90	2263.54	1966.12	1911.85
341	F254	STM FLW FR CHAR CLR	PPH	2565.63	2360.36	2101.44	3225.02	3212.43
372	F229	CHAR TRANSPORT STEAM	PPH	0.000	0.000	0.000	0.000	0.000
224	P258	CHAR COOLER PRESS	PSIG	593.445	591.909	593.009	614.230	625.500
346	T202	CHR CLR UPPR BD TMP	DEGF	710.631	646.581	700.957	688.393	796.336
89	T20004	C. C. BD AT 19FT-2IN	DEGF	644.621	592.016	644.549	650.937	718.471
487	C2FBDC	CC FLD BED DNSTY	LB/FT3	20.8852	18.8030	21.0197	22.3540	15.6450
488	C2FBHC	CC FLD BED HEIGHT	FT	9.02298	9.97660	8.42002	9.78883	9.75254
573	CCCBV	CHAR CLR BED VOLUME	FT3	25.3802	27.6308	23.7687	27.3153	27.1467
490	C2SIC	CC SOLIDS INVENTORY	LB	530.072	519.541	499.610	610.605	424.709
489	C2SRTC	CC SOLIDS RES TIME	MIN	15.6182	22.6453	13.1654	18.5841	13.3287
520	C2SCC2	CC MF CHAR FD	LB/HR-FT2	766.500	523.448	857.399	744.743	724.187
499	C2SCC1	CC MF CHAR FD	LB/HR-FT3	79.7298	50.0132	95.2317	71.9788	70.4268
534	C2CPD	CC PRESS DROP	"H2O/FTBD	4.01500	3.61500	4.04100	4.29700	3.01296
484	C2SSV	CC STEAM SUP VEL	FPS	0.281342	0.267140	0.280626	0.325036	0.320343
485	C2WSV	CC VAP H2O SUP VEL	FPS	0.003	0.000	0.000	0.000	0.000
590	CCATSM	CC ATM STM SUP VEL	FPS	0.031	0.030	0.031	0.015	0.045
486	C2TSV	CC TOT STM SUP VEL	FPS	0.314997	0.296882	0.311705	0.340472	0.365029

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	11	12	13	14	15
521	C2SCC3	CC MF CHR/RAW COAL LB/LB	0.364605	0.339534	0.401336	0.491531	0.472063
493	C2SSC3	CC STM/MF CHAR LB/LB	1.15300	1.69078	1.03440	1.44575	1.36790
588	CCCSTM	CC STM/RAW COAL LB/LB	0.420389	0.574077	0.415142	0.710631	0.645735
494	C2SSC4	CC STM/MF COAL LB/LB	0.450868	0.615698	0.445240	0.762153	0.692551
589	CCSTM	CC STM/MAF COAL LB/LB	0.508515	0.694420	0.502168	0.859600	0.781099
497	C2SWC3	CC H2O/MF CHAR LB/LB	0.013	0.000	0.000	0.000	0.000
498	C2SWC4	CC H2O/RAW COAL LB/LB	0.005	0.000	0.000	0.000	0.000

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	11	12	13	14	15
PRETREATER, GASIFIER COMBINED CALCULATIONS							
798	CMFRC	MF COAL/ RAW COAL LB/LB	0.932400	0.932400	0.932400	0.932400	0.932400
799	CMAFRC	MAF COAL/ RAW COAL LB/LB	0.826700	0.826700	0.826699	0.826700	0.826700
800	CTOTC1	TOTAL O2/RAW COAL SCF/LB	3.41012	3.96557	3.09555	3.60237	3.45920
801	CTOTC2	TOTAL O2/MF COAL SCF/LB	3.65736	4.25307	3.31998	3.86354	3.71000
802	CTOTC3	TOTAL O2/MAF COAL SCF/LB	4.12498	4.79686	3.74447	4.35753	4.18435
803	CTOTC4	TOTAL O2/RAW COAL LB/LB	0.287547	0.334382	0.261021	0.303757	0.291685
804	CTOTC5	TOTAL O2/MF COAL LB/LB	0.308394	0.358626	0.279946	0.325780	0.312832
805	CTOTC6	TOTAL O2/MAF COAL LB/LB	0.347825	0.404479	0.315739	0.367433	0.352831
806	CTSTC1	TTL STM/RAW COAL SCF/LB	23.0294	31.8733	22.0162	35.2616	36.4554
807	CTSTC2	TTL STM/MF COAL SCF/LB	24.7046	34.1917	23.6176	37.8265	39.1071
808	CTSTC3	TTL STM/MAF COAL SCF/LB	27.8633	38.5634	26.6373	42.6629	44.1073
809	CTSTC4	TTL STM/RAW COAL LB/LB	1.09352	1.51346	1.04540	1.67434	1.73103
810	CTSTC5	TTL STM/MF COAL LB/LB	1.17280	1.62318	1.12120	1.79574	1.85653
811	CTSTC6	TTL STM/MAF COAL LB/LB	1.32275	1.83072	1.26455	2.02533	2.09390
556	CTO2ST	TTL O2/STEAM SCF/SCF	0.148	0.124	0.141	0.102	0.095

UPDATED AVERAGE GAS SAMPLE COMPOSITIONS

RUN 1 - DE

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STEADY STATE PERIOD

COMPONENT	11		12		13		14		15	
	DRY	WET	DRY	WET	DRY	WET	DRY	WET	DRY	WET
MOLX-H2	24.75	22.99	24.60	22.85	25.55	23.72	22.50	20.85	22.65	20.53
MOLX-CO	9.25	8.59	8.00	7.43	9.60	8.91	4.30	3.98	2.84	2.57
MOLX-CO2	54.70	50.82	58.09	53.96	54.30	50.42	63.70	59.02	64.79	58.72
MOLX-CH4	10.80	10.03	9.10	8.45	10.30	9.56	8.70	8.06	8.21	7.44
MOLX-C2H6	0.30	0.28	0.20	0.19	0.20	0.19	0.70	0.65	0.95	0.86
MOLX-N2	0.10	0.09	0.01	0.01	0.05	0.05	0.00	0.00	0.00	0.00
MOLX-NH3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-H2S	0.10	0.09	0.00	0.00	0.00	0.00	0.10	0.09	0.55	0.50
MOLX-H2O	0.00	7.10	0.00	7.11	0.00	7.14	0.00	7.35	0.00	9.38
MOLX-O2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C2H4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C3H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C3H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

UPSTR PRESS-(P227) PSIG	574.91	573.87	571.56	588.96	603.47
FLOW TEMP-(TI20010) DEGF	270.00	270.00	270.00	273.61	290.79
MOL WT. (WET)	28.25	28.97	28.04	30.34	30.27
DRY GAS MAKE, 1000-SCFH	120.58	97.53	114.68	91.81	90.02
WET GAS MAKE, 1000-SCFH	129.80	105.00	123.50	99.10	99.33
H2/CO MOL RATIO	2.68	3.07	2.66	5.23	7.98

AVERAGED CHAR ANALYSIS
MOISTURE - FREE BASIS

RUN 1 - DB

	H	H	I	M	N
	11	12	13	14	15
STEADY STATE PERIOD					
PROXIMATE ANALYSIS					

VOLATILE MATTER	7.2	6.6	6.2	8.6	10.1
FIXED CARBON	63.8	62.3	67.5	69.9	67.5
ASH	29.0	31.1	26.3	21.5	22.4
ULTIMATE ANALYSIS					

HYDROGEN	1.0	0.8	1.1	1.7	1.9
CARBON	66.0	63.8	68.0	71.6	69.5
NITROGEN	0.4	0.4	0.5	0.4	0.7
OXYGEN	3.1	3.7	3.7	4.5	5.2
SULFUR	0.4	0.3	0.3	0.3	0.3
ASH	29.0	31.1	26.3	21.5	22.4
HEAT OF COMBUSTION					

HHV - BTU/LB	9117.0	7410.0	10183.0	10538.0	10848.0

MATERIAL BALANCES

ELEMENTAL AND OVERALL

FEED FLOW RATES (LB/HR)		STEADY STATE NO. 11						TOTAL
		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	
MF COAL FEED RATE		3452.1	228.6	809.8	52.7	45.0	586.6	5174.8
COAL MOISTURE CONTENT		0.0	41.7	333.5	0.0	0.0	0.0	375.2
COAL FEED RATE		3452.1	270.3	1143.3	52.7	45.0	586.6	5550.0
STEAM FLOW								
FLDZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR STM FEED RATE	F204	0.0	662.1	5296.7	0.0	0.0	0.0	5958.7
CHR CLR STM FEED	F205	0.0	259.2	2073.9	0.0	0.0	0.0	2333.2
HP STM TO CHAR CLR	F253	0.0	28.5	227.9	0.0	0.0	0.0	256.4
GASF STEAM PURGES	F278	0.0	62.2	497.8	0.0	0.0	0.0	560.0
CC STEAM PURGES	F279	0.0	17.8	142.2	0.0	0.0	0.0	160.0
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW								
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR O2 FEED RATE	F203	0.0	0.0	1595.9	0.0	0.0	0.0	1595.9
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW								
CO2 TRANSPORT FLOW	F6	450.4	0.0	1201.1	0.0	0.0	0.0	1651.5
CO2 FLOW TO FE-105	F7	224.7	0.0	599.1	0.0	0.0	0.0	823.8
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	178.4	0.0	475.7	0.0	0.0	0.0	654.0
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230	0.0	2.9	23.5	0.0	0.0	0.0	26.4
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		4305.5	1441.9	14388.0	52.7	45.0	586.6	20819.8
EFFLUENT FLOW RATES (LB/HR)								
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	1335.9	20.1	63.4	8.8	8.8	586.6	2023.6
WASTE WATER FLOW	F255	0.0	676.1	5408.9	0.0	0.0	0.0	6085.0
STM FLW FR CHAR CLR	F254	0.0	285.1	2280.6	0.0	0.0	0.0	2565.6
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	2873.3	349.5	6420.5	9.0	10.2	0.0	9673.2
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		4209.1	1330.8	14173.3	17.7	19.0	586.6	20347.4
% CLOSURE (OUT/IN)(100)								
		97.8	92.3	98.5	33.6	42.2	100.0	97.7

MATERIAL BALANCES

ELEMENTAL AND OVERALL

RUN 1 - DB		STEADY STATE NO. 12							
FEED FLOW RATES (LB/HR)		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	TOTAL	
MF COAL FEED RATE		2531.5	167.6	593.9	38.7	33.0	430.2	3794.9	
COAL MOISTURE CONTENT		0.0	30.6	244.6	0.0	0.0	0.0	275.1	
COAL FEED RATE		2531.5	198.2	838.4	38.7	33.0	430.2	4070.0	
STEAM FLOW									
FLDZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
GSFR STM FEED RATE	F204	0.0	651.3	5210.6	0.0	0.0	0.0	5861.9	
CHR CLR STM FEED	F205	0.0	259.6	2076.9	0.0	0.0	0.0	2336.5	
HP STM TO CHAR CLR	F253	0.0	29.1	232.7	0.0	0.0	0.0	261.8	
GASF STEAM PURGES	F278	0.0	62.2	497.8	0.0	0.0	0.0	560.0	
CC STEAM PURGES	F279	0.0	17.8	142.2	0.0	0.0	0.0	160.0	
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
OXYGEN FLOW									
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
GSFR O2 FEED RATE	F203	0.0	0.0	1360.9	0.0	0.0	0.0	1360.9	
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARBON DIOXIDE FLOW									
CO2 TRANSPORT FLOW	F6	489.2	0.0	1304.4	0.0	0.0	0.0	1793.6	
CO2 FLOW TO FE-105	F7	173.2	0.0	461.7	0.0	0.0	0.0	634.9	
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CO2 INST PURGE FLOW	F274	191.9	0.0	511.8	0.0	0.0	0.0	703.7	
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0	
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL FEED FLOW RATES (LB/HR)		3385.8	1357.1	13748.5	38.7	33.0	430.2	18993.2	
EFFLUENT FLOW RATES (LB/HR)									
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CHAR REMOVAL RATE	CFRPPH	881.5	10.8	50.6	5.3	3.5	430.2	1381.9	
WASTE WATER FLOW	F255	0.0	1030.5	8244.0	0.0	0.0	0.0	9274.5	
STM FLW FR CHAR CLR	F254	0.0	262.3	2098.1	0.0	0.0	0.0	2360.4	
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
RW GS SCRBR EF	F209	2331.4	262.5	5421.3	0.8	0.1	0.0	8016.1	
TAR FLOW THRMAL OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL EFFLUENT FLOW RATE (LB/HR)		3212.9	1566.0	15814.0	6.0	3.6	430.2	21032.9	
% CLOSURE (OUT/IN)(100)		94.9	115.4	115.0	15.6	10.9	100.0	110.7	

MATERIAL BALANCES ELEMENTAL AND OVERALL

RUN 1

DB

STEADY STATE NO.

13

FEED FLOW RATES (LB/HR)		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	TOTAL
MF COAL FEED RATE		3508.1	232.3	822.9	53.6	45.7	596.1	5258.7
COAL MOISTURE CONTENT		0.0	42.4	338.9	0.0	0.0	0.0	381.3
COAL FEED RATE		3508.1	274.7	1161.8	53.6	45.7	596.1	5640.0
STEAM FLOW								
FLDZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR STM FEED RATE	F204	0.0	592.6	4740.5	0.0	0.0	0.0	5333.1
CHR CLR STM FEED	F205	0.0	260.2	2081.2	0.0	0.0	0.0	2341.4
HP STM TO CHAR CLR	F253	0.0	29.2	233.8	0.0	0.0	0.0	263.0
GASF STEAM PURGES	F278	0.0	62.2	497.8	0.0	0.0	0.0	560.0
CC STEAM PURGES	F279	0.0	17.8	142.2	0.0	0.0	0.0	160.0
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW								
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR O2 FEED RATE	F203	0.0	0.0	1472.2	0.0	0.0	0.0	1472.2
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW								
CO2 TRANSPORT FLOW	F6	488.6	0.0	1302.9	0.0	0.0	0.0	1791.5
CO2 FLOW TO FE-105	F7	165.2	0.0	440.7	0.0	0.0	0.0	605.9
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	196.1	0.0	522.9	0.0	0.0	0.0	719.0
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		4358.0	1375.5	13707.2	53.6	45.7	596.1	20136.1
EFFLUENT FLOW RATES (LB/HR)								
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	1539.5	25.1	84.5	11.4	6.9	596.1	2263.5
WASTE WATER FLOW	F255	0.0	837.7	6701.3	0.0	0.0	0.0	7539.0
STM FLW FR CHAR CLR	F254	0.0	233.5	1867.9	0.0	0.0	0.0	2101.4
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	2705.4	329.1	6086.7	4.3	0.1	0.0	9125.6
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		4244.9	1425.3	14740.4	15.7	6.9	596.1	21029.6
% CLOSURE (OUT/IN)(100)		97.4	103.6	107.5	29.3	15.2	100.0	104.4

MATERIAL BALANCES

ELEMENTAL AND OVERALL

FEED FLOW RATES (LB/HR)		STEADY STATE NO. 14						
		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	TOTAL
MF COAL FEED RATE		2488.0	164.8	583.6	38.0	32.4	422.8	3729.6
COAL MOISTURE CONTENT		0.0	30.0	240.4	0.0	0.0	0.0	270.4
COAL FEED RATE		2488.0	194.8	824.0	38.0	32.4	422.8	4000.0
STEAM FLOW								
FLDZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR STM FEED RATE	F204	0.0	764.6	6116.5	0.0	0.0	0.0	6881.1
CHR CLR STM FEED	F205	0.0	315.8	2526.7	0.0	0.0	0.0	2842.5
HP STM TO CHAR CLR	F253	0.0	15.4	123.4	0.0	0.0	0.0	138.8
GASF STEAM PURGES	F278	0.0	78.4	627.3	0.0	0.0	0.0	705.7
CC STEAM PURGES	F279	0.0	53.3	426.3	0.0	0.0	0.0	479.6
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW								
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR O2 FEED RATE	F203	0.0	0.0	1215.0	0.0	0.0	0.0	1215.0
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW								
CO2 TRANSPORT FLOW	F6	540.2	0.0	1440.5	0.0	0.0	0.0	1980.8
CO2 FLOW TO FE-105	F7	301.6	0.0	804.2	0.0	0.0	0.0	1105.7
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	178.2	0.0	475.1	0.0	0.0	0.0	653.2
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		3507.9	1561.2	15690.1	38.0	32.4	422.8	21252.4
EFFLUENT FLOW RATES (LB/HR)								
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	1407.9	32.8	88.0	8.3	6.2	422.8	1966.1
WASTE WATER FLOW	F255	0.0	666.7	5333.3	0.0	0.0	0.0	6000.0
STM FLW FR CHAR CLR	F254	0.0	358.3	2866.7	0.0	0.0	0.0	3225.0
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	2267.6	242.1	5404.8	0.1	7.7	0.0	7930.6
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		3675.5	1299.9	13692.8	8.4	14.0	422.8	19121.7
% CLOSURE (OUT/IN)(100)								
		104.8	83.3	87.3	22.2	43.2	100.0	90.0

MATERIAL BALANCES

ELEMENTAL AND OVERALL

RUN 1 - DB		STEADY STATE NO. 15					
FEED FLOW RATES (LB/HR)		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH
MF COAL FEED RATE		2519.1	166.8	590.9	38.5	32.8	428.1
COAL MOISTURE CONTENT		0.0	30.4	243.4	0.0	0.0	0.0
COAL FEED RATE		2519.1	197.2	834.3	38.5	32.8	428.1
TOTAL							4050.0
STEAM FLOW							
FLDZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0
GSFR STM FEED RATE	F204	0.0	798.2	6385.8	0.0	0.0	0.0
CHR CLR STM FEED	F205	0.0	290.6	2324.6	0.0	0.0	0.0
HP STM TO CHAR CLR	F253	0.0	40.4	323.4	0.0	0.0	0.0
GASF STEAM PURGES	F278	0.0	56.9	455.5	0.0	0.0	0.0
CC STEAM PURGES	F279	0.0	15.5	124.0	0.0	0.0	0.0
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW							
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0
GSFR O2 FEED RATE	F203	0.0	0.0	1181.3	0.0	0.0	0.0
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW							
CO2 TRANSPORT FLOW	F6	533.4	0.0	1422.3	0.0	0.0	0.0
CO2 FLOW TO FE-105	F7	207.0	0.0	551.9	0.0	0.0	0.0
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	184.0	0.0	490.6	0.0	0.0	0.0
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0
TOTAL							1250.0
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		3443.4	1537.8	15204.9	38.5	32.8	428.1
TOTAL							20685.5
EFFLUENT FLOW RATES (LB/HR)							
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	1328.8	35.9	99.7	13.6	5.8	428.1
WASTE WATER FLOW	F255	0.0	666.7	5333.3	0.0	0.0	0.0
STM FLW FR CHAR CLR	F254	0.0	356.9	2855.5	0.0	0.0	0.0
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	2213.1	250.6	5418.5	0.1	41.6	0.0
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		3541.9	1310.2	13707.0	13.7	47.4	428.1
TOTAL							19092.3
% CLOSURE (OUT/IN)(100)		102.9	85.2	90.1	35.5	144.4	100.0
TOTAL							92.3

RUN 1 - DB
STEADY STATE PERIOD NO. 16.

	2	3	9	10	11	14
SCFH	16876.6	92095.9	137018.5	13183.4	70239.3	55193.9
MW	44	30.69	18	32	18	18
LB/HR	1956.7	7448.0	6498.9	1111.6	3331.5	2617.9

	4	5	6	13
LB/HR				
H ₂ O	6000.0			0.0
OIL		0.0		
TAR			0.0	

	1	7	15
LB/HR (AS RECEIVED)	4050.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	3776.		1912.

STREAM NO. 3		STREAM NO. 15	
LB TOTAL STEAM/LB MF COAL		AVERAGE GAS COMPOSITION	
LB TOTAL OXYGEN/LB MF COAL		MOLE PERCENT - WET BASIS	
SCF ULTIMATE CH ₄ /LB MF COAL			
AVERAGE CARBON CONV WEIGHT PCT			
CHAR BASIS		MOL PCT-H ₂	21.02
GAS BASIS		MOL PCT-CO	2.88
GASIFIER TOP SURF CL VEL, FPS		MOL PCT-CO ₂	59.95
VOL PCT O ₂ IN TOTAL FEED GAS		MOL PCT-CH ₄	7.77
STREAM NOS. 8 AND 12 LB/HR		MOL PCT-C ₂ H ₆	0.87
STREAM NO. 15		MOL PCT-N ₂	0.00
CHAR ANALYSIS WT PCT - DRY BASIS		MOL PCT-NH ₃	0.00
H	1.9	MOL PCT-H ₂ S	0.46
C	69.5	MOL PCT-H ₂ O	7.05
N	0.7	MOL PCT-O ₂	0.00
O	5.2		
S	0.3		
ASH	22.4

RUN 1 - DB STEADY STATE PERIOD NO. 17.

	2	3	9	10	11	14
SCFH	16863.9	96138.8	137044.6	13255.0	70524.1	54955.2
MW	44	30.55	18	32	18	18
LB/HR	1955.2	7738.8	6500.1	1117.7	3345.0	2606.6

	4	5	6	13
LB/HR				
H2O	6000.0			0.0
OIL		0.0		
TAR			0.0	

	1	7	15
LB/HR (AS RECEIVED)	4050.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	3776.		1477.

STREAM NO. 3	
LB TOTAL STEAM/LB MF COAL	1.72
LB TOTAL OXYGEN/LB MF COAL	0.30
SCF ULTIMATE CH4/LB MF COAL	2.85
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	63.59
GAS BASIS	48.16
GASIFIER TOP SUPERCL VEL, FPS	0.551
VOL PCT O2 IN TOTAL FEED GAS	8.82
STREAM NOS. 8 AND 12 LB/HR	1495.7
STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	1.8
C	62.1
N	0.6
O	5.5
S	0.9
ASH	28.0
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H2	21.82
MOL PCT-CO	3.18
MOL PCT-CO2	59.18
MOL PCT-CH4	6.55
MOL PCT-C2H6	0.75
MOL PCT-N2	0.00
MOL PCT-NH3	0.00
MOL PCT-H2S	0.75
MOL PCT-H2O	7.77
MOL PCT-O2	0.00

RUN 1 - DB
STEADY STATE PERIOD NO. 18.

	2	3	9	10	11	14
SCFH	16803.9	95401.6	131235.9	12659.7	75703.1	54736.4
MW	44	30.54	18	32	18	18
LB/HR	1948.3	7677.2	6224.6	1067.5	3590.7	2596.2

	4	5	6	13
LB/HR				
H2O	6000.0			0.0
OIL		0.0		
TAR			0.0	

	1	7	15
LB/HR (AS RECEIVED)	3650.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	3403.		942.

LEGEND

STREAM NUMBER	Hexagon
TEMPERATURE, DEG	Square
PRESSURE, PSIG	Circle
BED LEVEL, FEET	Diamond
DENSITY, LB/CU.FT	Rectangle

LB TOTAL STEAM/LB MF COAL	1.83
LB TOTAL OXYGEN/LB MF COAL	0.31
SCF ULTIMATE CH4/LB MF COAL	3.45
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	78.94
GAS BASIS	54.40
GASIFIER TOP SUPERFOL VEL, FPS	0.540
VOL PCT O2 IN TOTAL FEED GAS	8.80
STREAM NOS. 8 AND 12 LB/HR	1263.2
STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	1.6
C	50.8
N	0.5
O	5.5
S	0.7
ASH	41.0

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H2	21.91
MOL PCT-CO	3.24
MOL PCT-CO2	59.17
MOL PCT-CH4	7.21
MOL PCT-C2H6	0.32
MOL PCT-N2	0.00
MOL PCT-NH3	0.00
MOL PCT-H2S	0.74
MOL PCT-H2O	6.81
MOL PCT-O2	0.00

RUN 1 - DB
STEADY STATE PERIOD NO. 19.

GAS STREAMS

	2	3	9	10	11	14
SCFH	16813.0	94448.6	133639.1	12509.9	69908.5	54677.8
MW	44	30.66	18	32	18	18
LB/HR	1949.3	7630.2	6338.6	1054.9	3315.8	2593.4

LIQUID STREAMS

LB/HR	4	5	6	13
H ₂ O	6000.0			0.0
OIL		0.0		
TAR			0.0	

SOLID STREAMS

LB/HR (AS RECEIVED)	1	7	15
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	4009.		1109.

LEGEND

STREAM NUMBER	HEXAGON
TEMPERATURE, DEGF	SQUARE
PRESSURE, PSIG	CIRCLE
BED LEVEL, FEET	DIAMOND
DENSITY, LB/CU.FT.	RECTANGLE

LB TOTAL STEAM/LB MF COAL	1.58
LB TOTAL OXYGEN/LB MF COAL	0.26
SCF ULTIMATE CH ₄ /LB MF COAL	3.04
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	78.94
GAS BASIS	46.14
GASIFIER TOP SUPRFL VEL, FPS	0.538
VOL PCT O ₂ IN TOTAL FEED GAS	8.56
STREAM NOS. 8 AND 12 LB/HR	1241.7

STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	1.6
C	50.8
N	0.5
O	5.5
S	0.7
ASH	41.0

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H ₂	21.13
MOL PCT-CO	3.11
MOL PCT-CO ₂	59.27
MOL PCT-CH ₄	7.96
MOL PCT-C ₂ H ₆	0.91
MOL PCT-N ₂	0.00
MOL PCT-NH ₃	0.00
MOL PCT-H ₂ S	0.73
MOL PCT-H ₂ O	8.88
MOL PCT-O ₂	0.00

RUN 1 - DB STEADY STATE PERIOD NO. 20.

	GAS STREAMS					
	2	3	9	10	11	14
SCFH	7836.7	92183.6	188167.4	15332.2	32654.3	34009.5
MW	44	28.48	18	32	18	18
LB/HR	908.6	6919.0	8924.9	1292.8	1548.8	1613.1

	LIQUID STREAMS			
LB/HR	4	5	6	13
H2O	10389.6			0.0
OIL		0.0		
TAR			0.0	

	SOLID STREAMS		
LB/HR	1	7	15
LB/HR(AS RECEIVED)	3010.	0.	
PERCENT MOISTURE	6.8		
LB/HR(MOISTURE FREE)	2807.		1584.

		STREAM NO. 3		
LB TOTAL STEAM/LB MF COAL		3.18	AVERAGE GAS COMPOSITION	
LB TOTAL OXYGEN/LB MF COAL		0.46	MOLE PERCENT - WET BASIS	
SCF ULTIMATE CH4/LB MF COAL		3.40		
AVERAGE CARBON CONV WEIGHT PCT				
CHAR BASIS		39.04	MOL PCT-H2	20.43
GAS BASIS		50.96	MOL PCT-CO	2.40
GASIFIER TOP SUPERCL VEL, FPS		0.843	MOL PCT-CO2	52.27
VOL PCT O2 IN TOTAL FEED GAS		7.53	MOL PCT-CH4	6.95
STREAM NOS. 8 AND 12 LB/HR		1741.3	MOL PCT-C2H6	0.50
STREAM NO. 15			MOL PCT-N2	0.00
CHAR ANALYSIS WT PCT - DRY BASIS			MOL PCT-NH3	0.00
H	2.0		MOL PCT-H2S	0.00
C	72.0		MOL PCT-H2O	17.45
N	0.6		MOL PCT-O2	0.00
O	4.9			
S	0.3			
ASH	20.1			

FOR STEADY STATE PERIOD 16
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 22:32 5/24/77
ENDING TIME 2:20 5/25/77

FOR STEADY STATE PERIOD 17
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 4:16 5/25/77
ENDING TIME 6:10 5/25/77

FOR STEADY STATE PERIOD 18
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 13:16 5/25/77
ENDING TIME 14:58 5/25/77

FOR STEADY STATE PERIOD 19
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 18: 2 5/25/77
ENDING TIME 19:55 5/25/77

FOR STEADY STATE PERIOD 20
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 17:58 8/ 7/77
ENDING TIME 20:43 8/ 7/77

AVERAGE CALCULATION VALUES

RUN 1 - DB

N

N

N

N

0

STEADY STATE PERIOD

PTID NAME DESCRIPTION

16

17

18

19

20

PRETREATER CALCULATIONS

84	X0001	COAL FEED RATE	PPH	4050.00	4050.00	3650.00	4300.00	3010.00
363	F284	FLDZNG STM TO PRTR	PPH	0.000	0.000	0.000	0.000	1671.291
364	F285	OXYGEN TO PRTR	SCFH	0.000	0.000	0.000	0.000	2671.541
374	F289	TRANSPORT LINE 02	SCFH	0.000	0.000	0.000	0.000	0.000
47	T203	PRTRTR LWR VES TEMP	DEGF	0.000	0.000	0.000	0.000	750.754
366	T290	PRTR BED AT 10'-4"	DEGF	0.000	0.000	0.000	0.000	662.905
367	T291	PRTR BED AT 6'-6"	DEGF	0.000	0.000	0.000	0.000	673.524
365	D2223	PRTR GAS DELTA P	"H2O	0.000	0.000	0.000	0.000	77.546
215	P267	PRTRTR VESSEL PRESS	PSIG	0.000	0.000	0.000	0.000	642.650
402	C2FBDP	PRT FLD BED DNSTY	LB/FT3	0.000	0.000	0.000	0.000	27.574
403	C2FBHP	PRT FLD BED HEIGHT	FT	0.000	0.000	0.000	0.000	10.030
539	CPBVOL	PRT FLUID BED VOL	FT3	0.000	0.000	0.000	0.000	18.494
405	C2SIP	PRT SOLIDS INVENTORY	LB	0.000	0.000	0.000	0.000	509.950
404	C2SRTP	PRT SOLIDS RES TIME	MIN	0.000	0.000	0.000	0.000	10.902
407	C2SCP2	PRT COAL FEED	PPH/FT2	0.000	0.000	0.000	0.000	1703.452
406	C2SCP1	PRT COAL FEED	PPH/FT3	* 0.000	* 0.000	* 0.000	* 0.000	162.757
535	C2PPD	PRT PR DRP	"H2O/FTBD	0.000	0.000	0.000	0.000	5.248
401	C25VP2	PRT FD GAS SUP VEL	L FPS	0.000	0.000	0.000	0.000	0.334
409	C2SCP4	PRT O2/RAW COAL	SCF/LB	0.000	0.000	0.000	0.000	0.888
411	C2SOP2	PRT O2 FD MF COAL	SCF/LB	0.000	0.000	0.000	0.000	0.952
413	C2SOP4	PRT O2 FD MAF COL	SCF/LB	0.000	0.000	0.000	0.000	1.074

AVERAGE CALCULATION VALUES

RUN 1 - DB

N

N

N

N

O

STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	16	17	18	19	20
408	C2SCP3	PRT 02/RAW COAL LB/LB	0.000	0.000	0.000	0.000	0.075
410	C2SOP1	PRT 02 FED MF COAL LB/LB	0.000	0.000	0.000	0.000	0.080
412	C2SOP3	PRT 02 FD MAF COAL LB/LB	0.000	0.000	0.000	0.000	0.091
538	CPSRC2	PRT STM/RAW COAL SCF/LB	0.000	0.000	0.000	0.000	13.872
415	C2SSP2	PRT STM FD MF COL SCF/LB	0.000	0.000	0.000	0.000	14.878
417	C2SSP5	PRT STM FD MAF CL SCF/LB	0.000	0.000	0.000	0.000	16.781
537	CPSRC1	PRT STM/RAW COAL LB/LB	0.000	0.000	0.000	0.000	0.659
414	C2SSP1	PRT STM FD MF COAL LB/LB	0.000	0.000	0.000	0.000	0.706
416	C2SSP4	PRT STM/MAF COAL LB/LB	0.000	0.000	0.000	0.000	0.797
554	CP02ST	PRT 02/STEAM SCF/SCF	0.000	0.000	0.000	0.000	0.064

AVERAGE CALCULATION VALUES

RUN 1 - DB

STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	N 16	N 17	N 18	N 19	0 20
GASIFICATION CALCULATIONS							
84	XQ001	COAL FEED RATE PPH	4050.00	4050.00	3650.00	4300.00	3010.00
220	P256	GSFR VESSEL PRESS PSIG	611.359	611.463	612.701	612.531	602.906
235	P295	GASIFIER PRESSURE PSIG	600.761	599.648	601.345	602.187	602.662
550	CSFTG	STEAM FLOW TO GASF LB/HR	6844.61	6857.21	6843.26	6688.10	6671.04
227	F203	GSFR O2 FEED RATE SCFH	13183.4	13255.0	12659.7	12509.9	12660.7
581	CSCCTG	STNPIPE STM TO GSFR PPH	-345.707	-357.068	-618.629	-349.475	271.604
345	T205	GASIFIER BED AT 18" DEGF	1282.79	1297.24	1295.37	1289.16	1299.84
424	C2FBDG	GSF FLD BED DNSTY LB/FT3	7.24384	7.76368	6.59092	6.77794	9.57312
425	C2FBHG	GSF FLD BED HEIGHT FT	23.6658	24.1458	22.2574	22.7762	27.9521
572	CGBV	GASIFIER BED VOLUME FT3	174.847	178.768	164.514	169.328	205.491
427	C2SIG	GSF SOLIDS INVENTORY LB	1278.59	1384.26	1088.35	1147.31	1963.35
426	C2SRTG	GSF SOLIDS RES TIME MIN	20.3153	21.9944	19.1877	17.1697	41.9740
429	C2SCG2	GASF COAL FEED PPH/FT2	572.843	572.843	516.266	608.204	425.743
428	C2SCG1	GASF COAL FEED PPH/FT3	23.1631	22.6550	22.1865	25.3945	14.6479
526	C2GPD	GSF PRESS DROP "H2O/FTBD	1.37004	1.46428	1.24506	1.27409	1.84362
420	C2SVBG	GSF SUP VEL-BOT BED FPS	0.445018	0.449100	0.428940	0.433921	0.482104
423	C2SVOG	GSF SUP VEL-OUTLET FPS	0.400970	0.415078	0.406482	0.404596	0.621613
421	C2SVTG	GSF SUP VEL-TOP BED FPS	0.533931	0.550896	0.539722	0.538357	0.842622
422	C2SVMG	GSF SUP VEL-MEAN BED FPS	0.489475	0.499998	0.484331	0.486139	0.662363
584	CGSF02	GSF O2/RAW COAL SCF/LB	3.25517	3.27285	3.46841	2.90929	4.20621
433	C2SOG2	GASF O2/MF COAL SCF/LB	3.49117	3.51013	3.71987	3.12022	4.51116

AVERAGE CALCULATION VALUES

RUN 1 - DB

N

N

N

N

0

STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	16	17	18	19	20
435	C2SOG4	GASF O2/MAF COAL SCF/LB	3.93755	3.95893	4.19549	3.51916	5.08795
585	CGSF03	GASF O2/RAW COAL LB/LB	0.274481	0.275971	0.292461	0.245316	0.354674
432	C2SOG1	GASF O2/MF COAL LB/LB	0.294381	0.295980	0.313665	0.263101	0.380388
434	C2SOG3	GASF O2/MAF COAL LB/LB	0.332020	0.333823	0.353770	0.296741	0.429024
586	CGSM5M	GASF STM/RAW COAL SCF/LB	33.7942	33.8007	35.9152	31.0444	48.5753
437	C2SSG2	GASF STM/MF COAL SCF/LB	36.2524	36.2593	38.5276	33.3026	52.1087
439	C2SSG4	GASF STM/MAF COAL SCF/LB	40.8875	40.8953	43.4537	37.5605	58.7712
587	CGSSTM	GASF STM/RAW COAL LB/LB	1.60467	1.60497	1.70538	1.47410	2.30653
436	C2SSG1	GASF STM/MF COAL LB/LB	1.72101	1.72134	1.82902	1.58097	2.47375
438	C2SSG3	GASF STM/MAF COAL LB/LB	1.94105	1.94142	2.06287	1.78311	2.79004
555	CG02ST	GASF O2/STEAM SCF/SCF	0.096	0.097	0.097	0.094	0.067
342	F255	WASTE WATER FLOW GPM	12.0000	12.0000	12.0000	12.0000	20.7793
243	F221	TAR FLOW THRL OXDZR GPM	0.000	0.000	0.000	0.000	0.000
245	F209	RW GS SCRBR EF 1000-SCFH	92.0959	96.1388	95.4016	94.4486	92.1836
574	CNRGG	RAW GAS FROM GASF SCFH	191633	195676	194939	193986	284186
575	CTGFB	TOTAL GAS FROM BED SCFH	182063	186106	185369	184416	274617
475	C2CI	GASF CARBON INVENTORY LB	888.663	859.920	552.685	582.628	1414.51
551	CCGPPH	CARBON GASIFIED PPH	1190.29	1601.77	1792.11	2111.25	730.906
594	C2GR4	GASF RATE LBC/HR-FT3BD	6.80763	8.96006	10.8933	12.4684	3.55688
595	C2GR3	GASF RATE LBC/HR-LBCBD	1.33942	1.86270	3.24255	3.62366	0.516719
455	C2MRG2	CH4 PROD GAS SCFH/FT3BD	40.9166	35.2478	41.8155	44.3856	31.1659

AVERAGE CALCULATION VALUES

RUN 1 - DB

N

N

N

N

0

STEADY STATE PERIOD

PTID NAME DESCRIPTION

16

17

18

19

20

CHAR COOLER CALCULATIONS

230	F205	CHR CLR STM FEED	PPH	2617.89	2606.57	2596.19	2593.41	1613.10
234	F230	H2O FLW TO CHAR CLR	GPH	0.000	0.000	0.000	0.000	0.000
336	F253	HP STM TO CHAR CLR	PPH	367.909	381.375	375.837	372.929	207.326
599	CFRPPH	CHAR REMOVAL RATE	PPH	1911.85	1476.67	941.655	1109.35	1584.15
341	F254	STM FLW FR CHAR CLR	PPH	3331.51	3345.02	3590.66	3315.82	1548.82
372	F229	CHAR TRANSPORT STEAM	PPH	0.000	0.000	0.000	0.000	0.000
224	P258	CHAR COOLER PRESS	PSIG	625.231	625.461	624.420	626.860	599.786
346	T202	CHR CLR UPPR BD TMP	DEGF	760.056	784.470	760.115	804.034	672.820
89	T20004	C. C. BD AT 19FT-2IN	DEGF	707.536	711.045	683.164	785.106	599.745
487	C2FBDC	CC FLD BED DNSTY	LB/FT3	15.5802	16.2795	17.8051	17.9198	14.3241
488	C2FBHC	CC FLD BED HEIGHT	FT	12.2594	10.4964	11.5317	15.6808	8.62645
573	CCCEV	CHAR CLR BED VOLUME	FT3	33.7649	29.1106	30.3920	42.7973	23.9652
490	C2SIC	CC SOLIDS INVENTORY	LB	526.063	473.906	541.132	766.919	343.279
489	C2SRTC	CC SOLIDS RES TIME	MIN	16.5095	19.2558	36.1266	41.4795	13.1150
520	C2SCC2	CC MF CHAR FD	LB/HR-FT2	724.187	559.344	356.687	420.207	600.056
499	C2SCC1	CC MF CHAR FD	LB/HR-FT3	56.6226	50.7262	30.9836	25.9209	66.1021
534	C2CPD	CC PRESS DROP	"H2O/FTBD	3.00048	3.13517	3.42896	3.45106	2.75858
484	C2SSV	CC STEAM SUP VEL	FPS	0.311074	0.315930	0.309862	0.318424	0.186442
485	C2WSV	CC VAP. H2O SUP VEL	FPS	0.000	0.000	0.000	0.000	0.000
590	CCATSM	CC ATM STM SUP VEL	FPS	0.044	0.047	0.044	0.046	0.024
486	C2TSV	CC TOT STM SUP VEL	FPS	0.354815	0.362536	0.353572	0.364426	0.210417

AVERAGE CALCULATION VALUES

RUN 1 - DB

N

N

N

N

0

STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	16	17	18	19	20
454	C2MRG1	CH4 IN RAW GAS LBC/LBCBD	0.254555	0.231700	0.393573	0.407888	0.143162
451	C2CG1	CARBON CONVRSN (CHAR) %	47.2507	63.5852	78.9371	78.9371	39.0396
452	C2CG12	CARBON CONVRSN (GAS) %	47.2583	48.1559	54.4030	46.1407	50.9633
596	CUGYM	USEFL GAS YLD SCF/LB-MAF	8.94921	9.27557	10.5222	8.79716	11.2140
592	CECH4R	EQUIV CH4 SCF/LB-RAW	2.16434	1.91480	2.37156	2.15258	2.43568
591	CECH4M	EQUIV CH4 SCF/LB-MF	2.32126	2.05363	2.54350	2.30865	2.61227
579	CECH4C	EQUIV CH4 SCF/LB-MAF	2.61805	2.31620	2.86871	2.60383	2.94627
466	C2MYG4	GSF CH4 YLD-MAF CF/HR-LB	2.13675	1.88200	2.27982	2.11424	2.57370
577	CTUCH4	TOTAL ULTIMATE CH4 SCFH	11416.8	10815.5	11743.0	12193.3	9542.41
560	CUCH4R	ULT CH4/RAW COAL SCF/LB	2.81897	2.67050	3.21727	2.83565	3.17023
561	CUCH4M	ULT CH4/MF COAL SCF/LB	3.02335	2.86411	3.45052	3.04123	3.40008
562	CUCH4A	ULT CH4/MAF COAL SCF/LB	3.40991	3.23031	3.89170	3.43008	3.83481
450	C2SCG	STM CONV - H2O BALANCE %	31.7114	31.0422	28.5307	30.2292	-3.74321
598	CSCH2	STM CONV - H2 BALANCE %	8.30372	7.06122	9.14196	5.85019	8.16272
552	CSPV	SPACE VELOCITY 1/MIN	1.03744	1.02358	1.06238	1.04690	1.24061
553	CSPT	SPACE TIME MIN	0.963912	0.976962	0.941287	0.955201	0.806052

AVERAGE CALCULATION VALUES

RUN 1 - DB

N

N

N

N

0

STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	16	17	18	19	20
521	C25CC3	CC MF CHR/RAW COAL LB/LB	0. 472063	0. 364610	0. 257987	0. 257987	0. 526295
493	C25SC3	CC STM/MF CHAR LB/LB	1. 36929	1. 76517	2. 75705	2. 33778	1. 01827
588	CCCSTM	CC STM/RAW COAL LB/LB	0. 646393	0. 643598	0. 711285	0. 603119	0. 535913
494	C25SC4	CC STM/MF COAL LB/LB	0. 693257	0. 690259	0. 762854	0. 646846	0. 574767
589	CCSTM	CC STM/MAF COAL LB/LB	0. 781895	0. 778515	0. 860391	0. 729551	0. 648256
497	C25WC3	CC H2O/MF CHAR LB/LB	0. 000	0. 000	0. 000	0. 000	0. 000
498	C25WC4	CC H2O/RAW COAL LB/LB	0. 000	0. 000	0. 000	0. 000	0. 000

AVERAGE CALCULATION VALUES

RUN 1 - DB

N

N

N

N

0

STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	16	17	18	19	20
PRETREATER, GASIFIER COMBINED CALCULATIONS							
798	CMFRC	MF COAL/ RAW COAL LB/LB	0.932400	0.932400	0.932400	0.932400	0.932400
799	CMAFRC	MAF COAL/ RAW COAL LB/LB	0.826700	0.826700	0.826700	0.826700	0.826700
800	CTOTC1	TOTAL O2/RAW COAL SCF/LB	3.25517	3.27285	3.46841	2.90929	5.09376
801	CTOTC2	TOTAL O2/MF COAL SCF/LB	3.49117	3.51013	3.71987	3.12022	5.46307
802	CTOTC3	TOTAL O2/MAF COAL SCF/LB	3.93755	3.95893	4.19549	3.51916	6.16156
803	CTOTC4	TOTAL O2/RAW COAL LB/LB	0.274481	0.275971	0.292461	0.245316	0.429512
804	CTOTC5	TOTAL O2/MF COAL LB/LB	0.294381	0.295980	0.313665	0.263101	0.460653
805	CTOTC6	TOTAL O2/MAF COAL LB/LB	0.332020	0.333823	0.353770	0.296741	0.519551
806	CTSTC1	TTL STM/RAW COAL SCF/LB	33.7942	33.8007	35.9152	31.0444	62.4478
807	CTSTC2	TTL STM/MF COAL SCF/LB	36.2524	36.2593	38.5276	33.3026	66.9869
808	CTSTC3	TTL STM/MAF COAL SCF/LB	40.8875	40.8953	43.4537	37.5605	75.5517
809	CTSTC4	TTL STM/RAW COAL LB/LB	1.60467	1.60497	1.70538	1.47410	2.96510
810	CTSTC5	TTL STM/MF COAL LB/LB	1.72101	1.72134	1.82902	1.58097	3.18007
811	CTSTC6	TTL STM/MAF COAL LB/LB	1.94105	1.94142	2.06287	1.78311	3.58667
556	CTO2ST	TTL O2/STEAM SCF/SCF	0.096	0.097	0.097	0.094	0.082

UPDATED AVERAGE GAS SAMPLE COMPOSITIONS

RUN 1 - DB

N

N

N

N

0

STEADY STATE PERIOD

COMPONENT	16		17		18		19		20	
	DRY	WET	DRY	WET	DRY	WET	DRY	WET	DRY	WET
MOLX-H2	22.61	21.02	23.65	21.82	23.51	21.91	22.69	21.13	24.75	20.43
MOLX-CO	3.10	2.88	3.45	3.18	3.47	3.24	3.34	3.11	2.91	2.40
MOLX-CO2	64.50	59.95	64.16	59.18	63.49	59.17	63.65	59.27	63.32	52.27
MOLX-CH4	8.36	7.77	7.11	6.55	7.74	7.21	8.55	7.96	8.42	6.95
MOLX-C2H6	0.93	0.87	0.81	0.75	0.99	0.92	0.98	0.91	0.60	0.50
MOLX-N2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-NH3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-H2S	0.49	0.46	0.81	0.75	0.79	0.74	0.79	0.73	0.00	0.00
MOLX-H2O	0.00	7.05	0.00	7.77	0.00	6.81	0.00	6.88	0.00	17.45
MOLX-O2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C2H4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C3H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C3H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

UPSTR PRESS-(P227) PSIG	604.42	604.39	604.55	603.66	595.96
FLOW TEMP-(TI20010) DEGF	272.61	278.70	270.44	271.03	333.04
MOL WT. (WET)	30.54	30.29	30.29	30.41	28.48
DRY GAS MAKE,1000-SCFH	85.60	88.67	88.91	87.95	76.10
WET GAS MAKE,1000-SCFH	92.10	96.14	95.40	94.45	92.18
H2/CO MOL RATIO	7.30	6.85	6.77	6.79	8.52

AVERAGED CHAR ANALYSIS
MOISTURE - FREE BASIS

RUN 1 - DB	N	N	N	N	0
	16	17	18	19	20
STEADY STATE PERIOD					
PROXIMATE ANALYSIS					

VOLATILE MATTER	10.1	13.2	14.6	14.6	9.4
FIXED CARBON	67.5	57.8	44.5	44.5	70.5
ASH	22.4	29.0	41.0	41.0	20.1
ULTIMATE ANALYSIS					

HYDROGEN	1.9	1.8	1.6	1.6	2.0
CARBON	69.5	62.1	50.8	50.8	72.0
NITROGEN	0.7	0.6	0.5	0.5	0.6
OXYGEN	5.2	5.5	5.5	5.5	4.9
SULFUR	0.3	0.9	0.7	0.7	0.3
ASH	22.4	29.0	41.0	41.0	20.1
HEAT OF COMBUSTION					

HHV - BTU/LB	10848.0	9625.0	7821.0	7821.0	10302.0

MATERIAL BALANCES

ELEMENTAL AND OVERALL

FEED FLOW RATES (LB/HR)		RUN 1 - DB		STEADY STATE NO. 16					TOTAL	
		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH			
MF COAL FEED RATE		2519.1	166.8	590.9	38.5	32.8	428.1		3776.2	
COAL MOISTURE CONTENT		0.0	30.4	243.4	0.0	0.0	0.0		273.8	
COAL FEED RATE		2519.1	197.2	834.3	38.5	32.8	428.1		4050.0	
STEAM FLOW										
FLDZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
GSFR STM FEED RATE	F204	0.0	753.8	6030.8	0.0	0.0	0.0		6784.6	
CHR CLR STM FEED	F205	0.0	290.9	2327.0	0.0	0.0	0.0		2617.9	
HP STM TO CHAR CLR	F253	0.0	40.9	327.0	0.0	0.0	0.0		367.9	
GSF STEAM PURGES	F278	0.0	59.1	472.8	0.0	0.0	0.0		531.9	
CC STEAM PURGES	F279	0.0	21.3	170.2	0.0	0.0	0.0		191.5	
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
OXYGEN FLOW										
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
GSFR O2 FEED RATE	F203	0.0	0.0	1111.6	0.0	0.0	0.0		1111.6	
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
CARBON DIOXIDE FLOW										
CO2 TRANSPORT FLOW	F6	533.6	0.0	1423.1	0.0	0.0	0.0		1956.7	
CO2 FLOW TO FE-105	F7	193.9	0.0	517.0	0.0	0.0	0.0		710.8	
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
CO2 INST PURGE FLOW	F274	189.6	0.0	505.7	0.0	0.0	0.0		695.3	
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0		1250.0	
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
TOTAL FEED FLOW RATES (LB/HR)		3436.2	1502.1	14830.5	38.5	32.8	428.1		20268.2	
EFFLUENT FLOW RATES (LB/HR)										
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
CHAR REMOVAL RATE	CFRPPH	1328.8	35.9	99.7	13.6	5.8	428.1		1911.9	
WASTE WATER FLOW	F255	0.0	666.7	5333.3	0.0	0.0	0.0		6000.0	
STM FLW FR CHAR CLR	F254	0.0	370.2	2961.3	0.0	0.0	0.0		3331.5	
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
RW GS SCRBR EF	F209	2106.9	226.6	5041.3	0.1	35.5	0.0		7448.0	
TAR FLOW THRML OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
TOTAL EFFLUENT FLOW RATE (LB/HR)		3435.7	1299.3	13435.6	13.7	41.3	428.1		18691.3	
% CLOSURE (OUT/IN)(100)		100.0	86.5	90.6	35.5	125.9	100.0		92.2	

MATERIAL BALANCES

ELEMENTAL AND OVERALL

FEED FLOW RATES (LB/HR)		RUN 1 - DB		STEADY STATE NO. 17					TOTAL	
		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH			
MF COAL FEED RATE		2519.1	166.8	590.9	38.5	32.8	428.1		3776.2	
COAL MOISTURE CONTENT		0.0	30.4	243.4	0.0	0.0	0.0		273.8	
COAL FEED RATE		2519.1	197.2	834.3	38.5	32.8	428.1		4050.0	
STEAM FLOW										
FLDZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
GSFR STM FEED RATE	F204	0.0	755.2	6042.0	0.0	0.0	0.0		6797.2	
CHR CLR STM FEED	F205	0.0	289.6	2317.0	0.0	0.0	0.0		2606.6	
HP STM TO CHAR CLR	F253	0.0	42.4	339.0	0.0	0.0	0.0		381.4	
GASF STEAM PURGES	F278	0.0	59.6	476.6	0.0	0.0	0.0		536.1	
CC STEAM PURGES	F279	0.0	29.2	233.7	0.0	0.0	0.0		262.9	
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
OXYGEN FLOW										
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
GSFR O2 FEED RATE	F203	0.0	0.0	1117.7	0.0	0.0	0.0		1117.7	
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
CARBON DIOXIDE FLOW										
CO2 TRANSPORT FLOW	F6	533.2	0.0	1422.0	0.0	0.0	0.0		1955.2	
CO2 FLOW TO FE-105	F7	205.3	0.0	547.5	0.0	0.0	0.0		752.8	
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
CO2 INST PURGE FLOW	F274	190.0	0.0	506.6	0.0	0.0	0.0		696.6	
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0		1250.0	
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
TOTAL FEED FLOW RATES (LB/HR)		3447.6	1512.1	14947.4	38.5	32.8	428.1		20406.6	
EFFLUENT FLOW RATES (LB/HR)										
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
CHAR REMOVAL RATE	CFRPPH	917.3	26.7	81.8	8.9	13.9	428.1		1476.7	
WASTE WATER FLOW	F255	0.0	666.7	5333.3	0.0	0.0	0.0		6000.0	
STM FLW FR CHAR CLR	F254	0.0	371.7	2973.4	0.0	0.0	0.0		3345.0	
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
RW GS SCRBR EF	F209	2140.9	231.6	5241.0	0.1	60.7	0.0		7738.8	
TAR FLOW THRML OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
TOTAL EFFLUENT FLOW RATE (LB/HR)		3058.2	1296.6	13629.4	9.1	74.6	428.1		18560.5	
% CLOSURE (OUT/IN)(100)		88.7	85.7	91.2	23.5	227.4	100.0		91.0	

MATERIAL BALANCES

ELEMENTAL AND OVERALL

FEED FLOW RATES (LB/HR)		RUN 1 - DB		STEADY STATE NO. 18				
		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	TOTAL
MF COAL FEED RATE		2270.3	150.3	532.6	34.7	29.6	385.8	3403.3
COAL MOISTURE CONTENT		0.0	27.4	219.3	0.0	0.0	0.0	246.7
COAL FEED RATE		2270.3	177.8	751.9	34.7	29.6	385.8	3650.0
STEAM FLOW								
FLDZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR STM FEED RATE	F204	0.0	753.7	6029.6	0.0	0.0	0.0	6783.3
CHR CLR STM FEED	F205	0.0	288.5	2307.7	0.0	0.0	0.0	2596.2
HP STM TO CHAR CLR	F253	0.0	41.8	334.1	0.0	0.0	0.0	375.8
GASF STEAM PURGES	F278	0.0	47.3	378.5	0.0	0.0	0.0	425.9
CC STEAM PURGES	F279	0.0	19.4	155.1	0.0	0.0	0.0	174.5
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW								
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSFR O2 FEED RATE	F203	0.0	0.0	1067.5	0.0	0.0	0.0	1067.5
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW								
CO2 TRANSPORT FLOW	F6	531.3	0.0	1416.9	0.0	0.0	0.0	1948.3
CO2 FLOW TO FE-105	F7	209.7	0.0	559.1	0.0	0.0	0.0	768.8
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	180.8	0.0	482.1	0.0	0.0	0.0	662.9
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		3192.1	1467.3	14593.6	34.7	29.6	385.8	19703.0
EFFLUENT FLOW RATES (LB/HR)								
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	478.2	14.6	51.5	4.6	7.0	385.8	941.7
WASTE WATER FLOW	F255	0.0	666.7	5333.3	0.0	0.0	0.0	6000.0
STM FLW FR CHAR CLR	F254	0.0	399.0	3191.7	0.0	0.0	0.0	3590.7
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	2156.1	234.6	5163.6	0.1	59.5	0.0	7677.2
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		2634.3	1314.9	13740.1	4.7	66.5	385.8	18209.5
% CLOSURE (OUT/IN)(100)		82.5	89.6	94.2	13.5	224.8	100.0	92.4

MATERIAL BALANCES

ELEMENTAL AND OVERALL

RUN 1 - DB		STEADY STATE NO. 19					
FEED FLOW RATES (LB/HR)		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH
WF COAL FEED RATE		2674.6	177.1	627.4	40.8	34.8	454.5
COAL MOISTURE CONTENT		0.0	32.3	258.4	0.0	0.0	0.0
COAL FEED RATE		2674.6	209.4	885.8	40.8	34.8	454.5
STEAM FLOW							
FLOZNG STM TO PRTR	F284	0.0	0.0	0.0	0.0	0.0	0.0
GSFR STM FEED RATE	F204	0.0	736.5	5891.6	0.0	0.0	0.0
CHR CLR STM FEED	F205	0.0	288.2	2305.3	0.0	0.0	6628.1
HP STM TO CHAR CLR	F253	0.0	41.4	331.5	0.0	0.0	2593.4
GASF STEAM PURGES	F278	0.0	51.7	413.8	0.0	0.0	372.9
CC STEAM PURGES	F279	0.0	12.4	99.1	0.0	0.0	465.5
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	111.5
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW							
OXYGEN TO PRTR	F285	0.0	0.0	0.0	0.0	0.0	0.0
GSFR O2 FEED RATE	F203	0.0	0.0	1054.9	0.0	0.0	1054.9
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW							
CO2 TRANSPORT FLOW	F6	531.6	0.0	1417.7	0.0	0.0	1949.3
CO2 FLOW TO FE-105	F7	209.4	0.0	558.5	0.0	0.0	767.9
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	181.3	0.0	483.4	0.0	0.0	664.7
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		3596.9	1478.5	14552.6	40.8	34.8	454.5
EFFLUENT FLOW RATES (LB/HR)							
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	563.3	17.2	60.6	5.4	8.2	454.5
WASTE WATER FLOW	F255	0.0	666.7	5333.3	0.0	0.0	1109.3
STM FLW FR CHAR CLR	F254	0.0	368.4	2947.4	0.0	0.0	6000.0
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	3315.8
RW GS SCRBR EF	F209	2155.6	236.0	5118.2	0.1	58.3	0.0
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	7630.2
TOTAL EFFLUENT FLOW RATE (LB/HR)		2719.0	1288.3	13459.6	5.5	66.5	454.5
X CLOSURE (OUT/IN)(100)		75.6	87.1	92.5	13.5	190.9	100.0

89.6

MATERIAL BALANCES

ELEMENTAL AND OVERALL

RUN 1 - DB		STEADY STATE NO. 20						
FEED FLOW RATES (LB/HR)		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	TOTAL
MF COAL FEED RATE		1872.2	124.0	439.2	28.6	24.4	318.2	2806.5
COAL MOISTURE CONTENT		0.0	22.6	180.9	0.0	0.0	0.0	203.5
COAL FEED RATE		1872.2	146.6	620.1	28.6	24.4	318.2	3010.0
STEAM FLOW								
FLDZNG STM TO PRTR	F284	0.0	185.7	1485.6	0.0	0.0	0.0	1671.3
GSFR STM FEED RATE	F204	0.0	734.6	5876.5	0.0	0.0	0.0	6611.0
CHR CLR STM FEED	F205	0.0	179.2	1433.9	0.0	0.0	0.0	1613.1
HP STM TO CHAR CLR	F253	0.0	23.0	184.3	0.0	0.0	0.0	207.3
GASF STEAM PURGES	F278	0.0	80.1	640.9	0.0	0.0	0.0	721.0
CC STEAM PURGES	F279	0.0	0.0	0.0	0.0	0.0	0.0	0.0
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW								
OXYGEN TO PRTR	F285	0.0	0.0	225.3	0.0	0.0	0.0	225.3
GSFR O2 FEED RATE	F203	0.0	0.0	1067.6	0.0	0.0	0.0	1067.6
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW								
CO2 TRANSPORT FLOW	F6	247.8	0.0	660.8	0.0	0.0	0.0	908.6
CO2 FLOW TO FE-105	F7	345.7	0.0	921.9	0.0	0.0	0.0	1267.6
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	278.3	0.0	742.0	0.0	0.0	0.0	1020.3
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		2744.0	1488.1	14969.8	28.6	24.4	318.2	19573.0
EFFLUENT FLOW RATES (LB/HR)								
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	1141.3	32.0	77.3	10.1	5.2	318.2	1584.1
WASTE WATER FLOW	F255	0.0	1134.4	9235.2	0.0	0.0	0.0	10389.6
STM FLW FR CHAR CLR	F254	0.0	172.1	1376.7	0.0	0.0	0.0	1548.8
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	1825.4	258.9	4834.6	0.1	0.1	0.0	6919.0
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		2966.7	1617.3	15523.9	10.2	5.3	318.2	20441.6
% CLOSURE (OUT/IN)(100)		108.1	108.7	103.7	35.8	21.8	100.0	104.4

RUN 1 - DB
STEADY STATE PERIOD NO. 21.

	2	3	9	10	11	14
SCFH	7857.1	91962.9	196739.1	15054.1	33470.5	44387.6
MW	44	28.59	18	32	18	18
LB/HR	911.0	6929.1	9331.5	1269.4	1587.5	2105.3

	4	5	6	13
LB/HR				
H ₂ O	10741.6			0.0
OIL		0.0		
TAR			0.0	

	1	7	15
LB/HR (AS RECEIVED)	3900.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	3636.		1289.

LB TOTAL STEAM/LB MF COAL	2.57
LB TOTAL OXYGEN/LB MF COAL	0.35
SCF ULTIMATE CH ₄ /LB MF COAL	2.94
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	67.12
GAS BASIS	40.61
GASIFIER TOP SURFCL VEL, FPS	0.872
VOL PCT O ₂ IN TOTAL FEED GAS	7.11
STREAM NOS. 8 AND 12 LB/HR	1757.5

STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	1.5
C	61.9
N	0.5
O	3.4
S	0.8
ASH	32.0

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H ₂	22.16
MOL PCT-CO	2.91
MOL PCT-CO ₂	53.12
MOL PCT-CH ₄	7.76
MOL PCT-C ₂ H ₆	0.48
MOL PCT-N ₂	0.04
MOL PCT-NH ₃	0.00
MOL PCT-H ₂ S	0.26
MOL PCT-H ₂ O	13.27
MOL PCT-O ₂	0.00

LEGEND

STREAM NUMBER

TEMPERATURE, DEG F

PRESSURE, PSIG

BED LEVEL, FEET

DENSITY, LB/CU. FT.

RUN 1 - DB

STEADY STATE PERIOD NO. 22.

GAS STREAMS

	2	3	9	10	11	14
SCFH	6658.1	108948.7	164639.2	16763.3	53396.2	41993.9
MW	44	26.61	18	32	18	18
LB/HR	772.0	7638.4	7809.0	1413.5	2532.6	1991.8

LIQUID STREAMS

LB/HR	4	5	6	13
H ₂ O	9610.5			0.0
OIL		0.0		
TAR			0.0	

SOLID STREAMS

LB/HR (AS RECEIVED)	1	7	15
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	4280.		2071.

LB TOTAL STEAM/LB MF COAL	1.82
LB TOTAL OXYGEN/LB MF COAL	0.33
SCF ULTIMATE CH ₄ /LB MF COAL	3.45
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	48.94
GAS BASIS	39.93
GASIFIER TOP SUPERFCL VEL., FPS	0.883
VOL PCT O ₂ IN TOTAL FEED GAS	9.24
STREAM NOS. 8 AND 12 LB/HR	1887.4

STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	1.4
C	70.4
N	0.5
O	4.0
S	0.2
ASH	23.4

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H ₂	25.10
MOL PCT-CO	4.45
MOL PCT-CO ₂	47.03
MOL PCT-CH ₄	8.48
MOL PCT-C ₂ H ₆	0.30
MOL PCT-N ₂	0.17
MOL PCT-NH ₃	0.00
MOL PCT-H ₂ S	0.13
MOL PCT-H ₂ O	14.33
MOL PCT-O ₂	0.00

RUN 1 - DB
STEADY STATE PERIOD NO. 23.

GAS STREAMS

	2	3	9	10	11	14
SCFH	7846.7	130027.9	197973.0	19624.8	48708.4	44209.5
MW	44	25.51	18	32	18	18
LB/HR	909.8	8740.7	9390.0	1654.8	2310.3	2096.9

LIQUID STREAMS

LB/HR	4	5	6	13
H ₂ O	9326.0			0.0
OIL		0.0		
TAR			0.0	

SOLID STREAMS

	1	7	15
LB/HR (AS RECEIVED)	3840.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	3580.		1032.

LB TOTAL STEAM/LB MF COAL	2.62
LB TOTAL OXYGEN/LB MF COAL	0.46
SCF ULTIMATE CH ₄ /LB MF COAL	4.31
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	76.90
GAS BASIS	53.91
GASIFIER TOP SUPERFOL VEL, FPS	0.987
VOL PCT O ₂ IN TOTAL FEED GAS	9.02
STREAM NOS. 8 AND 12 LB/HR	1897.3

STREAM NO. 15
CHAR ANALYSIS WT PCT - DRY BASIS

H	0.8
C	53.4
N	0.2
O	6.0
S	0.2
ASH	39.3

STREAM NO. 3
AVERAGE GAS COMPOSITION
MOLE PERCENT - WET BASIS

MOL PCT-H ₂	25.58
MOL PCT-CO	5.65
MOL PCT-CO ₂	42.61
MOL PCT-CH ₄	6.05
MOL PCT-C ₂ H ₆	0.08
MOL PCT-N ₂	0.08
MOL PCT-NH ₃	0.00
MOL PCT-H ₂ S	0.12
MOL PCT-H ₂ O	19.82
MOL PCT-O ₂	0.00

RUN 1 - DB
STEADY STATE PERIOD NO. 24.

	2	3	9	10	11	14
SCFH	7845.9	154734.2	202104.1	20208.1	43088.0	44132.7
MW	44	24.78	18	32	18	18
LB/HR	909.7	10102.0	9586.0	1704.0	2043.7	2093.3

	4	5	6	13
LB/HR				
H2O	9270.7			0.0
OIL		0.0		
TAR			0.0	

	1	7	15
LB/HR (AS RECEIVED)	4100.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	3823.		1044.

LB TOTAL STEAM/LB MF COAL	2.51
LB TOTAL OXYGEN/LB MF COAL	0.45
SCF ULTIMATE CH4/LB MF COAL	4.90
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	78.61
GAS BASIS	61.58
GASIFIER TOP SURFCL VEL, FPS	1.063
VOL PCT O2 IN TOTAL FEED GAS	9.09
STREAM NOS. 8 AND 12 LB/HR	1907.7

STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	1.0
C	52.3
N	0.3
O	4.7
S	0.2
ASH	41.5

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H2	24.27
MOL PCT-CO	5.90
MOL PCT-CO2	38.86
MOL PCT-CH4	6.05
MOL PCT-C2H6	0.08
MOL PCT-N2	0.00
MOL PCT-NH3	0.00
MOL PCT-H2S	0.15
MOL PCT-H2O	24.69
MOL PCT-O2	0.00

RUN 1 - DB
STEADY STATE PERIOD NO. 25.

	2	3	9	10	11	14
SCFH	7846.6	160815.9	192636.0	21176.4	33646.9	30389.0
MW	44	24.98	18	32	18	18
LB/HR	909.8	10585.6	9136.9	1785.6	1595.9	1441.4

	4	5	6	13
LB/HR				
H2O	8808.5			0.0
OIL		0.0		
TAR			0.0	

	1	7	15
LB/HR (AS RECEIVED)	5040.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	4699.		1677.

LB TOTAL STEAM/LB MF COAL	1.94
LB TOTAL OXYGEN/LB MF COAL	0.38
SCF ULTIMATE CH4/LB MF COAL	4.67
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	67.27
GAS BASIS	55.42
GASIFIER TOP SURFCL VEL, FPS	1.045
VOL PCT O2 IN TOTAL FEED GAS	9.90
STREAM NOS. 8 AND 12 LB/HR	1888.2

STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	1.1
C	61.2
N	0.3
O	5.3
S	0.2
ASH	31.6

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H2	23.36
MOL PCT-CO	5.40
MOL PCT-CO2	39.32
MOL PCT-CH4	7.09
MOL PCT-C2H6	0.08
MOL PCT-N2	0.08
MOL PCT-NH3	0.00
MOL PCT-H2S	0.15
MOL PCT-H2O	22.30
MOL PCT-O2	0.00

FOR STEADY STATE PERIOD 21
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 7:32 8/10/77
ENDING TIME 13: 0 8/10/77

FOR STEADY STATE PERIOD 22
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 5:19 8/11/77
ENDING TIME 8:55 8/11/77

FOR STEADY STATE PERIOD 23
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 0: 1 8/12/77
ENDING TIME 2:25 8/12/77

FOR STEADY STATE PERIOD 24
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 10: 1 8/12/77
ENDING TIME 15:55 8/12/77

FOR STEADY STATE PERIOD 25
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 1: 1 8/13/77
ENDING TIME 15:55 8/13/77

AVERAGE CALCULATION VALUES

RUN 1 - DB

0

0

0

0

0

STEADY STATE PERIOD

PTID NAME DESCRIPTION

21

22

23

24

25

PRETREATER CALCULATIONS

84	XQ001	COAL FEED RATE	PPH	3900.00	4590.00	3840.00	4100.00	5040.00
363	F284	FLDZNG STM TO PRTR	PPH	1649.36	1550.42	1748.02	1617.71	1583.38
364	F285	OXYGEN TO PRTR	SCFH	3406.63	3405.41	3936.44	3622.67	3741.73
374	F289	TRANSPORT LINE O2	SCFH	0.000	0.000	0.000	0.000	0.000
47	T203	PRTRTR LWR VES TEMP	DEGF	714.235	699.995	699.997	829.990	699.981
366	T290	PRTR BED AT 10'-4"	DEGF	751.493	660.093	823.750	758.411	696.354
367	T291	PRTR BED AT 6'-6"	DEGF	752.637	665.245	824.781	761.133	711.005
365	D2223	PRTR GAS DELTA P	"H2O	92.4635	92.5283	99.9995	98.5363	99.7059
215	P267	PRTRTR VESSEL PRESS	PSIG	633.538	638.049	635.875	634.948	638.875
402	C2FBDF	PRT FLD BED DNSTY	LB/FT3	26.7324	25.9935	23.4735	25.8779	26.3373
403	C2FBHP	PRT FLD BED HEIGHT	FT	9.92649	9.92024	9.36539	9.79171	9.86736
539	CPBVOL	PRT FLUID BED VOL	FT3	18.3101	18.2991	17.3186	18.0719	18.2056
405	C2SIP	PRT SOLIDS INVENTORY	LB	489.472	475.656	406.529	467.664	479.487
404	C2SRTP	PRT SOLIDS RES TIME	MIN	8.07630	6.66852	6.81255	7.34005	6.12203
407	C2SCP2	PRT COAL FEED	PPH/FT2	2207.13	2597.62	2173.17	2320.32	2852.29
406	C2SCP1	PRT COAL FEED	PPH/FT3	212.997	250.833	221.726	226.871	276.837
535	C2PPD	PRT PR DRP	"H2O/FTBD	5.17426	4.99832	4.59768	4.99503	5.08127
401	C2SVP2	PRT FD GAS SUP VEL	L FPS	0.335431	0.314983	0.352741	0.375794	0.331881
409	C2SCP4	PRT O2/RAW COAL	SCF/LB	0.873495	0.741920	1.02511	0.883578	0.742407
411	C2SOP2	PRT O2 FD MF COAL	SCF/LB	0.936825	0.795710	1.09944	0.947638	0.796233
413	C2SOP4	PRT O2 FD MAF COL	SCF/LB	1.05660	0.897447	1.24001	1.06880	0.898037

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	21	22	23	24	25
408	C2SCP3	PRT O2/RAW COAL LB/LB	0.074	0.063	0.086	0.075	0.063
410	C2SOP1	PRT O2 FED MF COAL LB/LB	0.079	0.067	0.093	0.080	0.067
412	C2SOP3	PRT O2 FD MAF COAL LB/LB	0.089	0.076	0.105	0.090	0.076
538	CPSRC2	PRT STM/RAW COAL SCF/LB	10.5882	8.54252	11.2949	9.90917	7.91752
415	C2SSP2	PRT STM FD MF COL SCF/LB	11.3559	9.16187	12.1138	10.6276	8.49155
417	C2SSP5	PRT STM FD MAF CL SCF/LB	12.8078	10.3333	13.6627	11.9864	9.57726
537	CPSRC1	PRT STM/RAW COAL LB/LB	0.502656	0.405539	0.536204	0.470418	0.375869
414	C2SSP1	PRT STM FD MF COAL LB/LB	0.539099	0.434942	0.575080	0.504524	0.403120
416	C2SSP4	PRT STM/MAF COAL LB/LB	0.608027	0.490552	0.648608	0.569031	0.454662
554	CP02ST	PRT O2/STEAM SCF/SCF	0.082	0.087	0.091	0.089	0.094

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID NAME DESCRIPTION

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25

GASIFICATION CALCULATIONS

84	XQ001	COAL FEED RATE	PPH	3900.00	4590.00	3840.00	4100.00	5040.00
220	P256	GSFR VESSEL PRESS	PSIG	601.275	601.936	601.404	601.380	601.966
235	P295	GASIFIER PRESSURE	PSIG	592.564	596.326	594.812	593.164	596.588
550	CSFTG	STEAM FLOW TO GASF	LB/HR	6662.60	6314.65	7286.38	7357.60	7169.63
227	F203	GSFR O2 FEED RATE	SCFH	11647.4	13357.9	15688.4	16585.4	17434.6
581	CSCCTG	STNPIPE STM TO GSFR	PPH	708.546	-367.098	44.6299	299.661	72.8804
345	T205	GASIFIER BED AT 18"	DEGF	1308.56	1399.91	1518.12	1508.24	1503.29
424	C2FBDG	GSF FLD BED DNSTY	LB/FT3	11.5261	8.50881	4.67766	7.21116	7.09134
425	C2FBHG	GSF FLD BED HEIGHT	FT	23.6990	25.2150	26.1446	24.8927	24.9640
572	CGBV	GASIFIER BED VOLUME	FT3	175.771	185.817	194.569	183.668	184.291
427	C2SIG	GSF SOLIDS INVENTORY	LB	2024.15	1580.88	912.042	1322.44	1308.72
426	C2SRTG	GSF SOLIDS RES TIME	MIN	33.3986	22.1634	15.2839	20.7559	16.7095
429	C2SCG2	GASF COAL FEED	PPH/FT2	551.626	649.222	543.140	579.915	712.871
428	C2SCG1	GASF COAL FEED	PPH/FT3	22.1880	24.7017	19.7360	22.3228	27.3481
526	C2GPD	GSF PRESS DROP "H2O/FTBD		2.21974	1.63866	0.900839	1.38875	1.36567
420	C2SVBG	GSF SUP VEL-BOT BED	FPS	0.510461	0.446735	0.584942	0.607994	0.579029
423	C2SV0G	GSF SUP VEL-OUTLET	FPS	0.649633	0.658826	0.733174	0.789543	0.775354
421	C2SVTG	GSF SUP VEL-TOP BED	FPS	0.872375	0.882618	0.987450	1.06336	1.04468
422	C2SVMG	GSF SUP VEL-MEAN BED	FPS	0.691418	0.664676	0.786196	0.835675	0.811857
584	CGSF02	GSF O2/RAW COAL	SCF/LB	2.98652	2.91022	4.08552	4.04523	3.45925
433	C2S0G2	GASF O2/MF COAL	SCF/LB	3.20305	3.12121	4.38173	4.33851	3.71005

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	21	22	23	24	25
435	C2SOG4	GASF O2/MAF COAL SCF/LB	3. 61258	3. 52028	4. 94196	4. 89322	4. 18441
585	CGSF03	GASF O2/RAW COAL LB/LB	0. 251828	0. 245394	0. 344497	0. 341100	0. 291689
432	C2SOG1	GASF O2/MF COAL LB/LB	0. 270086	0. 263185	0. 369474	0. 365830	0. 312837
434	C2SOG3	GASF O2/MAF COAL LB/LB	0. 304618	0. 296836	0. 416714	0. 412604	0. 352836
586	CGSMSM	GASF STM/RAW COAL SCF/LB	39. 8041	27. 2887	40. 2059	39. 3320	30. 2633
437	C2SSG2	GASF STM/MF COAL SCF/LB	42. 6994	29. 2737	43. 1304	42. 1930	32. 4646
439	C2SSG4	GASF STM/MAF COAL SCF/LB	48. 1588	33. 0165	48. 6450	47. 5877	36. 6154
587	CGSSTM	GASF STM/RAW COAL LB/LB	1. 89004	1. 29576	1. 90912	1. 86762	1. 43701
436	C2SSG1	GASF STM/MF COAL LB/LB	2. 02707	1. 38971	2. 04753	2. 00303	1. 54119
438	C2SSG3	GASF STM/MAF COAL LB/LB	2. 28624	1. 56739	2. 30932	2. 25913	1. 73825
555	CG02ST	GSF O2/STEAM SCF/SCF	0. 059	0. 081	0. 079	0. 082	0. 091
342	F255	WASTE WATER FLOW GPM	21. 4833	19. 2210	18. 6519	18. 5414	17. 6170
243	F221	TAR FLOW THRML OXDZR GPM	0. 000	0. 000	0. 000	0. 000	0. 000
245	F209	RW GS SCRBR EF 1000-SCFH	91. 9629	108. 949	130. 028	154. 734	160. 816
574	CNRGG	RAW GAS FROM GASF SCFH	291380.	284539.	299625.	323167.	319512.
575	CTGFB	TOTAL GAS FROM BED SCFH	281811.	274969.	290055.	313598.	309943.
475	C2CI	GASF CARBON INVENTORY LB.	1252. 62	1112. 92	487. 453	691. 245	800. 813
551	CCGPPH	CARBON GASIFIED PPH	1628. 16	1397. 23	1836. 80	2004. 69	2108. 69
594	C2GR4	GASF RATE LBC/HR-FT3BD	9. 26298	7. 51938	9. 44036	10. 9147	11. 4422
595	C2GR3	GASF RATE LBC/HR-LBCBD	1. 29980	1. 25546	3. 76815	2. 90011	2. 63319
455	C2MRG2	CH4 PROD GAS SCFH/FT3BD	40. 6098	49. 7271	40. 4523	50. 9581	61. 8946

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	21	22	23	24	25
454	C2MRG1	CH4 IN RAW GAS LBC/LBCBD	0.180185	0.262529	0.510558	0.428132	0.450388
451	C2CG1	CARBON CONVRSN (CHAR) %	67.1186	48.9401	76.9024	78.6091	67.2655
452	C2CG12	CARBON CONVRSN (GAS) %	40.6080	39.9305	53.9126	61.5841	55.4160
596	CUGYM	USEFL GAS YLD SCF/LB-MAF	9.49888	11.0072	15.3030	16.5679	14.4917
592	CECH4R	EQUIV CH4 SCF/LB-RAW	2.05848	2.15870	2.10831	2.34441	2.31635
591	CECH4M	EQUIV CH4 SCF/LB-MF	2.20772	2.31520	2.26117	2.51439	2.48429
579	CECH4C	EQUIV CH4 SCF/LB-MAF	2.49000	2.61122	2.55028	2.83587	2.80192
466	C2MYG4	GSF CH4 YLD-MAF CF/HR-LB	2.21394	2.43511	2.47935	2.76132	2.73765
577	CTUCH4	TOTAL ULTIMATE CH4 SCFH	10699.8	14761.8	15445.4	18737.5	21965.1
560	CUCH4R	ULT CH4/RAW COAL SCF/LB	2.74355	3.21608	4.02225	4.57012	4.35816
561	CUCH4M	ULT CH4/MF COAL SCF/LB	2.94246	3.44926	4.31387	4.90146	4.67413
562	CUCH4A	ULT CH4/MAF COAL SCF/LB	3.31868	3.89027	4.86543	5.52815	5.27176
450	C2SCG	STM CONV - H2O BALANCE %	-0.443421	-6.76054	8.11848	4.68574	6.37573
598	CSCH2	STM CONV - H2 BALANCE %	4.69761	9.88873	10.4582	13.0209	13.2502
552	CSPV	SPACE VELOCITY 1/MIN	1.52870	1.27483	1.56378	1.68127	1.59159
553	CSPT	SPACE TIME MIN	0.654152	0.784418	0.639476	0.594789	0.628304

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID NAME DESCRIPTION

21

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23

24

25

CHAR COOLER CALCULATIONS

230	F205	CHR CLR STM FEED	PPH	2105.34	1991.80	2096.90	2093.25	1441.37
234	F230	H2O FLW TO CHAR CLR	GPH	0.000	0.000	0.000	0.000	0.000
336	F253	HP STM TO CHAR CLR	PPH	190.734	173.721	258.010	250.105	227.402
599	CFRPPH	CHAR REMOVAL RATE	PPH	1288.92	2070.71	1032.21	1043.63	1677.03
341	F254	STM FLW FR CHAR CLR	PPH	1587.53	2532.63	2310.28	2043.70	1595.90
372	F229	CHAR TRANSPORT STEAM	PPH	0.000	0.000	0.000	0.000	0.000
224	P258	CHAR COOLER PRESS	PSIG	598.141	599.058	598.503	600.044	600.002
346	T202	CHR CLR UPPR BD TMP	DEGF	642.131	640.187	537.980	572.142	590.503
89	T20004	C. C. BD AT 19FT-2IN	DEGF	596.059	574.819	499.165	519.715	553.421
487	C2FBDC	CC FLD BED DNSTY	LB/FT3	0.000	0.000	0.000	0.000	0.000
488	C2FBHC	CC FLD BED HEIGHT	FT	0.000	0.000	0.000	0.000	0.000
573	CCCBV	CHAR CLR BED VOLUME	FT3	0.000	0.000	0.000	0.000	0.000
490	C2SIC	CC SOLIDS INVENTORY	LB	0.000	0.000	0.000	0.000	0.000
489	C2SRTC	CC SOLIDS RES TIME	MIN	0.000	0.000	0.000	0.000	0.000
520	C2SCC2	CC MF CHAR FD	LB/HR-FT2	488.229	784.358	390.990	395.316	635.239
499	C2SCC1	CC MF CHAR FD	LB/HR-FT3	* 0.000	* 0.000	* 0.000	* 0.000	* 0.000
534	C2CPD	CC PRESS DROP	"H20/FTBD	0.000	0.000	0.000	0.000	0.000
484	C2SSV	CC STEAM SUP VEL	FPS	0.237518	0.223856	0.213960	0.220184	0.154616
485	C2WSV	CC VAP H2O SUP VEL	FPS	0.000	0.000	0.000	0.000	0.000
590	CCATSM	CC ATM STM SUP VEL	FPS	0.021	0.020	0.026	0.026	0.024
486	C2TSV	CC TOT STM SUP VEL	FPS	0.258976	0.243398	0.240244	0.246529	0.179018

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	21	22	23	24	25
521	C2SCC3	CC MF CHR/RAW COAL LB/LB	0.330493	0.451134	0.268806	0.254545	0.332744
493	C2SSC3	CC STM/MF CHAR LB/LB	1.63341	0.961895	2.03145	2.00574	0.859480
588	CCCSTM	CC STM/RAW COAL LB/LB	0.539832	0.433944	0.546067	0.510549	0.285987
494	C2SSC4	CC STM/MF COAL LB/LB	0.578970	0.465406	0.585657	0.547565	0.306721
589	CCSTM	CC STM/MAF COAL LB/LB	0.652996	0.524911	0.660538	0.617575	0.345938
497	C2SWC3	CC H2O/MF CHAR LB/LB	0.000	0.000	0.000	0.000	0.000
498	C2SWC4	CC H2O/RAW COAL LB/LB	0.000	0.000	0.000	0.000	0.000

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	21	22	23	24	25
PRETREATER, GASIFIER COMBINED CALCULATIONS							
798	CMFRC	MF COAL/ RAW COAL LB/LB	0.932400	0.932400	0.932400	0.932400	0.932400
799	CMAFRC	MAF COAL/ RAW COAL LB/LB	0.826700	0.826700	0.826700	0.826700	0.826699
800	CTOTC1	TOTAL O2/RAW COAL SCF/LB	3.86002	3.65214	5.11063	4.92880	4.20166
801	CTOTC2	TOTAL O2/MF COAL SCF/LB	4.13987	3.91692	5.48116	5.28615	4.50628
802	CTOTC3	TOTAL O2/MAF COAL SCF/LB	4.66919	4.41773	6.18197	5.96202	5.08245
803	CTOTC4	TOTAL O2/RAW COAL LB/LB	0.325481	0.307953	0.430935	0.415603	0.354289
804	CTOTC5	TOTAL O2/MF COAL LB/LB	0.349079	0.330280	0.462178	0.445735	0.379975
805	CTOTC6	TOTAL O2/MAF COAL LB/LB	0.393711	0.372508	0.521271	0.502725	0.428558
806	CTSTC1	TTL STM/RAW COAL SCF/LB	50.3923	35.8312	51.5008	49.2412	38.1808
807	CTSTC2	TTL STM/MF COAL SCF/LB	54.0553	38.4355	55.2442	52.8206	40.9561
808	CTSTC3	TTL STM/MAF COAL SCF/LB	60.9667	43.3498	62.3076	59.5741	46.1927
809	CTSTC4	TTL STM/RAW COAL LB/LB	2.39269	1.70130	2.44532	2.33804	1.81287
810	CTSTC5	TTL STM/MF COAL LB/LB	2.56617	1.82465	2.62261	2.50755	1.94431
811	CTSTC6	TTL STM/MAF COAL LB/LB	2.89427	2.05794	2.95793	2.82816	2.19291
556	CTO2ST	TTL O2/STEAM SCF/SCF	0.077	0.102	0.099	0.100	0.110

UPDATED AVERAGE GAS SAMPLE COMPOSITIONS

RUN 1 - DB 0 0 0 0 0

STEADY STATE PERIOD

COMPONENT	21		22		23		24		25	
	DRY	WET	DRY	WET	DRY	WET	DRY	WET	DRY	WET
MOLX-H2	25.55	22.16	29.30	25.10	31.90	25.58	32.23	24.27	31.10	23.98
MOLX-CO	3.35	2.91	5.20	4.45	7.05	5.65	7.83	5.90	8.30	6.40
MOLX-CO2	61.25	53.12	54.90	47.03	53.15	42.61	51.60	38.86	51.00	39.32
MOLX-CH4	8.95	7.76	9.90	8.48	7.55	6.05	8.03	6.05	9.20	7.09
MOLX-C2H6	0.55	0.48	0.35	0.30	0.10	0.08	0.10	0.08	0.10	0.08
MOLX-N2	0.05	0.04	0.20	0.17	0.10	0.08	0.00	0.00	0.10	0.08
MOLX-NH3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-H2S	0.30	0.26	0.15	0.13	0.15	0.12	0.20	0.15	0.20	0.15
MOLX-H2O	0.00	13.27	0.00	14.33	0.00	19.82	0.00	24.69	0.00	22.90
MOLX-O2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C2H4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C3H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C3H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOLX-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

UPSTR PRESS-(P227) PSIG	585.80	584.43	573.79	574.56	574.93
FLOW TEMP-(TI20010) DEGF	312.29	317.49	339.72	356.52	350.76
MOL WT. (WET)	28.51	26.56	25.47	24.72	24.93
DRY GAS MAKE,1000-SCFH	79.76	93.34	104.25	116.53	123.99
WET GAS MAKE,1000-SCFH	91.96	108.95	130.03	154.73	160.82
H2/CO MOL RATIO	7.63	5.63	4.52	4.12	3.75

AVERAGED CHAR ANALYSIS
MOISTURE - FREE BASIS

RUN 1 - DB

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STEADY STATE PERIOD
22 23 24

PROXIMATE ANALYSIS

21 22 23 24 25

VOLATILE MATTER	10.0	8.9	9.6	7.1	9.4
FIXED CARBON	58.1	67.7	51.1	51.4	58.8
ASH	32.0	23.4	39.3	41.5	31.8

ULTIMATE ANALYSIS

HYDROGEN	1.5	1.4	0.8	1.0	1.1
CARBON	61.9	70.4	53.4	52.3	61.2
NITROGEN	0.5	0.5	0.2	0.3	0.3
OXYGEN	3.4	4.0	6.0	4.7	5.3
SULFUR	0.8	0.2	0.2	0.2	0.3
ASH	32.0	23.4	39.3	41.5	31.8

HEAT OF COMBUSTION

HHV - BTU/LB	8696.0	9871.0	6991.0	7474.0	8729.2
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MATERIAL BALANCES

ELEMENTAL AND OVERALL

RUN 1 - DE		STEADY STATE NO. 21					21	
FEED FLOW RATES (LB/HR)		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	TOTAL
MF COAL FEED RATE		2425.8	160.6	569.1	37.0	31.6	412.2	3636.4
COAL MOISTURE CONTENT		0.0	29.3	234.3	0.0	0.0	0.0	263.6
COAL FEED RATE		2425.8	189.9	803.4	37.0	31.6	412.2	3900.0
STEAM FLOW								
FLDZNG STM TO PRTR	F284	0.0	183.3	1466.1	0.0	0.0	0.0	1649.4
GSFR STM FEED RATE	F204	0.0	733.6	5869.0	0.0	0.0	0.0	6602.6
CHR CLR STM FEED	F205	0.0	233.9	1871.4	0.0	0.0	0.0	2105.3
HP STM TO CHAR CLR	F253	0.0	21.2	169.5	0.0	0.0	0.0	190.7
GASF STEAM PURGES	F278	0.0	80.1	640.9	0.0	0.0	0.0	721.0
CC STEAM PURGES	F279	0.0	0.0	0.0	0.0	0.0	0.0	0.0
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW								
OXYGEN TO PRTR	F285	0.0	0.0	287.3	0.0	0.0	0.0	287.3
GSFR O2 FEED RATE	F203	0.0	0.0	982.1	0.0	0.0	0.0	982.1
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW								
CO2 TRANSPORT FLOW	F6	248.4	0.0	662.5	0.0	0.0	0.0	911.0
CO2 FLOW TO FE-105	F7	367.3	0.0	979.5	0.0	0.0	0.0	1346.9
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	282.7	0.0	753.8	0.0	0.0	0.0	1036.5
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		3324.3	1580.9	15596.7	37.0	31.6	412.2	20982.8
EFFLUENT FLOW RATES (LB/HR)								
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	797.6	18.7	43.7	6.8	9.9	412.2	1288.9
WASTE WATER FLOW	F255	0.0	1193.5	9548.1	0.0	0.0	0.0	10741.6
STM FLW FR CHAR CLR	F254	0.0	176.4	1411.1	0.0	0.0	0.0	1587.5
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	1883.0	255.2	4746.3	3.0	20.2	0.0	6929.1
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		2680.6	1643.9	15749.2	9.8	30.1	412.2	20547.2
% CLOSURE (OUT/IN)(100)		80.6	104.0	101.0	26.4	95.1	100.0	97.9

MATERIAL BALANCES

ELEMENTAL AND OVERALL

FEED FLOW RATES (LB/HR)		RUN 1 - DB STEADY STATE NO. 22						TOTAL
		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	
MF COAL FEED RATE		2855.0	189.1	669.7	43.6	37.2	485.2	4279.7
COAL MOISTURE CONTENT		0.0	34.5	275.8	0.0	0.0	0.0	310.3
COAL FEED RATE		2855.0	223.5	945.5	43.6	37.2	485.2	4590.0
STEAM FLOW								
FLOZNG STM TO PRTR	F284	0.0	172.3	1378.2	0.0	0.0	0.0	1550.4
GSFR STM FEED RATE	F204	0.0	695.0	5559.7	0.0	0.0	0.0	6254.7
CHR CLR STM FEED	F205	0.0	221.3	1770.5	0.0	0.0	0.0	1991.8
HP STM TO CHAR CLR	F253	0.0	19.3	154.4	0.0	0.0	0.0	173.7
GASF STEAM PURGES	F278	0.0	80.1	640.9	0.0	0.0	0.0	721.0
CC STEAM PURGES	F279	0.0	0.0	0.0	0.0	0.0	0.0	0.0
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW								
OXYGEN TO PRTR	F285	0.0	0.0	287.1	0.0	0.0	0.0	287.1
GSFR O2 FEED RATE	F203	0.0	0.0	1126.4	0.0	0.0	0.0	1126.4
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW								
CO2 TRANSPORT FLOW	F6	210.5	0.0	561.4	0.0	0.0	0.0	772.0
CO2 FLOW TO FE-105	F7	419.0	0.0	1117.4	0.0	0.0	0.0	1536.4
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	318.1	0.0	848.3	0.0	0.0	0.0	1166.4
SEAL WATER AND BFW PURGES								
		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		3802.6	1550.4	15500.9	43.6	37.2	485.2	21419.8
EFFLUENT FLOW RATES (LB/HR)								
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	1457.7	29.5	83.6	10.2	4.5	485.2	2070.7
WASTE WATER FLOW	F255	0.0	1067.8	8542.7	0.0	0.0	0.0	9610.5
STM FLW FR CHAR CLR	F254	0.0	281.4	2251.2	0.0	0.0	0.0	2532.6
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	2087.0	329.8	5183.5	13.8	11.8	0.0	7638.4
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		3544.8	1708.5	16060.9	24.0	16.3	485.2	21852.3
% CLOSURE (OUT/IN)(100)								
		93.2	110.2	103.6	55.1	43.9	100.0	102.0

MATERIAL BALANCES

ELEMENTAL AND OVERALL

RUN 1 - DB		STEADY STATE NO. 23					23	
FEED FLOW RATES (LB/HR)		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	TOTAL
MF COAL FEED RATE		2388.5	158.2	560.3	36.5	31.1	405.9	3580.4
COAL MOISTURE CONTENT		0.0	28.8	230.7	0.0	0.0	0.0	259.6
COAL FEED RATE		2388.5	187.0	791.0	36.5	31.1	405.9	3840.0
STEAM FLOW								
FLDZNG STM TO PRTR	F284	0.0	194.2	1553.8	0.0	0.0	0.0	1748.0
GSFR STM FEED RATE	F204	0.0	802.9	6423.4	0.0	0.0	0.0	7226.4
CHR CLR STM FEED	F205	0.0	233.0	1863.9	0.0	0.0	0.0	2096.9
HP STM TO CHAR CLR	F253	0.0	28.7	229.3	0.0	0.0	0.0	258.0
GASF STEAM PURGES	F278	0.0	80.1	640.9	0.0	0.0	0.0	721.0
CC STEAM PURGES	F279	0.0	0.0	0.0	0.0	0.0	0.0	0.0
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW								
OXYGEN TO PRTR	F285	0.0	0.0	331.9	0.0	0.0	0.0	331.9
GSFR O2 FEED RATE	F203	0.0	0.0	1322.9	0.0	0.0	0.0	1322.9
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW								
CO2 TRANSPORT FLOW	F6	248.1	0.0	661.6	0.0	0.0	0.0	909.8
CO2 FLOW TO FE-105	F7	384.5	0.0	1025.4	0.0	0.0	0.0	1409.9
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	320.8	0.0	855.5	0.0	0.0	0.0	1176.3
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		3341.9	1664.8	16810.8	36.5	31.1	405.9	22291.0
EFFLUENT FLOW RATES (LB/HR)								
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	551.7	8.3	61.7	2.3	2.3	405.9	1032.2
WASTE WATER FLOW	F255	0.0	1036.2	8289.7	0.0	0.0	0.0	9326.0
STM FLW FR CHAR CLR	F254	0.0	256.7	2053.6	0.0	0.0	0.0	2310.3
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	2240.4	396.6	6068.7	7.8	13.2	0.0	8740.7
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		2792.1	1697.9	16473.6	10.1	15.5	405.9	21409.1
% CLOSURE (OUT/IN)(100)		83.5	102.0	98.0	27.7	49.9	100.0	96.0

MATERIAL BALANCES

ELEMENTAL AND OVERALL

RUN: 1		- DB		STEADY STATE NO.				24	
FEED FLOW RATES (LB/HR)		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	TOTAL	
MF COAL FEED RATE		2550.2	168.9	598.2	38.9	33.2	433.4	3822.8	
COAL MOISTURE CONTENT		0.0	30.8	246.4	0.0	0.0	0.0	277.2	
COAL FEED RATE		2550.2	199.7	844.6	38.9	33.2	433.4	4100.0	
STEAM FLOW									
FLOZNG STM TO PRTR	F284	0.0	179.7	1438.0	0.0	0.0	0.0	1617.7	
GSFR STM FEED RATE	F204	0.0	810.8	6486.8	0.0	0.0	0.0	7297.6	
CHR CLR STM FEED	F205	0.0	232.6	1860.7	0.0	0.0	0.0	2093.3	
HP STM TO CHAR CLR	F253	0.0	27.8	222.3	0.0	0.0	0.0	250.1	
GASF STEAM PURGES	F278	0.0	80.1	640.9	0.0	0.0	0.0	721.0	
CC STEAM PURGES	F279	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
OXYGEN FLOW									
OXYGEN TO PRTR	F285	0.0	0.0	305.5	0.0	0.0	0.0	305.5	
GSFR O2 FEED RATE	F203	0.0	0.0	1398.5	0.0	0.0	0.0	1398.5	
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARBON DIOXIDE FLOW									
CO2 TRANSPORT FLOW	F6	248.1	0.0	661.6	0.0	0.0	0.0	909.7	
CO2 FLOW TO FE-105	F7	352.6	0.0	940.3	0.0	0.0	0.0	1292.9	
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CO2 INST PURGE FLOW	F274	323.7	0.0	863.1	0.0	0.0	0.0	1186.7	
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0	
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL FEED FLOW RATES (LB/HR)		3474.6	1669.6	16773.2	38.9	33.2	433.4	22423.0	
EFFLUENT FLOW RATES (LB/HR)									
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CHAR REMOVAL RATE	CFRPPH	545.5	10.5	49.2	2.9	2.2	433.4	1043.6	
WASTE WATER FLOW	F255	0.0	1030.1	8240.6	0.0	0.0	0.0	9270.7	
STM FLW FR CHAR CLR	F254	0.0	227.1	1816.6	0.0	0.0	0.0	2043.7	
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
RN GS SCRBR EF	F209	2494.0	501.1	7066.0	0.2	19.7	0.0	10102.0	
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL EFFLUENT FLOW RATE (LB/HR)		3039.5	1768.8	17172.4	3.1	21.9	433.4	22460.0	
% CLOSURE (OUT/IN)(100)		87.5	105.9	102.4	8.0	65.9	100.0	100.2	

MATERIAL BALANCES

ELEMENTAL AND OVERALL

FEED FLOW RATES (LB/HR)		RUN 1	DE	STEADY STATE NO. 25					TOTAL
			CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	
MF COAL FEED RATE			3134.9	207.6	735.4	47.9	40.8	532.7	4699.3
COAL MOISTURE CONTENT			0.0	37.9	302.8	0.0	0.0	0.0	340.7
COAL FEED RATE			3134.9	245.4	1038.2	47.9	40.8	532.7	5040.0
STEAM FLOW									
FLDZNG STM TO PRTR	F284		0.0	175.9	1407.4	0.0	0.0	0.0	1583.4
GSFR STM FEED RATE	F204		0.0	790.0	6319.7	0.0	0.0	0.0	7109.6
CHR CLR STM FEED	F205		0.0	160.2	1281.2	0.0	0.0	0.0	1441.4
HP STM TO CHAR CLR	F253		0.0	25.3	202.1	0.0	0.0	0.0	227.4
GASF STEAM PURGES	F278		0.0	80.1	640.9	0.0	0.0	0.0	721.0
CC STEAM PURGES	F279		0.0	0.0	0.0	0.0	0.0	0.0	0.0
STM TRANSPORT FLOW	F1		0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229		0.0	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW									
OXYGEN TO PRTR	F285		0.0	0.0	315.5	0.0	0.0	0.0	315.5
GSFR O2 FEED RATE	F203		0.0	0.0	1470.1	0.0	0.0	0.0	1470.1
TRANSPORT LINE O2	F289		0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW									
CO2 TRANSPORT FLOW	F6		248.1	0.0	661.6	0.0	0.0	0.0	909.8
CO2 FLOW TO FE-105	F7		391.3	0.0	1043.6	0.0	0.0	0.0	1434.9
PRETREATER CO2 FLOW	F283		0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274		318.3	0.0	848.9	0.0	0.0	0.0	1167.2
SEAL WATER AND BFW PURGES			0.0	138.9	1111.1	0.0	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230		0.0	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401	F403		0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)			4092.7	1615.8	16340.4	47.9	40.8	532.7	22670.3
EFFLUENT FLOW RATES (LB/HR)									
CARRY OVER	CARRY		0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH		1026.2	18.8	89.3	5.2	4.9	532.7	1677.0
WASTE WATER FLOW	F255		0.0	978.7	7829.8	0.0	0.0	0.0	8808.5
STM FLW FR CHAR CLR	F254		0.0	177.3	1418.6	0.0	0.0	0.0	1595.9
H2O FR CHR SLURRY TK	ZWCST		0.0	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209		2694.0	520.9	7318.3	9.3	20.9	0.0	10585.6
TAR FLOW THRM L OXDZR	F221		0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)			3720.2	1695.8	16655.9	14.4	25.8	532.7	22667.0
% CLOSURE (OUT/IN)(100)			90.9	105.0	101.9	30.1	63.2	100.0	100.0

RUN 1 - DB
STEADY STATE PERIOD NO. 26.

	2	3	9	10	11	14
SCFH	7917.3	143166.4	188317.5	19649.9	25377.6	33261.8
MW	44	25.65	18	32	18	18
LB/HR	917.9	9677.4	8932.1	1656.9	1203.7	1577.6

	4	5	6	13
LB/HR				
H2O	8873.9			0.0
OIL		0.0		
TAR			0.0	

	1	7	15
LB/HR (AS RECEIVED)	4290.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	4000.		1487.

STREAM NO. 3		AVERAGE GAS COMPOSITION	
LB TOTAL STEAM/LB MF COAL		MOLE PERCENT - WET BASIS	
2.23			
LB TOTAL OXYGEN/LB MF COAL			
0.41			
SCF ULTIMATE CH4/LB MF COAL			
5.69			
AVERAGE CARBON CONV WEIGHT PCT			
CHAR BASIS			
65.01		MOL PCT-H2	
GAS BASIS		24.54	
62.78		MOL PCT-CO	
GASIFIER TOP SURFCL VEL, FPS		7.41	
0.986		MOL PCT-CO2	
VOL PCT O2 IN TOTAL FEED GAS		41.91	
9.45		MOL PCT-CH4	
STREAM NOS. 8 AND 12 LB/HR		8.15	
1857.9		MOL PCT-C2H6	
		0.16	
STREAM NO. 15		MOL PCT-N2	
CHAR ANALYSIS WT PCT - DRY BASIS		0.00	
H 1.0		MOL PCT-NH3	
C 62.8		0.00	
N 0.3		MOL PCT-H2S	
O 5.1		0.16	
S 0.3		MOL PCT-H2O	
ASH 30.5		17.65	
		MOL PCT-O2	
		0.00

RUN 1 - DB
STEADY STATE PERIOD NO. 27.

GAS STREAMS

	2	3	9	10	11	14
SCFH	8125.0	200929.9	192110.1	23918.9	40588.0	34950.4
MW	44	24.12	18	32	18	18
LB/HR	942.0	12772.0	9111.9	2016.9	1925.1	1657.7

LIQUID STREAMS

LB/HR	4	5	6	13
H ₂ O	6382.1			0.0
OIL		0.0		
TAR			0.0	

SOLID STREAMS

LB/HR (AS RECEIVED)	1	7	15
PERCENT MOISTURE	5000.	0.	
LB/HR (MOISTURE FREE)	4662.		1280.

LB TOTAL STEAM/LB MF COAL	1.95
LB TOTAL OXYGEN/LB MF COAL	0.43
SCF ULTIMATE CH ₄ /LB MF COAL	6.66
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	78.52
GAS BASIS	70.67
GASIFIER TOP SUPRFL VEL, FPS	1.015
VOL PCT O ₂ IN TOTAL FEED GAS	11.07
STREAM NOS. 8 AND 12 LB/HR	2213.0

STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	1.0
C	52.2
N	0.3
O	5.1
S	0.2
ASH	41.3

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H ₂	24.28
MOL PCT-CO	8.09
MOL PCT-CO ₂	35.66
MOL PCT-CH ₄	7.22
MOL PCT-C ₂ H ₆	0.08
MOL PCT-N ₂	0.23
MOL PCT-NH ₃	0.00
MOL PCT-H ₂ S	0.08
MOL PCT-H ₂ O	24.37
MOL PCT-O ₂	0.00

RUN 1 - DB
STEADY STATE PERIOD NO. 28.

GAS STREAMS

	2	3	9	10	11	14
SCFH	8116.5	194080.0	185442.7	23412.0	47265.4	34601.1
MW	44	24.55	18	32	18	18
LB/HR	941.0	12552.9	8795.7	1974.1	2241.8	1641.2

LIQUID STREAMS

LB/HR	4	5	6	13
H2O	7189.6			0.0
OIL		0.0		
TAR			0.0	

SOLID STREAMS

LB/HR (AS RECEIVED)	1	7	15
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	4621.		1407.

LB TOTAL STEAM/LB MF COAL	1.82
LB TOTAL OXYGEN/LB MF COAL	0.41
SCF ULTIMATE CH4/LB MF COAL	5.91
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	75.77
GAS BASIS	65.86
GASIFIER TOP SUPRFCL VEL, FPS	1.056
VOL PCT O2 IN TOTAL FEED GAS	11.21
STREAM NOS. 8 AND 12 LB/HR	2211.3

STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	0.8
C	55.4
N	0.2
O	4.5
S	0.2
ASH	38.9

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H2	23.79
MOL PCT-CO	8.08
MOL PCT-CO2	36.71
MOL PCT-CH4	6.57
MOL PCT-C2H6	0.08
MOL PCT-N2	0.08
MOL PCT-NH3	0.00
MOL PCT-H2S	0.23
MOL PCT-H2O	24.46
MOL PCT-O2	0.00

RUN 1 - DB
STEADY STATE PERIOD NO. 29.

GAS STREAMS

	2	3	9	10	11	14
SCFH	7743.1	177586.8	187331.3	23607.2	47971.1	34734.2
MW	44	24.74	18	32	18	18
LB/HR	897.7	11577.3	8885.3	1990.6	2275.3	1647.5

LIQUID STREAMS

LB/HR	4	5	6	13
H2O	9645.8			0.0
OIL		0.0		
TAR			0.0	

SOLID STREAMS

	1	7	15
LB/HR (AS RECEIVED)	5270.	0.	
PERCENT MOISTURE	6.8		
LB/HR (MOISTURE FREE)	4914.		1446.

LB TOTAL STEAM/LB MF COAL	1.81
LB TOTAL OXYGEN/LB MF COAL	0.41
SCF ULTIMATE CH4/LB MF COAL	5.09
AVERAGE CARBON CONV WEIGHT PCT	
CHAR BASIS	75.55
GAS BASIS	58.74
GASIFIER TOP SURFCL VEL, FPS	1.187
VOL PCT O2 IN TOTAL FEED GAS	11.19
STREAM NOS. 8 AND 12 LB/HR	2189.6
STREAM NO. 15	
CHAR ANALYSIS WT PCT - DRY BASIS	
H	0.9
C	55.4
N	0.2
O	4.8
S	0.1
ASH	38.5

STREAM NO. 3	
AVERAGE GAS COMPOSITION	
MOLE PERCENT - WET BASIS	
MOL PCT-H2	24.18
MOL PCT-CO	7.27
MOL PCT-CO2	38.19
MOL PCT-CH4	6.66
MOL PCT-C2H6	0.08
MOL PCT-N2	0.00
MOL PCT-NH3	0.00
MOL PCT-H2S	0.15
MOL PCT-H2O	23.47
MOL PCT-O2	0.00

FOR STEADY STATE PERIOD 26
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 8: 1 8/15/77
ENDING TIME 13:55 8/15/77

FOR STEADY STATE PERIOD 27
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 22: 1 8/15/77
ENDING TIME 2:25 8/16/77

FOR STEADY STATE PERIOD 28
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 6: 1 8/16/77
ENDING TIME 9:25 8/16/77

FOR STEADY STATE PERIOD 29
DATA AVERAGED OVER THE FOLLOWING TIME INTERVAL
STARTING TIME 16: 1 8/16/77
ENDING TIME 18:25 8/16/77

AVERAGE CALCULATION VALUES

RUN 1 - DB

0

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0

STEADY STATE PERIOD

PTID	NAME	DESCRIPTION		26	27	28	29
PRETREATER CALCULATIONS							
84	XQ001	COAL FEED RATE	PPH	4290.00	5000.00	5170.00	5270.00
363	F284	FLDZNG STM TO PRTR	PPH	1586.69	1602.08	1629.90	1667.05
364	F285	OXYGEN TO PRTR	SCFH	2673.63	4130.28	3893.39	4159.51
374	F289	TRANSPORT LINE 02	SCFH	0.000	0.000	0.000	0.000
47	T203	PRTRTR LWR VES TEMP	DEGF	699.992	699.995	699.996	611.626
366	T290	PRTR BED AT 10'-4"	DEGF	631.367	736.788	735.669	792.594
367	T291	PRTR BED AT 6'-6"	DEGF	633.385	731.788	732.544	786.062
365	D2223	PRTR GAS DELTA P	"H2O	88.7211	99.9761	99.9026	99.9995
215	P267	PRTRTR VESSEL PRESS	PSIG	638.242	637.066	637.165	631.906
402	C2FBDF	PRT FLD BED DNSTY	LB/FT3	27.7293	26.6008	26.6823	26.7589
403	C2FBHP	PRT FLD BED HEIGHT	FT	9.87339	10.0340	9.97278	9.71854
539	CPBVOL	PRT FLUID BED VOL	FT3	18.2163	18.5000	18.3919	17.9427
405	C2SIP	PRT SOLIDS INVENTORY	LB	505.124	492.116	490.737	480.125
404	C2SRTP	PRT SOLIDS RES TIME	MIN	7.57686	6.33354	6.10812	5.86264
407	C2SCP2	PRT COAL FEED	PPH/FT2	2427.84	2829.65	2925.86	2982.46
406	C2SCP1	PRT COAL FEED	PPH/FT3	235.504	270.270	281.102	293.713
535	C2PPD	PRT PR DRP	"H2O/FTBD	5.36092	5.08462	5.18666	5.16230
401	C2SVP2	PRT FD GAS SUP VEL	L FPS	0.348879	0.331274	0.334110	0.312717
409	C2SCP4	PRT O2/RAW COAL	SCF/LB	0.623224	0.826056	0.753074	0.789281
411	C2SOP2	PRT O2 FD MF COAL	SCF/LB	0.668409	0.885947	0.807673	0.846505
413	C2SOP4	PRT O2 FD MAF COL	SCF/LB	0.753870	0.999222	0.910941	0.954738

AVERAGE CALCULATION VALUES

RUN 1 - DB

0 0 0 0

STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	26	27	28	29
408	C25CP3	PRT 02/RAW COAL LB/LB	0.053	0.070	0.063	0.067
410	C25CP1	PRT 02 FED MF COAL LB/LB	0.056	0.075	0.068	0.071
412	C25CP3	PRT 02 FD MAF COAL LB/LB	0.064	0.084	0.077	0.081
538	CP5RC2	PRT STM/RAW COAL SCF/LB	9.31799	8.05964	7.90799	7.90641
415	C25SP2	PRT STM FD MF COL SCF/LB	9.99355	8.64398	8.48132	8.47963
417	C25SP5	PRT STM FD MAF CL SCF/LB	11.2713	9.74918	9.56573	9.56382
537	CP5RC1	PRT STM/RAW COAL LB/LB	0.442353	0.382616	0.375416	0.375341
414	C25SP1	PRT STM FD MF COAL LB/LB	0.474424	0.410356	0.402634	0.402554
416	C25SP4	PRT STM/MAF COAL LB/LB	0.535083	0.462823	0.454114	0.454024
554	CP02ST	PRT 02/STEAM SCF/SCF	0.067	0.102	0.095	0.100

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID NAME DESCRIPTION

26

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29

GASIFICATION CALCULATIONS

84	X0001	COAL FEED RATE	PPH	4290.00	5000.00	5170.00	5270.00
220	P256	GSFR VESSEL PRESS	PSIG	601.981	600.260	600.150	599.363
235	P295	GASIFIER PRESSURE	PSIG	596.393	598.524	597.411	592.094
550	CSFTG	STEAM FLOW TO GASF	LB/HR	6427.55	7226.35	7219.96	7299.48
227	F203	GSFR O2 FEED RATE	SCFH	16976.3	19788.6	19518.6	19447.7
581	CSCCTG	STNPIPE STM TO GSFR	PPH	606.821	-27.4824	-365.154	-392.236
345	T205	GASIFIER BED AT 18"	DEGF	1504.95	1540.06	1543.65	1541.02
424	C2FBDG	GSF FLD BED DNSTY	LB/FT3	6.18605	5.59752	5.06794	5.37511
425	C2FBHG	GSF FLD BED HEIGHT	FT	25.1981	23.5056	23.8434	23.0724
572	CGBV	GASIFIER BED VOLUME	FT3	185.720	174.320	177.137	172.365
427	C2SIG	GSF SOLIDS INVENTORY	LB	1146.22	975.951	893.772	919.796
426	C2SRTG	GSF SOLIDS RES TIME	MIN	17.1933	12.5605	11.1246	11.2313
429	C2SCG2	GASF COAL FEED	PPH/FT2	606.789	707.213	731.259	745.403
428	C2SCG1	GASF COAL FEED	PPH/FT3	23.0993	28.6828	29.1865	30.5747
526	C2GPD	GSF PRESS DROP "H2O/FTBD		1.19133	1.07799	0.976001	1.03516
420	C2SVBG	GSF SUP VEL-BOT BED	FPS	0.563210	0.597026	0.572112	0.575737
423	C2SVOG	GSF SUP VEL-OUTLET	FPS	0.729482	0.758455	0.786506	0.871565
421	C2SVTG	GSF SUP VEL-TOP BED	FPS	0.986223	1.01521	1.05573	1.18681
422	C2SVMG	GSF SUP VEL-MEAN BED	FPS	0.774717	0.806118	0.813919	0.881275
584	CGSF02	GSF O2/RAW COAL	SCF/LB	3.95718	3.95773	3.77535	3.69027
433	C2SOG2	GASF O2/MF COAL	SCF/LB	4.24408	4.24467	4.04907	3.95782

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	26	27	28	29
435	C2SOG4	GASF O2/MAF COAL SCF/LB	4.78672	4.78738	4.56677	4.46386
585	CGSF03	GASF O2/RAW COAL LB/LB	0.333675	0.333722	0.318343	0.311169
432	C2SOG1	GASF O2/MF COAL LB/LB	0.357867	0.357917	0.341424	0.333730
434	C2SOG3	GASF O2/MAF COAL LB/LB	0.403623	0.403679	0.385077	0.376400
586	CGMSM	GASF STM/RAW COAL SCF/LB	34.5322	30.3215	27.9230	27.6027
437	C2SSG2	GASF STM/MF COAL SCF/LB	37.0441	32.5271	29.9541	29.6105
439	C2SSG4	GASF STM/MAF COAL SCF/LB	41.7805	36.6859	33.7839	33.3964
587	CGSSTM	GASF STM/RAW COAL LB/LB	1.63971	1.43977	1.32588	1.31067
436	C2SSG1	GASF STM/MF COAL LB/LB	1.75859	1.54416	1.42201	1.40570
438	C2SSG3	GASF STM/MAF COAL LB/LB	1.98344	1.74159	1.60383	1.58543
555	CG02ST	GSF O2/STEAM SCF/SCF	0.090	0.103	0.105	0.104
342	F255	WASTE WATER FLOW GPM	17.7477	12.7642	14.3791	19.2917
243	F221	TAR FLOW THRML OXDZR GPM	0.000	0.000	0.000	0.000
245	F209	RW GS SCRBR EF 1000-SCFH	143.166	200.930	194.080	177.587
574	CNRGG	RAW GAS FROM GASF SCFH	303240.	308515.	318675.	353922.
575	CTGFB	TOTAL GAS FROM BED SCFH	293670.	298946.	309105.	344352.
475	C2CI	GASF CARBON INVENTORY LB	719.841	509.465	495.194	509.897
551	CCGPPH	CARBON GASIFIED PPH	1734.60	2441.89	2436.43	2476.61
594	C2GR4	GASF RATE LBC/HR-FT3BD	9.33990	14.0081	13.7545	14.3684
595	C2GR3	GASF RATE LBC/HR-LBCBD	2.40970	4.79306	4.92015	4.85707
455	C2MRG2	CH4 PROD GAS SCFH/FT3BD	62.8385	83.2488	71.9996	68.5945

AVERAGE CALCULATION VALUES

RUN 1 - DB

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STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	26	27	28	29
454	C2MRG1	CH4 IN RAW GAS LBC/LBCBD	0.512635	0.900688	0.814376	0.733191
451	C2CG1	CARBON CONVRSN (CHAR) %	65.0058	78.5175	75.7658	75.5539
452	C2CG12	CARBON CONVRSN (GAS) %	62.7824	70.8655	65.8637	58.7389
596	CUGYM	USEFL GAS YLD SCF/LB-MAF	16.2537	19.2819	17.4924	15.5654
592	CECH4R	EQUIV CH4 SCF/LB-RAW	2.83466	2.96804	2.52812	2.29921
591	CECH4M	EQUIV CH4 SCF/LB-MF	3.04018	3.18323	2.71142	2.46591
579	CECH4C	EQUIV CH4 SCF/LB-MAF	3.42889	3.59023	3.05809	2.78119
466	C2MYG4	GSF CH4 YLD-MAF CF/HR-LB	3.29062	3.51082	2.98401	2.71381
577	CTUCH4	TOTAL ULTIMATE CH4 SCFH	22770.1	31056.4	28494.4	25027.3
560	CUCH4R	ULT CH4/RAW COAL SCF/LB	5.30772	6.21127	5.51148	4.74902
561	CUCH4M	ULT CH4/MF COAL SCF/LB	5.69253	6.66160	5.91107	5.09333
562	CUCH4R	ULT CH4/MAF COAL SCF/LB	6.42037	7.51334	6.66685	5.74455
450	C2SCG	STM CONV - H2O BALANCE %	9.01718	25.6797	15.1453	-7.56981
598	CSCH2	STM CONV - H2 BALANCE %	14.8993	21.0887	17.9854	14.7782
552	CSPV	SPACE VELOCITY 1/MIN	1.54565	1.71629	1.63385	1.69625
553	CSPT	SPACE TIME MIN	0.646977	0.582653	0.612050	0.589536

AVERAGE CALCULATION VALUES

RUN 1 - DB

0

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0

0

STEADY STATE PERIOD

PTID NAME DESCRIPTION

26

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29

CHAR COOLER CALCULATIONS

230	F205	CHR CLR STM FEED	PPH	1577.63	1657.73	1641.16	1647.47
234	F230	H2O FLW TO CHAR CLR	GPH	0.000	0.000	0.000	0.000
336	F253	HP STM TO CHAR CLR	PPH	232.866	239.911	235.518	235.597
599	CFRPPH	CHAR REMOVAL RATE	PPH	1486.88	1279.85	1406.57	1445.50
341	F254	STM FLW FR CHAR CLR	PPH	1203.68	1925.13	2241.84	2275.31
372	F229	CHAR TRANSPORT STEAM	PPH	0.000	0.000	0.000	0.000
224	F258	CHAR COOLER PRESS	PSIG	598.522	597.141	597.181	596.279
346	T202	CHR CLR UPPR BD TMP	DEGF	591.077	570.490	561.995	573.892
89	T20004	C. C. BD AT 19FT-2IN	DEGF	563.468	529.707	514.701	533.729
487	C2FBDC	CC FLD BED DNSTY	LB/FT3	0.000	0.000	0.000	0.000
488	C2FBHC	CC FLD BED HEIGHT	FT	0.000	0.000	0.000	0.000
573	CCCBV	CHAR CLR BED VOLUME	FT3	0.000	0.000	0.000	0.000
490	C2SIC	CC SOLIDS INVENTORY	LB	0.000	0.000	0.000	0.000
489	C2SRTC	CC SOLIDS RES TIME	MIN	0.000	0.000	0.000	0.000
520	C2SCC2	CC MF CHAR FD	LB/HR-FT2	563.211	484.790	532.791	547.538
499	C2SCC1	CC MF CHAR FD	LB/HR-FT3	* 0.000	* 0.000	* 0.000	* 0.000
534	C2CPD	CC PRESS DROP	"H2O/FTBD	0.000	0.000	0.000	0.000
484	C2SSV	CC STEAM SUP VEL	FPS	0.169454	0.174953	0.171706	0.174483
485	C2WSV	CC VAP H2O SUP VEL	FPS	0.000	0.000	0.000	0.000
590	CCATSM	CC ATM STM SUP VEL	FPS	0.025	0.026	0.025	0.025
486	C2TSV	CC TOT STM SUP VEL	FPS	0.194660	0.200717	0.196623	0.199533

AVERAGE CALCULATION VALUES

RUN 1 - DB

0

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STEADY STATE PERIOD

PTID	NAME	DESCRIPTION	26	27	28	29
521	C2SCC3	CC MF CHR/RAW COAL LB/LB	0.346592	0.255969	0.272063	0.274288
493	C2SSC3	CC STM/MF CHAR LB/LB	1.06104	1.29526	1.16678	1.13972
588	CCCSTM	CC STM/RAW COAL LB/LB	0.367747	0.331546	0.317439	0.312613
494	C2SSC4	CC STM/MF COAL LB/LB	0.394409	0.355583	0.340454	0.335278
589	CCSTM	CC STM/MF COAL LB/LB	0.444837	0.401047	0.383984	0.378146
497	C2SWC3	CC H2O/MF CHAR LB/LB	0.000	0.000	0.000	0.000
498	C2SWC4	CC H2O/RAW COAL LB/LB	0.000	0.000	0.000	0.000

AVERAGE CALCULATION VALUES

RUN 1 - DB

0

0

0

0

STEADY STATE PERIOD

PTID NAME DESCRIPTION

26

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29

PRETREATER, GASIFIER COMBINED CALCULATIONS

798	CMFRC	MF COAL/ RAW COAL	LB/LB	0.932400	0.932400	0.932400	0.932400
799	CMAFRC	MAF COAL/ RAW COAL	LB/LB	0.826700	0.826699	0.826699	0.826699
800	CTOTC1	TOTAL O2/RAW COAL	SCF/LB	4.58041	4.78378	4.52843	4.47956
801	CTOTC2	TOTAL O2/MF COAL	SCF/LB	4.91249	5.13062	4.85674	4.80433
802	CTOTC3	TOTAL O2/MAF COAL	SCF/LB	5.54059	5.78661	5.47771	5.41860
803	CTOTC4	TOTAL O2/RAW COAL	LB/LB	0.386226	0.403375	0.381842	0.377721
804	CTOTC5	TOTAL O2/MF COAL	LB/LB	0.414228	0.432620	0.409526	0.405107
805	CTOTC6	TOTAL O2/MAF COAL	LB/LB	0.467190	0.487934	0.461888	0.456903
806	CTSTC1	TTL STM/RAW COAL	SCF/LB	43.8502	38.3812	35.8309	35.5090
807	CTSTC2	TTL STM/MF COAL	SCF/LB	47.0376	41.1711	38.4354	38.0901
808	CTSTC3	TTL STM/MAF COAL	SCF/LB	53.0518	46.4351	43.3497	42.9602
809	CTSTC4	TTL STM/RAW COAL	LB/LB	2.08207	1.82239	1.70130	1.68601
810	CTSTC5	TTL STM/MF COAL	LB/LB	2.23302	1.95451	1.82464	1.80825
811	CTSTC6	TTL STM/MAF COAL	LB/LB	2.51853	2.20442	2.05794	2.03945
556	CTO2ST	TTL O2/STEAM	SCF/SCF	0.104437	0.124617	0.126361	0.126131

UPDATED AVERAGE GAS SAMPLE COMPOSITIONS

RUN 1 - DB 0 0 0 0

STEADY STATE PERIOD

COMPONENT	26		27		28		29		DRY	WET
	DRY	WET	DRY	WET	DRY	WET	DRY	WET		
MOLX-H2	29.80	24.54	32.10	24.28	31.50	23.79	31.60	24.18		
MOLX-CO	9.00	7.41	10.70	8.09	10.70	8.08	9.50	7.27		
MOLX-CO2	50.90	41.91	47.15	35.66	48.60	36.71	49.90	38.19		
MOLX-CH4	9.90	8.15	9.55	7.22	8.70	6.57	8.70	6.66		
MOLX-C2H6	0.20	0.16	0.10	0.08	0.10	0.08	0.10	0.08		
MOLX-N2	0.00	0.00	0.30	0.23	0.10	0.08	0.00	0.00		
MOLX-NH3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
MOLX-H2S	0.20	0.16	0.10	0.08	0.30	0.23	0.20	0.15		
MOLX-H2O	0.00	17.65	0.00	24.37	0.00	24.46	0.00	23.47		
MOLX-O2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
MOLX-C2H4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
MOLX-C3H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
MOLX-C3H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
MOLX-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
MOLX-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

UPSTR PRESS-(P227) PSIG	577.85	573.44	574.39	570.86
FLOW TEMP-(TI20010) DEGF	331.68	355.36	355.79	352.12
MOL WT. (WET)	25.60	24.10	24.47	24.69
DRY GAS MAKE,1000-SCFH	117.89	151.97	146.60	135.91
WET GAS MAKE,1000-SCFH	143.17	200.93	194.08	177.59
H2/CO MOL RATIO	3.31	3.00	2.94	3.33

AVERAGED CHAR ANALYSIS
MOISTURE - FREE BASIS

RUN 1 - DB	0	0	0	0
		STEADY STATE PERIOD		
	26	27	28	29
PROXIMATE ANALYSIS				

VOLATILE MATTER	8.6	8.8	7.8	8.2
FIXED CARBON	60.9	49.9	53.3	53.3
ASH	30.5	41.3	38.9	38.5
ULTIMATE ANALYSIS				

HYDROGEN	1.0	1.0	0.8	0.9
CARBON	62.8	52.2	55.4	55.4
NITROGEN	0.3	0.3	0.2	0.2
OXYGEN	5.1	5.1	4.5	4.8
SULFUR	0.3	0.2	0.2	0.1
ASH	30.5	41.3	38.9	38.5
HEAT OF COMBUSTION				

HHV - BTU/LB	8303.7	7610.0	7604.0	7575.0

MATERIAL BALANCES

ELEMENTAL AND OVERALL

FEED FLOW RATES (LB/HR)		RUN 1 - DB STEADY STATE NO. 26						TOTAL
		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	
MF COAL FEED RATE		2668.4	176.7	626.0	40.8	34.7	453.5	4000.0
COAL MOISTURE CONTENT		0.0	32.2	257.8	0.0	0.0	0.0	290.0
COAL FEED RATE		2668.4	208.9	883.7	40.8	34.7	453.5	4290.0
STEAM FLOW								
FLDZNG STM TO PRTR	F284	0.0	176.3	1410.4	0.0	0.0	0.0	1586.7
GSFR STM FEED RATE	F204	0.0	707.5	5660.0	0.0	0.0	0.0	6367.6
CHR CLR STM FEED	F205	0.0	175.3	1402.3	0.0	0.0	0.0	1577.6
HP STM TO CHAR CLR	F253	0.0	25.9	207.0	0.0	0.0	0.0	232.9
GASF STEAM PURGES	F278	0.0	80.1	640.9	0.0	0.0	0.0	721.0
CC STEAM PURGES	F279	0.0	0.0	0.0	0.0	0.0	0.0	0.0
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW								
OXYGEN TO PRTR	F285	0.0	0.0	225.4	0.0	0.0	0.0	225.4
GSFR O2 FEED RATE	F203	0.0	0.0	1431.5	0.0	0.0	0.0	1431.5
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW								
CO2 TRANSPORT FLOW	F6	250.3	0.0	667.6	0.0	0.0	0.0	917.9
CO2 FLOW TO FE-105	F7	382.6	0.0	1020.4	0.0	0.0	0.0	1403.0
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	310.1	0.0	826.8	0.0	0.0	0.0	1136.9
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		3611.4	1512.9	15487.2	40.8	34.7	453.5	21140.4
EFFLUENT FLOW RATES (LB/HR)								
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	933.8	14.8	76.4	4.5	3.9	453.5	1486.9
WASTE WATER FLOW	F255	0.0	986.0	7887.9	0.0	0.0	0.0	8873.9
STM FLW FR CHAR CLR	F254	0.0	133.7	1069.9	0.0	0.0	0.0	1203.7
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	2617.3	446.4	6572.5	0.2	19.9	0.0	9677.4
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		3551.1	1581.0	15606.7	4.7	23.8	453.5	21241.8
% CLOSURE (OUT/IN)(100)		98.3	104.5	100.8	11.4	68.5	100.0	100.5

MATERIAL BALANCES

ELEMENTAL AND OVERALL

FEED FLOW RATES (LB/HR)		RUN 1 - DB		STEADY STATE NO. 27					TOTAL	
		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH			
MF COAL FEED RATE		3110.0	205.9	729.6	47.5	40.5	528.5	4662.0		
COAL MOISTURE CONTENT		0.0	37.6	300.4	0.0	0.0	0.0	338.0		
COAL FEED RATE		3110.0	243.5	1030.0	47.5	40.5	528.5	5000.0		
STEAM FLOW										
FLDZNG STM TO PRTR	F284	0.0	178.0	1424.1	0.0	0.0	0.0	1602.1		
GSFR STM FEED RATE	F204	0.0	796.3	6370.1	0.0	0.0	0.0	7166.4		
CHR CLR STM FEED	F205	0.0	184.2	1473.5	0.0	0.0	0.0	1657.7		
HP STM TO CHAR CLR	F253	0.0	26.7	213.3	0.0	0.0	0.0	239.9		
GASF STEAM PURGES	F278	0.0	80.1	640.9	0.0	0.0	0.0	721.0		
CC STEAM PURGES	F279	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
OXYGEN FLOW										
OXYGEN TO PRTR	F285	0.0	0.0	348.3	0.0	0.0	0.0	348.3		
GSFR O2 FEED RATE	F203	0.0	0.0	1668.6	0.0	0.0	0.0	1668.6		
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
CARBON DIOXIDE FLOW										
CO2 TRANSPORT FLOW	F6	256.9	0.0	685.1	0.0	0.0	0.0	942.0		
CO2 FLOW TO FE-105	F7	382.5	0.0	1020.1	0.0	0.0	0.0	1402.6		
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
CO2 INST PURGE FLOW	F274	406.9	0.0	1085.1	0.0	0.0	0.0	1492.0		
SEAL WATER AND BFW PURGES										
		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0		
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
TOTAL FEED FLOW RATES (LB/HR)		4156.4	1647.6	17070.1	47.5	40.5	528.5	23490.6		
EFFLUENT FLOW RATES (LB/HR)										
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
CHAR REMOVAL RATE	CFRPPH	668.1	12.4	64.8	3.5	2.6	528.5	1279.8		
WASTE WATER FLOW	F255	0.0	709.1	5673.0	0.0	0.0	0.0	6382.1		
STM FLW FR CHAR CLR	F254	0.0	213.9	1711.2	0.0	0.0	0.0	1925.1		
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
RW GS SCRBR EF	F209	3248.9	671.4	8791.4	33.8	12.8	0.0	12772.0		
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
TOTAL EFFLUENT FLOW RATE (LB/HR)		3917.0	1606.9	16240.4	37.3	15.4	528.5	22359.1		
% CLOSURE (OUT/IN)(100)										
		94.2	97.5	95.1	78.5	38.1	100.0	95.2		

MATERIAL BALANCES

ELEMENTAL AND OVERALL

RUN 1		STEADY STATE NO. 28					
FEED FLOW RATES (LB/HR)		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	TOTAL
MF COAL FEED RATE		3215.7	212.9	754.4	49.1	41.9	4820.5
COAL MOISTURE CONTENT		0.0	38.8	310.7	0.0	0.0	349.5
COAL FEED RATE		3215.7	251.8	1065.0	49.1	41.9	5170.0
STEAM FLOW							
FLDZNG STM TO PRTR	F284	0.0	181.1	1448.8	0.0	0.0	1629.9
GSFR STM FEED RATE	F204	0.0	795.6	6364.4	0.0	0.0	7160.0
CHR CLR STM FEED	F205	0.0	182.4	1458.8	0.0	0.0	1641.2
HP STM TO CHAR CLR	F253	0.0	26.2	209.3	0.0	0.0	235.5
GASF STEAM PURGES	F278	0.0	80.1	640.9	0.0	0.0	721.0
CC STEAM PURGES	F279	0.0	0.0	0.0	0.0	0.0	0.0
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW							
OXYGEN TO PRTR	F285	0.0	0.0	328.3	0.0	0.0	328.3
GSFR O2 FEED RATE	F203	0.0	0.0	1645.8	0.0	0.0	1645.8
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW							
CO2 TRANSPORT FLOW	F6	256.6	0.0	684.4	0.0	0.0	941.0
CO2 FLOW TO FE-105	F7	382.3	0.0	1019.4	0.0	0.0	1401.7
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	406.5	0.0	1083.9	0.0	0.0	1490.3
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		4261.1	1655.9	17060.2	49.1	41.9	23614.7
EFFLUENT FLOW RATES (LB/HR)							
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	779.3	11.5	63.3	3.5	2.5	546.5
WASTE WATER FLOW	F255	0.0	798.8	6390.7	0.0	0.0	7189.6
STM FLW FR CHAR CLR	F254	0.0	249.1	1992.7	0.0	0.0	2241.8
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	3162.1	632.8	8670.6	11.0	37.1	12552.9
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		3941.4	1692.3	17117.3	14.5	39.6	23390.9
% CLOSURE (OUT/IN)(100)		92.5	102.2	100.3	29.5	94.5	99.1

MATERIAL BALANCES

ELEMENTAL AND OVERALL

FEED FLOW RATES (LB/HR)		RUN 1	DB	STEADY STATE NO. 29				TOTAL
		CARBON	HYDROGEN	OXYGEN	NITROGEN	SULFUR	ASH	
MF COAL FEED RATE		3277.9	217.1	769.0	50.1	42.7	557.0	4913.7
COAL MOISTURE CONTENT		0.0	39.6	316.7	0.0	0.0	0.0	356.3
COAL FEED RATE		3277.9	256.6	1085.6	50.1	42.7	557.0	5270.0
STEAM FLOW								
FLDZNG STM TO PRTR	F284	0.0	185.2	1481.8	0.0	0.0	0.0	1667.0
GSFR STM FEED RATE	F204	0.0	804.4	6435.1	0.0	0.0	0.0	7239.5
CHR CLR STM FEED	F205	0.0	183.1	1464.4	0.0	0.0	0.0	1647.5
HP STM TO CHAR CLR	F253	0.0	26.2	209.4	0.0	0.0	0.0	235.6
GASF STEAM PURGES	F278	0.0	80.1	640.9	0.0	0.0	0.0	721.0
CC STEAM PURGES	F279	0.0	0.0	0.0	0.0	0.0	0.0	0.0
STM TRANSPORT FLOW	F1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR TRANSPORT STEAM	F229	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OXYGEN FLOW								
OXYGEN TO PRTR	F285	0.0	0.0	350.7	0.0	0.0	0.0	350.7
GSFR O2 FEED RATE	F203	0.0	0.0	1639.9	0.0	0.0	0.0	1639.9
TRANSPORT LINE O2	F289	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON DIOXIDE FLOW								
CO2 TRANSPORT FLOW	F6	244.8	0.0	652.9	0.0	0.0	0.0	897.7
CO2 FLOW TO FE-103	F7	366.1	0.0	976.1	0.0	0.0	0.0	1342.2
PRETREATER CO2 FLOW	F283	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2 INST PURGE FLOW	F274	400.5	0.0	1068.1	0.0	0.0	0.0	1468.6
SEAL WATER AND BFW PURGES		0.0	138.9	1111.1	0.0	0.0	0.0	1250.0
H2O FLW TO CHAR CLR	F230	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FILTRATE TO FA-401	F403	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FEED FLOW RATES (LB/HR)		4289.4	1674.5	17116.1	50.1	42.7	557.0	23729.7
EFFLUENT FLOW RATES (LB/HR)								
CARRY OVER	CARRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR REMOVAL RATE	CFRPPH	801.3	12.5	69.9	3.1	1.6	557.0	1445.5
WASTE WATER FLOW	F255	0.0	1071.8	8574.1	0.0	0.0	0.0	9645.8
STM FLW FR CHAR CLR	F254	0.0	252.8	2022.5	0.0	0.0	0.0	2275.3
H2O FR CHR SLURRY TK	ZWCST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RW GS SCRBR EF	F209	2935.7	574.3	8019.8	0.2	22.9	0.0	11577.3
TAR FLOW THRLM OXDZR	F221	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL EFFLUENT FLOW RATE (LB/HR)		3737.0	1911.4	18686.2	3.4	24.5	557.0	24943.9
% CLOSURE (OUT/IN)(100)		87.1	114.1	109.2	6.7	57.3	100.0	105.1

APPENDIX III - LABORATORY DATATable of Contents

A	Sample Point	C1
B	Sample Point	C1A
C	Sample Point	C7
D	Sample Point	C7A
E	Sample Point	G2
F	Sample Point	S1
G	Sample Point	SC2
H	Sample Point	S2U
I	Sample Point	S3
J	Sample Point	S4
K	Sample Point	S5

C1 - RAW COAL

CHEMICAL ANALYSIS AND PARTICLE SIZE DISTRIBUTION

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C1- 60	C1- 61	C1- 62	C1- 63	C1- 64	C1- 65	C1- 66	
TIME	9: 0	12:30	9: 0	11: 0	13:30	15:30	17:30	
DATE	2/22/77	2/22/77	2/25/77	2/25/77	2/25/77	2/25/77	2/28/77	
PROXIMATE ANALYSIS								
MOISTURE	17.6	21.4	19.4	22.6	20.7	16.7	19.1	
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
AIR DRY MOISTURE	9.3	8.0	12.3	8.4	14.8	6.3	8.3	
TOTAL MOISTURE	25.3	27.8	29.3	29.1	32.4	21.9	25.8	
ULTIMATE ANALYSIS								
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	0. +	
F. S. I	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	
U. S. SIEVE SIZE								
			CUMMULATIVE WEIGHT PERCENT					
+3/4 MESH	11.3	15.9	23.5	16.6	10.1	14.1	5.0	
+1/4 MESH	40.8	51.0	55.2	35.9	36.2	34.7	31.4	
-1/4 MESH (WT %)	59.2	49.0	44.8	64.1	63.8	65.3	68.6	

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C1 - RAW COAL
CHEMICAL ANALYSIS AND
PARTICLE SIZE DISTRIBUTION

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C1- 67	C1- 68	C1- 69
TIME	19: 0	19:30	21:15
DATE	2/28/77	2/28/77	2/28/77
PROXIMATE ANALYSIS			

MOISTURE	18.7	19.6	21.4
VOLATILE MATTER	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0
AIR DRY MOISTURE	9.0	8.0	6.6
TOTAL MOISTURE	26.0	26.0	26.6

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +
F. S. I.	0.0+	0.0+	0.0+

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+3/4 MESH	9.3	14.6	7.1
+1/4 MESH	34.3	48.4	34.0
-1/4 MESH (WT %)	65.7	51.6	66.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C1 - RAW COAL
CHEMICAL ANALYSIS AND
PARTICLE SIZE DISTRIBUTION

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C1- 70	C1- 71	C1- 72	C1- 73	C1- 74	C1- 75	C1- 76
TIME	11:30	12: 0	14: 0	14:45	16:30	17:30	19: 0
DATE	3/ 4/77	3/ 4/77	3/ 4/77	3/ 4/77	3/ 4/77	3/ 4/77	3/ 4/77
PROXIMATE ANALYSIS							
MOISTURE	13.6	17.9	18.5	17.9	16.8	20.5	21.4
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	10.2	12.3	13.8	12.4	10.0	10.9	7.1
TOTAL MOISTURE	22.4	28.0	29.7	28.1	25.1	29.2	27.0
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
U. S. SIEVE SIZE	CUMMULATIVE WEIGHT PERCENT						
+3/4 MESH	9.5	11.3	13.7	9.0	7.2	13.4	13.3
+1/4 MESH	42.7	43.5	51.6	40.7	40.0	50.3	46.7
-1/4 MESH (WT %)	57.3	56.5	48.4	59.3	60.0	49.7	53.3

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C1 - RAW COAL
CHEMICAL ANALYSIS AND
PARTICLE SIZE DISTRIBUTION

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C1- 77	C1- 78	C1- 79	C1- 80	C1- 81	C1- 82	C1- 83
TIME	20:30	9:10	11: 0	15:30	9: 0	11:30	15: 0
DATE	3/ 4/77	3/22/77	3/22/77	3/22/77	3/24/77	3/24/77	3/24/77
PROXIMATE ANALYSIS							
MOISTURE	14.1	16.5	18.6	17.3	14.0	15.0	13.5
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	17.7	13.6	10.7	11.3	13.9	12.7	14.5
TOTAL MOISTURE	29.3	27.9	27.8	26.2	26.0	25.8	26.0
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)							
F. S. I.	0. +	0. +	0. +	0. +	0. +	0. +	0. +
	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
U. S. SIEVE SIZE							
+3/4 MESH	8.1	8.1	8.9	11.9	11.9	13.2	11.1
+1/4 MESH	40.9	37.4	39.7	42.8	45.3	48.8	42.9
-1/4 MESH (WT %)	59.1	62.6	60.3	57.2	54.7	51.2	57.1

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C1- 84	C1- 85	C1- 86	C1- 87	C1- 88	C1- 89	C1- 90
TIME	9:45	14: 0	12:30	9:30	9:15	11: 0	13:30
DATE	4/ 4/77	4/ 4/77	4/ 5/77	4/ 6/77	4/13/77	4/13/77	4/13/77
PROXIMATE ANALYSIS							
MOISTURE	17.4	19.2	18.4	17.2	15.8	18.7	19.2
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	19.2	11.3	10.9	10.5	9.9	8.1	6.1
TOTAL MOISTURE	33.3	28.2	27.3	25.9	25.4	25.3	24.2
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)							
F. S. I.	0. +	0. +	0. +	0. +	0. +	0. +	0. +
	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
U. S. SIEVE SIZE							
+3/4 MESH	17.7	21.2	7.1	10.9	9.5	8.8	9.1
+1/4 MESH	51.0	56.9	37.0	41.9	41.9	45.0	43.5
-1/4 MESH (WT %)	49.0	43.1	63.0	58.1	58.1	55.0	56.5
+ = NO ANALYSIS DONE							
* = TRACE							
** = SUSPECT ANALYSIS							

C1 - RAW COAL
CHEMICAL ANALYSIS AND
PARTICLE SIZE DISTRIBUTION

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C1- 91	C1- 92	C1- 93	C1- 94	C1- 95	C1- 96	C1- 97
TIME	15:30	8:45	10:30	13: 0	14: 0	14: 0	14: 0
DATE	4/13/77	4/14/77	4/14/77	4/14/77	4/25/77	4/25/77	4/25/77
PROXIMATE ANALYSIS							
MOISTURE	21.0	17.2	18.4	17.5	18.1	17.3	16.2
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	31.9	32.0	34.0
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	42.1	43.2	42.8
ASH	0.0+	0.0+	0.0+	0.0+	7.9	7.5	7.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	7.7	12.3	11.3	10.5	7.0	8.8	10.0
TOTAL MOISTURE	27.1	27.4	27.6	26.2	23.8	24.6	24.6
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	0.0+	0.0+	6.1	6.0	6.0
CARBON	0.0+	0.0+	0.0+	0.0+	55.1	55.5	56.7
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.8	0.9	0.9
OXYGEN	0.0	0.0	0.0	0.0	29.5	29.5	28.8
SULFUR	0.0+	0.0+	0.0+	0.0+	0.6	0.6	0.6
ASH	0.0+	0.0+	0.0+	0.0+	7.9	7.5	7.0
TOTAL	0.0	0.0	0.0	0.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	9510.	9570.	9750.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
U. S. SIEVE SIZE							
			CUMMULATIVE WEIGHT PERCENT				
+3/4 MESH	11.3	15.0	19.2	11.5	12.5	14.4	12.9
+1/4 MESH	46.2	47.5	52.4	47.5	48.9	49.8	51.4
-1/4 MESH (WT %)	53.8	52.5	47.6	52.5	51.1	50.2	48.6

+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

C1 - RAW COAL
CHEMICAL ANALYSIS AND
PARTICLE SIZE DISTRIBUTION

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C1- 98	C1- 99	C1-100	C1-101
TIME	14: 0	14: 0	14: 0	14: 0
DATE	4/25/77	4/25/77	4/25/77	4/25/77
PROXIMATE ANALYSIS				
MOISTURE	16.7	18.3	18.0	20.5
VOLATILE MATTER	32.6	32.2	32.5	30.4
FIXED CARBON	43.3	41.0	43.0	42.1
ASH	7.3	8.6	6.5	7.0
TOTAL	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	8.8	6.6	6.8	5.7
TOTAL MOISTURE	24.0	23.7	23.6	25.0
ULTIMATE ANALYSIS				
HYDROGEN	5.9	5.9	6.1	6.1
CARBON	55.9	53.4	55.5	54.7
NITROGEN	0.8	0.8	0.8	0.8
OXYGEN	29.4	30.2	30.6	31.1
SULFUR	0.7	1.1	0.5	0.4
ASH	7.3	8.6	6.5	7.0
TOTAL	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	9560.	9180.	9520.	9400.
F. S. I.	0.0+	0.0+	0.0+	0.0
U. S. SIEVE SIZE			CUMMULATIVE WEIGHT PERCENT	
+3/4 MESH	15.2	17.0	16.9	17.6
+1/4 MESH	53.0	48.1	53.0	51.1
-1/4 MESH (WT %)	47.0	51.9	47.0	48.9

+ = NO ANALYSIS DONE
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** = SUSPECT ANALYSIS

C1 - RAW COAL
CHEMICAL ANALYSIS AND
PARTICLE SIZE DISTRIBUTION

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C1-102	C1-103	C1-104	C1-105	C1-106	C1-107	C1-108
TIME	19:30	13:30	16: 0	17:30	19:30	9: 0	10:30
DATE	5/17/77	5/18/77	5/18/77	5/18/77	5/25/77	5/26/77	5/26/77
PROXIMATE ANALYSIS							
MOISTURE	18.0	17.9	17.9	17.9	18.5	16.3	17.0
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	9.3	7.2	9.3	9.4	8.5	8.4	11.4
TOTAL MOISTURE	25.7	23.9	25.6	25.6	25.4	23.4	26.5
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)							
F. S. I.	0. +	0. +	0. +	0. +	0. +	0. +	0. +
	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
U. S. SIEVE SIZE							
	CUMMULATIVE WEIGHT PERCENT						
+3/4 MESH	17.7	14.7	15.4	13.3	6.0	19.7	13.8
+1/4 MESH	48.0	43.6	43.4	44.5	37.0	51.1	43.8
-1/4 MESH (WT %)	52.0	56.4	56.6	55.5	63.0	48.9	56.2

+ = NO ANALYSIS DONE
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** = SUSPECT ANALYSIS

C1 - RAW COAL
CHEMICAL ANALYSIS AND
PARTICLE SIZE DISTRIBUTION

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C1-109	C1-110	C1-111	C1-112	C1-113	C1-114	C1-115
TIME	9:30	11:0	13:0	15:0	17:30	19:30	21:30
DATE	5/27/77	5/27/77	5/27/77	5/27/77	5/27/77	5/27/77	5/27/77
PROXIMATE ANALYSIS							
MOISTURE	16.9	16.3	15.4	15.7	17.2	18.1	20.3
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	7.5	6.5	11.1	10.2	8.3	8.0	5.7
TOTAL MOISTURE	23.1	21.7	24.8	24.3	24.1	24.7	24.8
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)							
F. S. I.	0. +	0. +	0. +	0. +	0. +	0. +	0. +
	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
U. S. SIEVE SIZE							
	CUMULATIVE WEIGHT PERCENT						
+3/4 MESH	23.3	27.0	10.5	12.2	13.2	15.9	18.3
+1/4 MESH	54.1	58.0	38.3	45.6	43.9	46.7	54.6
-1/4 MESH (WT %)	45.9	42.0	61.7	54.4	56.1	53.3	45.4

+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

C1 - RAW COAL
CHEMICAL ANALYSIS AND
PARTICLE SIZE DISTRIBUTION

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C1-116	C1-117	C1-118	C1-119
TIME	11: 0	14: 0	16:30	18:30
DATE	5/31/77	5/31/77	5/31/77	5/31/77
PROXIMATE ANALYSIS				
MOISTURE	18.3	18.9	19.4	19.0
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	9.7	6.9	6.4	4.7
TOTAL MOISTURE	26.2	24.5	24.6	22.4
ULTIMATE ANALYSIS				
HYDROGEN	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+
U. S. SIEVE SIZE	CUMULATIVE WEIGHT PERCENT			
+3/4 MESH	13.3	17.7	11.3	14.0
+1/4 MESH	49.0	56.6	40.6	47.0
-1/4 MESH (WT %)	51.0	43.4	59.4	53.0

+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

C1 - RAW COAL
CHEMICAL ANALYSIS AND
PARTICLE SIZE DISTRIBUTION

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C1-120	C1-121	C1-122	C1-123	C1-124	C1-125	C1-126
TIME	8:45	10:45	13:30	9:0	11:0	13:30	16:30
DATE	8/9/77	8/9/77	8/9/77	8/10/77	8/10/77	8/10/77	8/12/77
PROXIMATE ANALYSIS							
MOISTURE	19.3	18.9	19.9	18.3	20.8	19.9	15.0
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	7.5	7.5	7.8	6.4	5.0	7.4	15.1
TOTAL MOISTURE	25.4	25.1	26.1	23.5	24.8	25.8	27.8
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
U. S. SIEVE SIZE							
			CUMMULATIVE WEIGHT PERCENT				
+3/4 MESH	15.3	15.8	9.0	9.5	16.6	17.4	8.3
+1/4 MESH	49.8	52.6	38.8	41.6	48.7	49.3	33.1
-1/4 MESH (WT %)	50.2	47.4	61.2	58.4	51.3	50.7	66.9

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C1 - RAW COAL

CHEMICAL ANALYSIS AND PARTICLE SIZE DISTRIBUTION

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C1-127	C1-128	C1-129	C1-130	C1-131	C1-132	C1-133
TIME	17: 0	14: 0	16: 0	17:45	19:45	21: 0	22:30
DATE	8/12/77	8/15/77	8/15/77	8/15/77	8/16/77	8/16/77	8/16/77
PROXIMATE ANALYSIS							
MOISTURE	14.4	18.0	18.2	18.5	15.0	16.7	16.2
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	15.1	6.0	9.5	10.6	13.3	13.0	12.4
TOTAL MOISTURE	27.3	22.9	26.0	27.1	26.3	27.5	26.6
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
U. S. SIEVE SIZE							
+3/4 MESH	8.6	11.1	6.3	7.8	10.9	14.6	7.1
+1/4 MESH	36.2	42.3	39.0	37.9	41.3	47.1	34.4
-1/4 MESH (WT %)	63.8	57.7	61.0	62.1	58.7	52.9	65.6

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C1 - RAW COAL
CHEMICAL ANALYSIS AND
PARTICLE SIZE DISTRIBUTION

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C1-134	C1-135	C1-136	C1-137	C1-138	C1-139	C1-140
TIME	23:30	23: 0	23: 0	23: 0	9: 0	13:30	14: 0
DATE	8/16/77	8/28/77	8/28/77	8/30/77	8/31/77	8/31/77	8/31/77
PROXIMATE ANALYSIS							
MOISTURE	17.9	5.6	5.4	7.2	7.4	5.1	7.3
VOLATILE MATTER	0.0+	35.1	0.0+	36.2	35.8	37.1	35.2
FIXED CARBON	0.0+	45.2	0.0+	45.1	45.8	46.7	42.6
ASH	0.0+	14.1	0.0+	11.5	11.0	11.1	14.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	10.3	8.3	6.6	4.4	3.6	6.1	4.6
TOTAL MOISTURE	26.3	13.4	11.6	11.3	10.7	10.9	11.6
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	5.2	5.5	5.6	5.4	5.3
CARBON	0.0+	0.0+	63.2	63.3	63.8	65.1	60.5
NITROGEN	0.0+	0.0+	1.1	1.1	1.1	1.2	1.1
OXYGEN	0.0	0.0	26.7	15.4	15.3	13.5	14.1
SULFUR	0.0+	0.0+	3.8	3.2	3.2	3.7	4.1
ASH	0.0+	14.1	0.0+	11.5	11.0	11.1	14.9
TOTAL	0.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	11500.	11500.	11500.	11800.	10900.
F. S. I.	0.0+	3.0	3.5	2.5	2.0	2.0	2.0
U. S. SIEVE SIZE							
			CUMMULATIVE WEIGHT PERCENT				
+3/4 MESH	22.1	16.9	17.2	18.4	19.4	40.1	15.8
+1/4 MESH	54.5	80.9	73.4	70.9	78.9	86.4	71.2
-1/4 MESH (WT %)	45.5	19.1	26.6	29.1	21.1	13.6	28.8

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C1A - RAW COAL COMPOSITE

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER C1A- 16 C1A- 17

TIME 1: 0 11:30
DATE 2/23/77 2/26/77

PROXIMATE ANALYSIS

MOISTURE	19.7	21.2
VOLATILE MATTER	30.4	28.7
FIXED CARBON	40.9	40.4
ASH	9.1	9.7
TOTAL	100.0	100.0

AIR DRY MOISTURE 0.0+ 0.0+

ULTIMATE ANALYSIS

HYDROGEN	5.6	5.8
CARBON	52.4	51.4
NITROGEN	0.8	1.0
OXYGEN	31.5	31.4
SULFUR	0.5	0.7
ASH	9.1	9.7
TOTAL	100.0	100.0

HEAT OF COMBUSTION (BTU/LB) 8760. 8780.

F. S. I. 0.0+ 0.0+

+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

C1A - RAW COAL COMPOSITE

CHEMICAL ANALYSIS

BASIS: NET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C1A- 18	C1A- 19	C1A- 20	C1A- 21
TIME	17: 0	8: 0	15:30	15:30
DATE	3/ 1/77	3/ 7/77	3/22/77	3/25/77
PROXIMATE ANALYSIS				
MOISTURE	19.3	14.4	17.7	16.1
VOLATILE MATTER	29.7	32.1	32.0	30.9
FIXED CARBON	41.9	43.2	42.1	43.1
ASH	9.1	10.3	8.2	9.9
TOTAL	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS				
HYDROGEN	5.6	5.2	5.6	5.4
CARBON	53.4	54.8	53.7	54.4
NITROGEN	0.8	0.9	0.8	0.8
OXYGEN	30.5	28.1	31.1	28.8
SULFUR	0.7	0.7	0.6	0.7
ASH	9.1	10.3	8.2	9.9
TOTAL	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	7910.	9180.	8910.	9090.
F. S. I.	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C1A - RAW COAL COMPOSITE

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER C1A- 22 C1A- 23 C1A- 24

TIME 9:30 6: 0 6:15

DATE 4/ 6/77 4/14/77 4/15/77

PROXIMATE ANALYSIS

MOISTURE	16.7	16.0	18.1
VOLATILE MATTER	31.1	32.8	31.1
FIXED CARBON	42.4	42.3	41.5
ASH	9.8	9.0	9.3

TOTAL	100.0	100.1	100.0
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AIR DRY MOISTURE	0.0+	0.0+	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	5.5	5.6	5.7
CARBON	54.4	53.9	53.5
NITROGEN	0.9	0.8	0.8
OXYGEN	28.9	29.9	29.9
SULFUR	0.5	0.8	0.8
ASH	9.8	9.0	9.3

TOTAL	100.0	100.0	100.0
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HEAT OF COMBUSTION (BTU/LB)	9150.	9090.	9030.
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F. S. I.	0.0+	0.0+	0.0+
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C1A - RAW COAL COMPOSITE

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C1A- 25	C1A- 26	C1A- 27
TIME	9: 0	20: 0	6: 0
DATE	5/19/77	5/27/77	5/28/77

PROXIMATE ANALYSIS

MOISTURE	16.1	14.5	17.8
VOLATILE MATTER	32.8	32.7	32.5
FIXED CARBON	42.3	43.3	40.7
ASH	8.8	9.5	9.0

TOTAL	100.0	100.0	100.0
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AIR DRY MOISTURE	0.0+	0.0+	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	5.7	5.5	5.7
CARBON	54.3	60.0	53.7
NITROGEN	0.8	0.8	0.8
OXYGEN	29.7	23.5	30.1
SULFUR	0.7	0.7	0.7
ASH	8.8	9.5	9.0

TOTAL	100.0	100.0	100.0
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HEAT OF COMBUSTION (BTU/LB)	9250.	9520.	9160.
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F. S. I.	0.0+	0.0+	0.0+
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+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

C1A - RAW COAL COMPOSITE

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER C1A- 28

TIME 5: 0

DATE 6/ 1/77

PROXIMATE ANALYSIS

MOISTURE	16.3
VOLATILE MATTER	32.8
FIXED CARBON	41.8
ASH	9.1

TOTAL	100.0
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AIR DRY MOISTURE	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	5.7
CARBON	54.0
NITROGEN	0.8
OXYGEN	29.7
SULFUR	0.7
ASH	9.1

TOTAL	100.0
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HEAT OF COMBUSTION (BTU/LB)	9190.
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F. S. I.	0.0+
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C1A - RAW COAL COMPOSITE

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C1A- 29	C1A- 30	C1A- 31	C1A- 32
TIME	23:30	23: 0	17:45	15: 0
DATE	8/ 9/77	8/10/77	8/15/77	8/17/77

PROXIMATE ANALYSIS

MOISTURE	18.9	19.7	18.8	16.8
VOLATILE MATTER	32.7	31.4	31.1	32.6
FIXED CARBON	39.3	41.3	41.9	41.4
ASH	9.1	7.5	8.2	9.2
TOTAL	100.0	100.0	100.0	100.0

AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	5.7	5.8	5.5	5.6
CARBON	53.0	53.3	52.6	55.0
NITROGEN	0.8	0.8	0.6	0.7
OXYGEN	30.4	32.1	32.4	28.7
SULFUR	1.1	0.5	0.7	0.8
ASH	9.1	7.5	8.2	9.2
TOTAL	100.0	100.0	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	8990.	9040.	8840.	9380.
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F. S. I.	0.0+	0.0+	0.0+	0.0+
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+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

C7 - GROUND COAL

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7-106	C7-107	C7-108	C7-109	C7-110	C7-111	C7-112
TIME	4: 0	20: 0	8: 0	14: 0	20: 0	18: 0	19: 0
DATE	2/ 3/77	2/10/77	2/11/77	2/11/77	2/16/77	2/17/77	2/18/77
PROXIMATE ANALYSIS							
MOISTURE	4.8	8.7	6.0	5.4	4.3	6.0	5.8
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7 - GROUND COAL

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7-113	C7-114	C7-115	C7-116	C7-117	C7-118	C7-119
TIME	4: 0	9: 0	12:30	14:30	14:30	1:30	7:30
DATE	2/20/77	2/20/77	2/24/77	2/24/77	2/25/77	2/26/77	2/26/77

PROXIMATE ANALYSIS							
MOISTURE	5.9	4.5	5.9	5.5	5.1	5.6	6.6
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7 - GROUND COAL

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7-120	C7-121	C7-122	C7-123	C7-124	C7-125
TIME	18: 0	22: 0	3: 0	7:30	9:30	13:30
DATE	2/26/77	2/26/77	2/27/77	2/27/77	2/28/77	2/28/77
PROXIMATE ANALYSIS						
MOISTURE	5.8	5.7	5.0	4.5	5.8	4.7
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS						
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7 - GROUND COAL

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7-126	C7-127	C7-128	C7-129	C7-130	C7-131	C7-132
TIME	3:15	8:0	20:0	1:30	9:30	16:0	8:30
DATE	3/1/77	3/1/77	3/1/77	3/2/77	3/2/77	3/2/77	3/14/77
PROXIMATE ANALYSIS							
MOISTURE	3.9	3.8	5.5	4.7	4.7	4.5	5.7
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7 - GROUND COAL

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7-133	C7-134	C7-135	C7-136	C7-137	C7-138
TIME	6: 0	11:30	18:30	22:30	2:30	4: 0
DATE	3/16/77	3/16/77	3/16/77	3/16/77	3/17/77	3/17/77
PROXIMATE ANALYSIS						
MOISTURE	5.0	4.9	5.4	5.1	4.9	5.0
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS						
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7 - GROUND COAL

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7-139	C7-140	C7-141	C7-142	C7-143	C7-144	C7-145
TIME	21:30	22:0	15:15	17:15	10:0	13:15	16:0
DATE	4/3/77	4/11/77	4/12/77	4/12/77	4/13/77	4/16/77	4/28/77
PROXIMATE ANALYSIS							
MOISTURE	6.1	4.5	7.2	7.2	5.7	5.4	5.9
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	35.6
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	48.4
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	10.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	4.7
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	61.4
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.8
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	22.3
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.7
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	10.1
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	100.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	10300.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7 - GROUND COAL

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7-146	C7-147
TIME	20:45	0:15
DATE	4/28/77	4/29/77

PROXIMATE ANALYSIS		

MOISTURE	6.1	5.3
VOLATILE MATTER	0.0+	0.0+
FIXED CARBON	0.0+	0.0+
ASH	0.0+	0.0+
TOTAL	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+
CARBON	0.0+	0.0+
NITROGEN	0.0+	0.0+
OXYGEN	0.0	0.0
SULFUR	0.0+	0.0+
ASH	0.0+	0.0+
TOTAL	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +
F. S. I.	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7 - GROUND COAL

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7-148	C7-149	C7-150	C7-151	C7-152	C7-153	C7-154
TIME	21:30	2:30	6:45	10:30	10:30	8:30	12:0
DATE	5/17/77	5/18/77	5/18/77	5/18/77	5/21/77	5/22/77	5/22/77
PROXIMATE ANALYSIS							
MOISTURE	5.4	5.4	4.8	4.3	0.0+	3.9	5.1
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	0.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7 - GROUND COAL

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7-155	C7-156	C7-157	C7-158	C7-159	C7-160	C7-161
TIME	16:30	15:0	19:30	2:30	18:45	22:30	4:30
DATE	5/24/77	5/25/77	5/25/77	5/26/77	5/26/77	5/26/77	5/27/77
PROXIMATE ANALYSIS							
MOISTURE	6.0	5.5	3.9	4.1	5.5	5.8	4.0
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

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** = SUSPECT ANALYSIS

C7 - GROUND COAL

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7-162	C7-163	C7-164
TIME	1:30	6:30	11: 0
DATE	6/ 1/77	6/ 1/77	6/ 1/77
PROXIMATE ANALYSIS			

MOISTURE	3.2	5.5	4.1
VOLATILE MATTER	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0

AIR DRY MOISTURE	0.0+	0.0+	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +
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F. S. I.	0.0+	0.0+	0.0+
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+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

C7 - GROUND COAL

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7-165	C7-166	C7-167	C7-168	C7-169	C7-170	C7-171
TIME	4:45	8:45	12:0	19:0	1:0	4:30	14:30
DATE	8/7/77	8/7/77	8/7/77	8/10/77	8/12/77	8/12/77	8/12/77
PROXIMATE ANALYSIS							
MOISTURE	7.4	7.4	6.9	5.9	6.3	6.4	6.6
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

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C7 - GROUND COAL

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7-172	C7-173	C7-174	C7-175	C7-176	C7-177	C7-178
TIME	18:30	0: 1	0: 1	5: 0	14: 0	1: 0	5: 0
DATE	8/12/77	8/13/77	8/14/77	8/14/77	8/14/77	8/15/77	8/15/77

PROXIMATE ANALYSIS							

MOISTURE	6.0	5.0	5.9	4.9	5.7	6.7	4.9
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							

HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7 - GROUND COAL

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7-179	C7-180	C7-181	C7-182	C7-183	C7-184
TIME	19: 0	1: 0	5: 0	10: 0	14: 0	3: 0
DATE	8/15/77	8/16/77	8/16/77	8/16/77	8/16/77	8/17/77
PROXIMATE ANALYSIS						
MOISTURE	4.8	5.2	5.3	6.9	4.5	6.4
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS						
HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7 - GROUND COAL

PARTICLE SIZE DISTRIBUTION

SAMPLE NUMBER	C7-106	C7-107	C7-108	C7-109	C7-110	C7-111	C7-112
TIME	4: 0	20: 0	8: 0	14: 0	20: 0	18: 0	19: 0
DATE	2/ 3/77	2/10/77	2/11/77	2/11/77	2/16/77	2/17/77	2/18/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0	0.1	0.0	0.1	0.0*	0.0	0.0
+20 MESH	0.6	0.5	0.6	0.7	0.3	0.4	0.3
+30 MESH	8.7	6.3	8.2	9.3	6.2	6.9	5.6
+50 MESH	43.9	35.5	43.5	46.8	39.6	42.7	38.7
+60 MESH	49.9	40.6	50.2	53.1	45.0	49.0	44.5
+100 MESH	70.5	58.2	69.5	72.4	65.1	69.6	64.5
+140 MESH	78.2	66.0	77.8	80.3	73.1	78.4	73.4
+200 MESH	84.8	72.8	84.6	86.1	80.1	84.0	80.3
+325 MESH	92.4	80.7	91.4	91.7	87.1	91.1	87.2
-325 MESH(WEIGHT PERCENT)	7.6	19.7	8.7	8.3	12.9	8.9	12.8

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SAMPLE NUMBER	C7-113	C7-114	C7-115	C7-116	C7-117	C7-118	C7-119
TIME	4: 0	9: 0	12:30	14:30	14:30	1:30	7:30
DATE	2/20/77	2/20/77	2/24/77	2/24/77	2/25/77	2/26/77	2/26/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0	0.0	0.1	0.0	0.0	0.0	0.0*
+20 MESH	0.7	0.2	0.8	0.5	0.2	0.5	0.7
+30 MESH	8.6	6.3	9.2	8.5	7.4	8.0	9.9
+50 MESH	45.8	41.9	43.6	42.9	40.7	42.3	49.6
+60 MESH	52.4	47.8	49.4	50.5	46.2	48.6	55.9
+100 MESH	73.2	72.2	70.5	71.8	66.1	69.0	75.3
+140 MESH	81.9	81.2	78.9	81.0	74.7	77.3	83.0
+200 MESH	88.5	88.6	86.5	88.1	82.4	85.0	88.9
+325 MESH	93.9	95.2	93.3	92.8	90.0	92.7	93.8
-325 MESH(WEIGHT PERCENT)	6.1	4.8	6.7	7.2	10.0	7.3	6.2

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7 - GROUND COAL

PARTICLE SIZE DISTRIBUTION

SAMPLE NUMBER	C7-120	C7-121	C7-122	C7-123	C7-124	C7-125
TIME	18: 0	22: 0	3: 0	7:30	9:30	13:30
DATE	2/26/77	2/26/77	2/27/77	2/27/77	2/28/77	2/28/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0	0.0	0.0	0.0*	0.0*	0.0
+20 MESH	0.5	0.2	0.4	0.2	0.4	0.2
+30 MESH	7.2	7.1	8.3	5.8	6.3	6.0
+50 MESH	39.4	42.8	44.4	41.3	40.1	37.7
+60 MESH	45.7	48.9	51.6	47.8	46.4	44.8
+100 MESH	66.5	70.2	73.4	69.3	68.2	65.8
+140 MESH	76.4	79.2	82.3	78.0	77.2	75.7
+200 MESH	84.1	86.4	89.5	84.5	84.3	82.5
+325 MESH	92.1	92.9	95.4	90.9	91.0	90.5
-325 MESH(WEIGHT PERCENT)	7.9	7.1	4.6	9.1	9.0	9.5

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7 - GROUND COAL

PARTICLE SIZE DISTRIBUTION

SAMPLE NUMBER	C7-126	C7-127	C7-128	C7-129	C7-130	C7-131	C7-132
TIME	3:15	8:0	20:0	1:30	9:30	16:0	8:30
DATE	3/1/77	3/1/77	3/1/77	3/2/77	3/2/77	3/2/77	3/14/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+20 MESH	0.4	0.3	0.7	0.2	0.1	0.2	0.3
+30 MESH	6.6	5.1	7.1	5.8	4.9	5.7	5.0
+50 MESH	39.3	37.1	44.1	40.3	39.3	39.7	40.1
+60 MESH	45.4	42.7	51.5	46.6	46.4	47.1	46.7
+100 MESH	67.2	64.5	72.0	69.2	67.5	69.5	67.4
+140 MESH	75.8	74.2	80.3	77.4	76.8	79.2	76.4
+200 MESH	83.3	82.0	86.5	84.6	83.7	86.7	81.9
+325 MESH	91.3	90.8	92.2	92.0	90.6	93.5	90.2
-325 MESH(WEIGHT PERCENT)	8.7	9.2	7.8	8.0	9.3	6.5	9.8

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

SAMPLE NUMBER	C7-133	C7-134	C7-135	C7-136	C7-137	C7-138
TIME	6:0	11:30	18:30	22:30	2:30	4:0
DATE	3/16/77	3/16/77	3/16/77	3/16/77	3/17/77	3/17/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0	0.0	0.0	0.0	0.0	0.0
+20 MESH	0.3	0.2	0.2	0.2	0.1	0.2
+30 MESH	5.8	4.7	6.0	6.6	6.3	5.4
+50 MESH	43.5	41.8	39.7	42.6	42.6	41.0
+60 MESH	50.4	48.8	46.6	50.1	48.5	47.2
+100 MESH	70.7	70.0	68.7	70.9	71.1	69.4
+140 MESH	78.8	78.5	77.7	79.8	79.3	77.5
+200 MESH	83.0	84.0	84.1	85.9	86.2	84.2
+325 MESH	89.8	90.3	90.3	92.3	92.8	91.5
-325 MESH(WEIGHT PERCENT)	10.2	9.7	9.7	7.8	7.2	8.5

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

C7 - GROUND COAL

PARTICLE SIZE DISTRIBUTION

SAMPLE NUMBER	C7-139	C7-140	C7-141	C7-142	C7-143	C7-144	C7-145
TIME	21:30	22:00	15:15	17:15	10:00	13:15	16:00
DATE	4/3/77	4/11/77	4/12/77	4/12/77	4/13/77	4/16/77	4/28/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0	0.0	0.0	0.0	0.0	0.2	0.0
+20 MESH	0.6	0.2	0.1	0.3	0.3	0.7	0.2
+30 MESH	7.0	5.7	6.4	6.3	6.3	7.3	6.1
+50 MESH	46.1	42.0	45.9	43.1	40.9	41.5	40.3
+60 MESH	53.4	48.5	52.2	49.3	47.1	48.2	51.1
+100 MESH	76.7	70.1	73.9	70.4	68.7	69.7	72.6
+140 MESH	85.5	78.6	82.4	78.9	78.0	79.0	81.3
+200 MESH	91.2	84.7	86.5	83.8	85.0	86.1	83.3
+325 MESH	95.8	92.1	93.9	91.6	92.5	92.5	92.8
-325 MESH(WEIGHT PERCENT)	4.2	7.9	6.1	8.4	7.5	7.5	7.2

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SAMPLE NUMBER	C7-146	C7-147
TIME	20:45	0:15
DATE	4/28/77	4/29/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0	0.0
+20 MESH	0.2	0.2
+30 MESH	5.5	5.6
+50 MESH	42.5	42.9
+60 MESH	49.2	48.5
+100 MESH	70.7	70.9
+140 MESH	79.9	79.8
+200 MESH	84.4	87.0
+325 MESH	92.8	94.3
-325 MESH(WEIGHT PERCENT)	7.2	5.7

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7 - GROUND COAL

PARTICLE SIZE DISTRIBUTION

SAMPLE NUMBER	C7-148	C7-149	C7-150	C7-151	C7-152	C7-153	C7-154
TIME	21:30	2:30	6:45	10:30	10:30	8:30	12:0
DATE	5/17/77	5/18/77	5/18/77	5/18/77	5/21/77	5/22/77	5/22/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0	0.0	0.0	0.0+	0.0+	0.0	0.0
+20 MESH	0.3	0.1	0.2	0.0+	0.0+	0.2	0.3
+30 MESH	6.9	5.4	6.3	0.0+	0.0+	4.9	8.2
+50 MESH	39.8	41.2	43.1	0.0+	0.0+	39.6	46.7
+60 MESH	46.5	47.5	49.9	0.0+	0.0+	46.7	54.4
+100 MESH	65.6	69.4	71.4	0.0+	0.0+	69.0	74.3
+140 MESH	74.2	78.6	80.3	0.0+	0.0+	79.0	82.3
+200 MESH	80.0	80.7	86.9	0.0+	0.0+	85.3	86.4
+325 MESH	87.7	91.5	93.5	0.0+	0.0+	93.2	93.1
-325 MESH(WEIGHT PERCENT)	12.3	8.5	6.5	0.0+	0.0+	6.8	6.9

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SAMPLE NUMBER	C7-155	C7-156	C7-157	C7-158	C7-159	C7-160	C7-161
TIME	16:30	15:0	19:30	2:30	18:45	22:30	4:30
DATE	5/24/77	5/25/77	5/25/77	5/26/77	5/26/77	5/26/77	5/27/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+20 MESH	0.5	0.3	0.3	0.3	0.3	0.2	0.3
+30 MESH	7.7	6.8	8.1	5.9	6.3	6.6	7.6
+50 MESH	50.7	43.9	45.4	36.0	45.5	45.7	40.6
+60 MESH	58.3	49.8	51.3	42.4	52.0	52.4	47.9
+100 MESH	80.5	71.2	70.3	61.2	72.2	72.8	67.5
+140 MESH	88.5	80.0	78.5	69.8	80.7	80.6	76.3
+200 MESH	89.4	86.1	84.9	75.5	82.9	87.0	80.8
+325 MESH	96.3	93.3	91.8	84.8	92.7	94.1	89.9
-325 MESH(WEIGHT PERCENT)	3.7	6.7	8.2	15.2	7.3	5.9	10.2

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7 - GROUND COAL

PARTICLE SIZE DISTRIBUTION

SAMPLE NUMBER	C7-162	C7-163	C7-164
TIME	1:30	6:30	11:0
DATE	6/ 1/77	6/ 1/77	6/ 1/77
U. S. SIEVE SIZE	CUMMULATIVE WEIGHT PERCENT		
+8 MESH	0.0	0.0	0.1
+20 MESH	0.3	0.3	0.5
+30 MESH	7.5	5.9	7.6
+50 MESH	42.9	42.8	44.0
+60 MESH	49.2	48.8	50.5
+100 MESH	69.2	69.7	70.2
+140 MESH	77.7	78.4	78.8
+200 MESH	84.1	85.3	85.5
+325 MESH	90.8	92.5	92.5
-325 MESH(WEIGHT PERCENT)	9.2	7.5	7.5

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

C7 - GROUND COAL

PARTICLE SIZE DISTRIBUTION

SAMPLE NUMBER	C7-165	C7-166	C7-167	C7-168	C7-169	C7-170	C7-171
TIME	4:45	8:45	12:0	19:0	1:0	4:30	14:30
DATE	8/7/77	8/7/77	8/7/77	8/10/77	8/12/77	8/12/77	8/12/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+20 MESH	0.4	0.2	0.4	0.4	0.3	0.3	0.2
+30 MESH	5.9	6.1	6.9	6.1	6.3	5.4	5.0
+50 MESH	43.4	41.9	44.3	40.9	38.6	37.6	37.9
+60 MESH	49.9	48.4	51.1	47.3	44.6	43.4	43.4
+100 MESH	69.7	67.7	71.4	68.1	62.4	62.4	65.4
+140 MESH	78.3	75.9	80.1	77.1	70.5	70.5	74.4
+200 MESH	83.0	80.4	85.3	83.7	74.9	74.6	81.5
+325 MESH	91.0	88.8	92.7	91.2	83.7	83.9	89.4
-325 MESH(WEIGHT PERCENT)	9.0	11.1	7.3	8.8	16.3	16.1	10.6

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SAMPLE NUMBER	C7-172	C7-173	C7-174	C7-175	C7-176	C7-177	C7-178
TIME	18:30	0:1	0:1	5:0	14:0	1:0	5:0
DATE	8/12/77	8/13/77	8/14/77	8/14/77	8/14/77	8/15/77	8/15/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+20 MESH	0.1	0.2	0.2	0.4	0.3	0.3	0.3
+30 MESH	6.4	6.0	5.9	5.7	5.3	6.4	6.9
+50 MESH	41.8	44.4	37.8	39.3	39.5	44.4	45.1
+60 MESH	47.4	49.9	43.3	45.9	44.7	50.4	51.1
+100 MESH	67.6	72.3	61.9	67.4	66.8	72.4	71.7
+140 MESH	75.7	79.3	70.9	77.2	76.7	81.0	79.6
+200 MESH	82.5	86.2	78.2	84.7	85.1	87.7	86.1
+325 MESH	90.8	93.4	87.6	92.3	92.4	93.8	92.4
-325 MESH(WEIGHT PERCENT)	9.2	6.6	12.4	7.7	7.6	6.2	7.6

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7 - GROUND COAL

PARTICLE SIZE DISTRIBUTION

SAMPLE NUMBER	C7-179	C7-180	C7-181	C7-182	C7-183	C7-184
TIME	19: 0	1: 0	5: 0	10: 0	14: 0	3: 0
DATE	8/15/77	8/16/77	8/16/77	8/16/77	8/16/77	8/17/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0	0.0	0.0	0.0	0.0	0.0
+20 MESH	0.2	0.5	0.5	0.6	0.4	0.4
+30 MESH	6.0	4.8	5.8	7.4	7.7	7.2
+50 MESH	42.8	33.1	40.6	47.3	42.3	46.9
+60 MESH	48.8	38.2	47.5	54.1	48.3	52.5
+100 MESH	70.1	55.9	69.5	75.2	67.6	73.1
+140 MESH	78.8	64.5	79.0	83.1	76.3	81.6
+200 MESH	84.8	70.3	85.0	87.2	82.9	87.7
+325 MESH	93.5	81.9	92.9	93.3	90.2	94.6
-325 MESH(WEIGHT PERCENT)	6.5	18.1	7.1	6.7	9.8	5.4

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7A - GROUND COAL COMPOSITE

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7A- 28	C7A- 29	C7A- 30	C7A- 31
TIME	14:30	9: 0	9: 0	9: 0
DATE	2/11/77	2/20/77	2/26/77	2/27/77
PROXIMATE ANALYSIS				
MOISTURE	6.3	5.5	6.2	5.4
VOLATILE MATTER	34.5	34.6	33.4	35.2
FIXED CARBON	48.6	49.5	50.0	49.4
ASH	10.7	10.4	10.4	10.0
TOTAL	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS				
HYDROGEN	4.9	4.9	4.7	4.8
CARBON	62.8	63.9	62.0	62.9
NITROGEN	0.9	0.9	1.3	0.9
OXYGEN	19.8	19.1	20.7	20.5
SULFUR	0.8	0.8	0.8	0.8
ASH	10.7	10.4	10.4	10.0
TOTAL	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	10700.	10900.	10400.	10600.
F. S. I.	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7A - GROUND COAL COMPOSITE

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7A- 32	C7A- 33	C7A- 34	C7A- 35
TIME	10: 0	21: 0	19: 0	4: 0
DATE	3/ 1/77	3/ 2/77	3/16/77	3/17/77

PROXIMATE ANALYSIS

MOISTURE	4.2	4.8	5.1	5.2
VOLATILE MATTER	34.7	35.5	35.1	36.2
FIXED CARBON	50.2	49.6	48.7	48.5
ASH	10.9	10.1	11.1	10.1
TOTAL	100.0	100.0	100.0	100.0

AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	4.7	4.7	4.6	4.8
CARBON	63.4	63.4	61.6	62.5
NITROGEN	1.0	1.0	1.0	1.0
OXYGEN	19.2	20.0	20.9	20.7
SULFUR	0.8	0.8	0.8	0.9
ASH	10.9	10.1	11.1	10.1
TOTAL	100.0	100.0	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	10700.	10700.	10200.	10400.
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F. S. I.	0.0+	0.0+	0.0+	0.0+
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+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

C7A - GROUND COAL COMPOSITE

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER C7A- 36 C7A- 37

TIME 18:45 8: 0

DATE 4/12/77 4/29/77

PROXIMATE ANALYSIS

MOISTURE	5.5	5.9
VOLATILE MATTER	36.0	36.2
FIXED CARBON	48.3	48.3
ASH	10.2	9.6
TOTAL	100.0	100.0

AIR DRY MOISTURE 0.0+ 0.0+

ULTIMATE ANALYSIS

HYDROGEN	4.8	4.9
CARBON	61.4	61.7
NITROGEN	1.0	0.9
OXYGEN	21.8	22.2
SULFUR	0.8	0.7
ASH	10.2	9.6
TOTAL	100.0	100.0

HEAT OF COMBUSTION (BTU/LB) 10300. 10300.

F. S. I. 0.0+ 0.0+

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

C7A - GROUND COAL COMPOSITE

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7A- 38	C7A- 39	C7A- 40
TIME	10:30	16: 0	22:30
DATE	5/18/77	5/25/77	5/26/77

PROXIMATE ANALYSIS			

MOISTURE	4.0	5.5	4.4
VOLATILE MATTER	37.6	35.9	37.1
FIXED CARBON	48.1	48.6	47.8
ASH	10.3	10.0	10.7
TOTAL	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS			

HYDROGEN	4.9	4.9	5.0
CARBON	61.9	62.2	62.0
NITROGEN	0.9	0.9	1.0
OXYGEN	21.2	21.3	20.5
SULFUR	0.8	0.7	0.8
ASH	10.3	10.0	10.7
TOTAL	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	10600.	10500.	10400.
F. S. I.	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7A - GROUND COAL COMPOSITE

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER C7A- 41

TIME 11: 0

DATE 6/ 1/77

PROXIMATE ANALYSIS

MOISTURE	5.9
VOLATILE MATTER	35.3
FIXED CARBON	49.1
ASH	9.7

TOTAL 100.1

AIR DRY MOISTURE 0.0+

ULTIMATE ANALYSIS

HYDROGEN	4.9
CARBON	62.6
NITROGEN	0.9
OXYGEN	21.0
SULFUR	0.8
ASH	9.7

TOTAL 100.0

HEAT OF COMBUSTION (BTU/LB) 10600.

F. S. I. 0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

C7A - GROUND COAL COMPOSITE

CHEMICAL ANALYSIS

BASIS: WET WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	C7A- 42	C7A- 43	C7A- 44	C7A- 45	C7A- 46
TIME	12: 0	18:30	6: 0	5: 0	7: 0
DATE	8/ 7/77	8/12/77	8/15/77	8/16/77	8/17/77
PROXIMATE ANALYSIS					

MOISTURE	6.5	5.7	6.4	4.9	5.6
VOLATILE MATTER	33.7	34.9	36.2	35.0	36.2
FIXED CARBON	50.1	49.3	47.0	50.1	48.3
ASH	9.7	10.1	10.4	10.0	9.9
TOTAL	100.0	100.0	100.0	100.0	100.0

AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	5.1	4.9	5.0	4.8	4.8
CARBON	61.8	62.0	62.1	62.5	62.1
NITROGEN	0.9	0.9	0.9	0.9	1.0
OXYGEN	21.7	21.1	20.8	21.1	21.4
SULFUR	0.8	1.0	0.8	0.7	0.8
ASH	9.7	10.1	10.4	10.0	9.9
TOTAL	100.0	100.0	100.0	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	10500.	10400.	10500.	10600.	10600.
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F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+
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+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-A

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2- 76	G2- 77	G2- 78
TIME	3:22	5:10	6:58
DATE	2/24/77	2/24/77	2/24/77
PROXIMATE ANALYSIS			

VOLATILE MATTER	9.3	9.6	6.9
FIXED CARBON	68.9	67.3	78.1
ASH	21.8	23.0	15.0
TOTAL	100.0	100.0	100.0

AIR DRY MOISTURE	0.0+	0.0+	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	1.8	1.8	1.8
CARBON	70.7	69.7	78.2
NITROGEN	0.7	0.7	0.7
OXYGEN	4.9	4.4	4.0
SULFUR	0.2	0.4	0.3
ASH	21.8	23.0	15.0
TOTAL	100.0	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	10900.	10800.	12100.
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F. S. I.	0.0+	0.0+	0.0+
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+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-B

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2- 79	G2- 80	G2- 81	G2- 82	G2- 83	G2- 84	G2- 85
TIME	21:35	23:30	1:53	3:37	5:30	7:20	9:30
DATE	2/24/77	2/24/77	2/25/77	2/25/77	2/25/77	2/25/77	2/25/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	8.5	8.3	7.8	6.8	7.9	6.9	6.5
FIXED CARBON	65.6	60.3	66.3	66.7	64.4	64.5	64.2
ASH	25.9	31.4	25.9	26.4	27.6	28.6	29.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	1.3	0.7	1.2	0.9	1.1	1.0	1.0
CARBON	67.5	63.8	68.0	68.3	66.5	65.3	64.8
NITROGEN	0.5	0.4	0.4	0.4	0.5	0.5	0.4
OXYGEN	4.6	3.4	4.1	3.8	4.0	4.3	4.3
SULFUR	0.2	0.3	0.3	0.2	0.4	0.3	0.2
ASH	25.9	31.4	25.9	26.4	27.6	28.6	29.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	8820.	9220.	10200.	10000.	9860.	9620.	9740.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-B

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2- 86	G2- 87	G2- 88	G2- 89	G2- 90	G2- 91	G2- 92
TIME	11:30	13:30	20: 0	22: 0	0: 0	1: 0	3: 0
DATE	2/25/77	2/25/77	2/25/77	2/25/77	2/26/77	2/26/77	2/26/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	6.9	8.5	8.4	7.5	6.8	5.3	6.7
FIXED CARBON	61.9	53.1	62.9	62.6	60.6	62.5	65.3
ASH	31.2	38.4	28.7	29.9	32.6	32.2	28.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	1.1	0.7	1.0	0.8	0.9	0.7	1.3
CARBON	61.6	55.5	65.5	65.2	61.6	61.2	64.9
NITROGEN	0.4	0.3	0.2	0.4	0.4	0.5	0.4
OXYGEN	5.4	4.6	4.3	3.4	4.3	5.2	5.1
SULFUR	0.3	0.5	0.2	0.2	0.2	0.2	0.3
ASH	31.2	38.4	28.7	29.9	32.6	32.2	28.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	9300.	8130.	9810.	9400.	8970.	8860.	9630.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-B

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2- 93	G2- 94	G2- 95	G2- 96	G2- 97	G2- 98	G2- 99
TIME	5: 0	7: 0	9: 0	11: 0	13: 0	15: 0	16: 40
DATE	2/26/77	2/26/77	2/26/77	2/26/77	2/26/77	2/26/77	2/26/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	7. 0	11. 6	7. 5	9. 5	9. 6	6. 4	7. 8
FIXED CARBON	62. 0	58. 3	69. 5	62. 7	68. 0	70. 7	67. 9
ASH	30. 9	30. 1	23. 0	28. 0	22. 4	22. 9	24. 3
TOTAL	100. 0	100. 0	100. 0	100. 1	100. 0	100. 0	100. 0
AIR DRY MOISTURE	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
ULTIMATE ANALYSIS							
HYDROGEN	0. 7	1. 5	1. 2	1. 3	1. 6	1. 3	1. 0
CARBON	65. 4	61. 5	71. 3	65. 6	69. 9	69. 8	67. 4
NITROGEN	0. 8	0. 8	0. 4	0. 4	0. 6	0. 5	0. 4
OXYGEN	2. 0	5. 8	3. 9	4. 5	5. 2	5. 4	6. 7
SULFUR	0. 2	0. 3	0. 2	0. 2	0. 3	0. 2	0. 2
ASH	30. 9	30. 1	23. 0	28. 0	22. 4	22. 9	24. 3
TOTAL	100. 0	100. 0	100. 0	100. 0	100. 0	100. 0	100. 0
HEAT OF COMBUSTION (BTU/LB)	9600.	9350.	10700.	9830.	10600.	10500.	10000.
F. S. I.	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-B

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-100	G2-101
TIME	17:15	17:45
DATE	2/26/77	2/26/77

PROXIMATE ANALYSIS

VOLATILE MATTER	8.7	7.2
FIXED CARBON	67.3	75.6
ASH	24.0	17.2
TOTAL	100.0	100.0

AIR DRY MOISTURE	0.0+	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	1.2	1.5
CARBON	68.8	76.9
NITROGEN	0.4	0.5
OXYGEN	5.4	3.8
SULFUR	0.2	0.2
ASH	24.0	17.2
TOTAL	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	10400.	11400.
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F. S. I.	0.0+	0.0+
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-D

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-110	G2-111	G2-112	G2-113	G2-114	G2-115	G2-116
TIME	17:15	20:0	21:15	0:0	2:0	4:0	6:0
DATE	2/28/77	2/28/77	2/28/77	3/1/77	3/1/77	3/1/77	3/1/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	8.4	8.6	6.8	8.0	5.4	6.3	10.2
FIXED CARBON	52.8	53.1	67.9	62.1	63.1	62.3	63.3
ASH	38.8	38.3	25.3	29.9	31.5	31.4	26.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	1.0	1.0	1.1	0.9	1.0	1.0	1.5
CARBON	54.6	54.7	69.9	64.8	62.9	64.0	65.9
NITROGEN	0.4	0.3	0.5	0.3	0.3	0.3	0.5
OXYGEN	4.9	5.3	3.0	3.8	4.1	3.1	5.4
SULFUR	0.3	0.4	0.2	0.2	0.2	0.2	0.2
ASH	38.8	38.3	25.3	29.9	31.5	31.4	26.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	8010.	8020.	9120.	9600.	9420.	9480.	9850.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-D

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-117	G2-118	G2-119	G2-120	G2-121	G2-122	G2-123
TIME	9: 0	9:30	10:30	11: 0	11:15	14: 0	15:15
DATE	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	13.7	6.7	8.4	9.3	8.2	5.3	4.6
FIXED CARBON	56.6	65.5	58.9	63.8	61.6	68.4	69.5
ASH	29.7	27.8	32.5	26.9	30.2	26.2	24.2
TOTAL	100.0	100.0	99.8	100.1	100.0	99.9	98.3
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	1.7	1.0	1.0	1.1	0.8	0.5	0.5
CARBON	60.4	66.4	62.0	67.4	64.2	71.2	73.3
NITROGEN	0.4	0.4	0.5	0.4	0.4	0.5	0.4
OXYGEN	7.4	4.1	2.8	3.8	4.1	1.4	1.3
SULFUR	0.4	0.3	0.2	0.3	0.2	0.2	0.3
ASH	29.7	27.8	32.5	26.9	30.2	26.2	24.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	9310.	10000.	9000.	10000.	9570.	9060.	10400.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-D

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-124	G2-125	G2-126
TIME	16: 0	17: 0	8:30
DATE	3/ 1/77	3/ 1/77	3/ 2/77
PROXIMATE ANALYSIS			

VOLATILE MATTER	6.3	6.4	11.7
FIXED CARBON	64.6	69.6	58.6
ASH	29.2	23.9	29.7
TOTAL	100.0	100.0	100.0

AIR DRY MOISTURE	0.0+	0.0+	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	0.7	1.0	1.0
CARBON	65.9	71.2	65.0
NITROGEN	0.4	0.4	0.5
OXYGEN	3.7	3.3	3.6
SULFUR	0.2	0.2	0.2
ASH	29.2	23.9	29.7
TOTAL	100.0	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	9360.	10600.	9530.
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F. S. I.	0.0+	0.0+	0.0+
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+ = NO ANALYSIS DONE
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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-E

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-127	G2-128	G2-129	G2-130	G2-131
TIME	22:30	23:0	6:0	6:0	16:30
DATE	3/15/77	3/15/77	3/16/77	3/16/77	3/16/77
PROXIMATE ANALYSIS					

VOLATILE MATTER	8.8	9.6	8.8	10.7	7.3
FIXED CARBON	73.6	70.7	71.3	70.7	77.8
ASH	17.6	19.7	19.9	18.5	14.8
TOTAL	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS					

HYDROGEN	1.7	1.9	1.7	2.1	1.7
CARBON	75.9	72.9	73.1	73.4	79.2
NITROGEN	0.6	0.7	0.7	0.8	0.7
OXYGEN	4.0	4.5	4.4	4.9	3.2
SULFUR	0.2	0.3	0.2	0.3	0.3
ASH	17.6	19.7	19.9	18.5	14.8
TOTAL	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	11700.	11300.	11200.	10100.	12200.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-F

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-132	G2-133	G2-134	G2-135	G2-136	G2-137	G2-138
TIME	13:30	17:30	20:30	20:30	22:00	22:00	24:00
DATE	3/22/77	3/22/77	3/22/77	3/22/77	3/22/77	3/22/77	3/22/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	0.0+	8.1	6.8	6.3	14.3	5.9	6.4
FIXED CARBON	0.0+	61.3	62.2	69.7	66.4	65.2	63.0
ASH	0.0+	30.5	31.0	24.0	19.3	28.9	30.6
TOTAL	0.0	100.0	100.0	100.0	100.1	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.8	1.0	1.2	1.5	1.0	0.8
CARBON	0.0+	65.0	63.0	71.7	70.3	65.7	64.3
NITROGEN	0.0+	0.4	0.3	0.4	0.4	0.3	0.4
OXYGEN	0.0	3.0	4.4	2.5	8.3	3.8	3.6
SULFUR	0.0+	0.4	0.3	0.2	0.2	0.2	0.2
ASH	0.0+	30.5	31.0	24.0	19.3	28.9	30.6
TOTAL	0.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	0. +	9570.	9380.	10600.	10100.	9720.	9530.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-G

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-139	G2-140	G2-141
TIME	19: 0	21:15	22:30
DATE	3/31/77	3/31/77	3/31/77
PROXIMATE ANALYSIS			

VOLATILE MATTER	9.2	7.5	7.6
FIXED CARBON	69.5	63.8	67.6
ASH	21.3	28.7	24.9
TOTAL	100.0	100.0	100.0

AIR DRY MOISTURE	0.0+	0.0+	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	1.7	1.2	1.2
CARBON	71.0	65.4	69.1
NITROGEN	0.6	0.5	0.5
OXYGEN	5.0	4.0	4.1
SULFUR	0.3	0.3	0.1
ASH	21.3	28.7	24.9
TOTAL	100.0	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	11000.	9830.	10400.
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F. S. I.	0.0+	0.0+	0.0+
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+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-H

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-142	G2-143	G2-144	G2-145	G2-146	G2-147	G2-148
TIME	6:30	7: 0	11: 0	14: 0	15: 0	18: 0	19: 0
DATE	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	7.8	7.1	7.3	5.0	7.2	7.5	7.3
FIXED CARBON	69.7	68.5	63.1	66.9	63.8	64.1	63.8
ASH	22.5	24.4	29.6	28.0	29.0	28.4	28.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	1.1	1.4	1.0	1.0	1.0	1.0	1.0
CARBON	70.7	70.0	66.6	66.6	66.0	67.7	65.9
NITROGEN	0.5	0.5	0.5	0.4	0.4	0.5	0.5
OXYGEN	5.0	3.4	2.0	3.6	3.1	1.9	3.4
SULFUR	0.2	0.3	0.4	0.3	0.4	0.5	0.3
ASH	22.5	24.4	29.6	28.0	29.0	28.4	28.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	9580.	10600.	8680.	10000.	9890.	10100.	9900.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-H

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-149	G2-150	G2-151	G2-152	G2-153	G2-154
TIME	22: 0	23:15	3: 0	6: 0	7: 0	11: 0
DATE	4/ 1/77	4/ 1/77	4/ 2/77	4/ 2/77	4/ 2/77	4/ 2/77
PROXIMATE ANALYSIS						
VOLATILE MATTER	5.8	7.7	7.2	7.0	5.6	7.4
FIXED CARBON	64.0	57.2	60.6	64.4	66.2	57.0
ASH	30.2	35.1	32.2	28.6	28.2	35.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS						
HYDROGEN	0.9	0.8	1.0	1.2	0.5	0.7
CARBON	64.0	59.1	62.6	65.4	70.6	59.3
NITROGEN	0.4	0.4	0.4	0.4	0.4	0.4
OXYGEN	4.3	4.2	3.6	4.2	0.1	3.5
SULFUR	0.2	0.3	0.2	0.2	0.2	0.4
ASH	30.2	35.1	32.2	28.6	28.2	35.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	9570.	8720.	9400.	9780.	10000.	8700.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-I

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-155	G2-156	G2-157	G2-158	G2-159	G2-160	G2-161
TIME	14: 0	15: 0	19: 0	22:15	23: 0	3: 0	6: 0
DATE	4/ 2/77	4/ 2/77	4/ 2/77	4/ 2/77	4/ 2/77	4/ 3/77	4/ 3/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	6.6	7.1	6.8	7.3	6.4	6.2	7.0
FIXED CARBON	62.3	59.1	62.0	63.0	67.5	67.5	68.8
ASH	31.1	33.7	31.3	29.7	26.1	26.3	24.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	0.8	0.5	0.9	0.9	1.2	1.1	1.3
CARBON	63.8	62.8	64.1	64.8	68.3	68.0	70.8
NITROGEN	0.4	0.4	0.3	0.4	0.4	0.5	0.6
OXYGEN	3.7	2.2	3.1	3.7	3.9	3.7	2.8
SULFUR	0.3	0.4	0.3	0.4	0.2	0.3	0.3
ASH	31.1	33.7	31.3	29.7	26.1	26.3	24.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	9410.	9120.	9520.	9710.	10300.	10200.	10700.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-I

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-162	G2-163
TIME	7: 0	11: 0
DATE	4/ 3/77	4/ 3/77
PROXIMATE ANALYSIS		

VOLATILE MATTER	6.4	10.1
FIXED CARBON	76.0	71.7
ASH	17.6	18.2
TOTAL	100.0	100.0

AIR DRY MOISTURE	0.0+	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	1.6	2.0
CARBON	75.7	73.6
NITROGEN	0.6	0.7
OXYGEN	4.2	5.1
SULFUR	0.3	0.4
ASH	17.6	18.2
TOTAL	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	11700.	11400.
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F. S. I.	0.0+	0.0+
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+ = NO ANALYSIS DONE
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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-J

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-164	G2-165	G2-166	G2-167	G2-168	G2-169	G2-170
TIME	21: 0	22: 0	1: 0	8:30	10: 0	14: 0	17: 0
DATE	4/ 3/77	4/ 3/77	4/ 4/77	4/ 4/77	4/ 4/77	4/ 4/77	4/ 4/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	10.5	7.6	7.5	9.0	6.8	10.8	12.2
FIXED CARBON	68.3	68.7	74.0	71.8	64.4	71.6	66.3
ASH	21.2	23.6	18.6	19.2	28.8	17.6	21.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	1.9	1.3	1.7	1.7	1.1	2.0	1.6
CARBON	70.7	70.2	74.9	73.0	65.6	73.6	69.2
NITROGEN	0.6	0.6	0.6	0.6	0.3	0.7	0.7
OXYGEN	5.2	4.0	3.9	5.1	4.0	5.7	6.6
SULFUR	0.4	0.3	0.3	0.3	0.2	0.4	0.3
ASH	21.2	23.6	18.6	19.2	28.8	17.6	21.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	10900.	10700.	11600.	11300.	9830.	11500.	9610.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-J

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-171	G2-172
TIME	21: 0	22: 0
DATE	4/ 4/77	4/ 4/77
PROXIMATE ANALYSIS		

VOLATILE MATTER	10.7	10.9
FIXED CARBON	71.2	69.2
ASH	18.2	19.9
TOTAL	100.0	100.0

AIR DRY MOISTURE	0.0+	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	2.0	2.0
CARBON	73.7	71.7
NITROGEN	0.7	0.7
OXYGEN	5.1	5.4
SULFUR	0.3	0.3
ASH	18.2	19.9
TOTAL	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	10400.	11200.
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F. S. I.	0.0+	0.0+
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-K

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-173	G2-174	G2-175
TIME	6:45	6:45	16:0
DATE	4/16/77	4/16/77	4/16/77
PROXIMATE ANALYSIS			

VOLATILE MATTER	9.5	6.8	8.3
FIXED CARBON	68.7	68.1	58.3
ASH	21.7	25.1	33.4
TOTAL	100.0	100.0	100.0

AIR DRY MOISTURE	0.0+	0.0+	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	1.7	1.3	1.2
CARBON	70.9	68.1	60.1
NITROGEN	0.6	0.4	0.3
OXYGEN	4.7	4.8	4.8
SULFUR	0.4	0.3	0.2
ASH	21.7	25.1	33.4
TOTAL	100.0	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	10800.	10200.	8940.
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F. S. I.	0.0+	0.0+	0.0+
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+ = NO ANALYSIS DONE
* = TRACE
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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-L

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-176	G2-177	G2-178
TIME	8:30	9: 0	11: 0
DATE	4/28/77	4/28/77	4/28/77
PROXIMATE ANALYSIS			

VOLATILE MATTER	9.5	10.3	9.8
FIXED CARBON	60.4	67.6	67.3
ASH	30.1	22.1	22.8
TOTAL	100.0	100.0	99.9

AIR DRY MOISTURE	0.0+	0.0+	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	1.4	3.1	1.7
CARBON	62.7	70.1	70.7
NITROGEN	0.4	0.5	0.6
OXYGEN	4.8	3.9	4.0
SULFUR	0.4	0.3	0.3
ASH	30.1	22.1	22.8
TOTAL	100.0	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	9550.	10700.	10800.
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F. S. I.	0.0+	0.0+	0.0+
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+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-M

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-179	G2-180	G2-181	G2-182	G2-183	G2-184	G2-185
TIME	7: 0	8:15	10: 0	10: 0	14:30	18:30	13:30
DATE	5/17/77	5/17/77	5/17/77	5/17/77	5/17/77	5/17/77	5/18/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	8.2	8.1	9.3	8.5	7.8	8.6	9.4
FIXED CARBON	71.3	72.1	69.0	64.7	72.4	69.9	69.9
ASH	20.4	19.8	21.8	26.7	19.9	21.5	20.7
TOTAL	99.9	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	1.8	1.9	1.8	1.6	1.8	1.7	1.8
CARBON	72.7	72.6	70.9	67.0	73.4	71.6	71.2
NITROGEN	0.5	0.6	0.6	0.5	0.6	0.4	0.6
OXYGEN	4.4	4.7	4.5	3.8	4.0	4.5	5.3
SULFUR	0.2	0.3	0.4	0.4	0.3	0.3	0.4
ASH	20.4	19.8	21.8	26.7	19.9	21.5	20.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	11300.	11300.	11100.	10300.	11400.	11100.	11100.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-N

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-186	G2-187	G2-188	G2-189	G2-190	G2-191	G2-192
TIME	22:30	22:30	6:50	7:0	9:0	22:30	21:30
DATE	5/21/77	5/21/77	5/22/77	5/23/77	5/23/77	5/23/77	5/24/77
PROXIMATE ANALYSIS							

VOLATILE MATTER	9.7	11.4	9.5	12.9	18.2	14.7	11.6
FIXED CARBON	68.7	69.3	68.6	68.9	59.8	67.2	67.8
ASH	21.6	19.3	21.9	18.2	22.0	18.1	20.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							

HYDROGEN	2.0	2.1	2.0	2.4	2.8	2.6	2.1
CARBON	70.8	72.6	71.7	72.4	65.8	71.6	71.0
NITROGEN	0.7	0.7	0.7	0.8	0.8	0.8	0.7
OXYGEN	4.5	4.9	3.5	5.8	7.8	6.6	5.1
SULFUR	0.4	0.3	0.3	0.4	0.8	0.4	0.4
ASH	21.6	19.3	21.9	18.2	22.0	18.1	20.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	11100.	9610.	11300.	11500.	9880.	11400.	11200.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-N

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-193	G2-194	G2-195	G2-196	G2-197	G2-198	G2-199
TIME	4: 0	7:10	11:40	15: 0	19:45	22: 0	5: 0
DATE	5/25/77	5/25/77	5/25/77	5/25/77	5/25/77	5/25/77	5/26/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	10.1	8.9	13.2	9.4	14.6	9.5	10.5
FIXED CARBON	67.5	68.7	57.8	71.4	44.5	68.3	67.4
ASH	22.4	22.4	29.0	19.1	41.0	22.2	22.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	1.9	1.8	1.8	2.0	1.6	1.8	2.0
CARBON	69.5	71.1	62.1	73.2	50.8	70.2	69.7
NITROGEN	0.7	0.7	0.6	0.7	0.5	0.6	0.7
OXYGEN	5.2	3.8	5.5	4.4	5.5	5.0	5.2
SULFUR	0.3	0.2	0.9	0.5	0.7	0.2	0.3
ASH	22.4	22.4	29.0	19.1	41.0	22.2	22.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	10900.	11100.	9720.	11400.	7940.	10900.	10900.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-N

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-200	G2-201	G2-202	G2-203
TIME	7: 0	6:30	7: 0	14:30
DATE	5/26/77	5/27/77	5/27/77	5/27/77
PROXIMATE ANALYSIS				

VOLATILE MATTER	10.4	12.2	10.2	11.2
FIXED CARBON	69.8	59.3	70.7	70.4
ASH	19.9	28.4	19.1	18.4
TOTAL	100.0	100.0	100.0	100.0

AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	2.0	1.9	2.1	2.2
CARBON	72.1	63.3	72.9	72.1
NITROGEN	0.8	0.6	0.7	0.7
OXYGEN	4.8	5.2	4.8	6.2
SULFUR	0.3	0.5	0.3	0.3
ASH	19.9	28.4	19.1	18.4
TOTAL	100.0	100.0	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	11500.	9950.	11500.	11400.
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F. S. I.	0.0+	0.0+	0.0+	0.0+
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+ = NO ANALYSIS DONE
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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-204	G2-205	G2-206	G2-207	G2-208	G2-209	G2-210
TIME	22:20	7:30	14:30	14:45	20:0	20:0	22:0
DATE	8/7/77	8/10/77	8/10/77	8/10/77	8/10/77	8/10/77	8/10/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	9.4	13.8	10.0	11.1	0.0+	8.4	0.0+
FIXED CARBON	70.5	69.9	58.1	68.8	0.0+	68.8	0.0+
ASH	20.1	16.2	32.0	20.1	19.9	22.7	24.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	2.0	2.4	1.5	2.0	0.0+	1.5	0.0+
CARBON	72.0	72.9	61.9	71.4	0.0+	70.4	0.0+
NITROGEN	0.6	0.9	0.5	0.7	0.0+	0.5	0.0+
OXYGEN	4.9	6.8	3.4	5.4	0.0	4.5	0.0
SULFUR	0.3	0.7	0.8	0.4	0.0+	0.4	0.0+
ASH	20.1	16.2	32.0	20.1	19.9	22.7	24.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	11300.	11500.	9520.	11300.	0. +	10900.	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-211	G2-212	G2-213	G2-214	G2-215	G2-216	G2-217
TIME	24: 0	2: 0	4: 0	6: 0	8: 0	12: 0	15: 0
DATE	8/10/77	8/11/77	8/11/77	8/11/77	8/11/77	8/11/77	8/11/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	12.8	0.0+	8.0	9.1	8.7	10.1	8.0
FIXED CARBON	59.2	0.0+	66.9	66.5	68.8	72.2	66.1
ASH	28.0	24.4	25.1	24.4	22.5	17.6	25.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	1.1	0.0+	1.3	1.4	1.5	1.8	1.3
CARBON	65.5	0.0+	68.3	68.7	72.0	74.8	67.4
NITROGEN	0.4	0.0+	0.5	0.4	0.5	0.6	0.4
OXYGEN	4.7	0.0	4.6	4.8	3.3	4.8	4.7
SULFUR	0.3	0.0+	0.2	0.2	0.2	0.3	0.2
ASH	28.0	24.4	25.1	24.4	22.5	17.6	25.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	9910.	0. +	10400.	10400.	11000.	11800.	10300.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-218	G2-219	G2-220	G2-221	G2-222	G2-223	G2-224
TIME	17:45	19:30	21: 0	23:20	1:15	2:45	5: 0
DATE	8/11/77	8/11/77	8/11/77	8/11/77	8/12/77	8/12/77	8/12/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	0.0+	0.0+	0.0+	7.4	10.3	9.6	6.8
FIXED CARBON	0.0+	0.0+	0.0+	60.4	62.6	51.1	52.5
ASH	31.0	25.9	27.4	32.3	27.1	39.3	40.7
TOTAL	100.0	100.0	100.0	100.1	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.0+	0.0+	1.3	1.4	0.8	0.9
CARBON	0.0+	0.0+	0.0+	61.9	65.4	53.4	53.2
NITROGEN	0.0+	0.0+	0.0+	0.3	0.4	0.2	0.2
OXYGEN	0.0	0.0	0.0	3.9	5.4	6.0	4.8
SULFUR	0.0+	0.0+	0.0+	0.2	0.2	0.2	0.1
ASH	31.0	25.9	27.4	32.3	27.1	39.3	40.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	9350.	10000.	7890.	7860.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-225	G2-226	G2-227	G2-228	G2-229	G2-230	G2-231
TIME	7: 0	11:30	14:20	18:30	22:30	1: 0	2:30
DATE	8/12/77	8/12/77	8/12/77	8/12/77	8/12/77	8/13/77	8/13/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	0.0+	5.7	9.0	6.7	9.4	7.9	9.3
FIXED CARBON	0.0+	47.8	53.1	53.2	57.9	56.2	59.5
ASH	42.1	46.5	37.9	40.1	32.7	36.0	31.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	0.0+	0.9	1.2	1.0	1.3	1.0	1.4
CARBON	0.0+	47.9	55.0	54.0	57.6	57.6	60.2
NITROGEN	0.0+	0.3	0.2	0.3	0.3	0.3	0.4
OXYGEN	0.0	4.2	5.5	4.5	8.0	4.7	6.4
SULFUR	0.0+	0.2	0.2	0.2	0.2	0.3	0.4
ASH	42.1	46.5	37.9	40.1	32.7	36.0	31.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	0. +	7070.	8240.	8000.	8890.	8530.	9130.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-232	G2-233	G2-234	G2-235	G2-236	G2-237	G2-238
TIME	6:30	9:20	10:40	13:0	14:45	17:30	18:30
DATE	8/13/77	8/13/77	8/13/77	8/13/77	8/13/77	8/13/77	8/13/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	7.6	9.4	12.5	9.6	8.2	10.5	8.6
FIXED CARBON	58.6	58.4	55.2	59.5	60.9	58.5	59.6
ASH	33.8	32.2	32.3	30.8	31.0	31.0	31.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	1.2	1.0	0.9	1.3	0.9	1.2	1.0
CARBON	59.8	61.2	61.0	62.4	62.7	61.2	61.1
NITROGEN	0.3	0.3	0.2	0.3	0.3	0.3	0.3
OXYGEN	4.7	5.0	5.1	4.9	4.9	5.9	5.5
SULFUR	0.2	0.3	0.4	0.3	0.2	0.3	0.2
ASH	33.8	32.2	32.3	30.8	31.0	31.0	31.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	8910.	9110.	9020.	9310.	9240.	9230.	9120.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-239	G2-240	G2-241	G2-242	G2-243	G2-244	G2-245
TIME	0:15	2: 0	7: 0	11:20	13:20	15:20	15:30
DATE	8/14/77	8/14/77	8/15/77	8/15/77	8/15/77	8/15/77	8/15/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	8.6	8.8	0.0+	10.4	8.8	6.5	0.0+
FIXED CARBON	58.5	59.1	0.0+	58.4	60.3	64.0	0.0+
ASH	32.9	32.0	19.7	31.1	30.8	29.5	31.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	1.2	1.0	0.0+	1.1	0.9	1.0	0.0+
CARBON	60.1	61.9	0.0+	61.8	62.8	63.9	0.0+
NITROGEN	0.3	0.3	0.0+	0.3	0.2	0.3	0.0+
OXYGEN	5.3	4.5	0.0	5.4	5.0	5.1	0.0
SULFUR	0.2	0.2	0.0+	0.3	0.2	0.2	0.0+
ASH	32.9	32.0	19.7	31.1	30.8	29.5	31.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	8980.	9210.	0. +	9250.	9360.	9520.	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-246	G2-247	G2-248	G2-249	G2-250	G2-251	G2-252
TIME	17:30	21: 0	23:30	1: 0	3:30	3:30	5:30
DATE	8/15/77	8/15/77	8/15/77	8/16/77	8/16/77	8/16/77	8/16/77
PROXIMATE ANALYSIS							

VOLATILE MATTER	0.0+	0.0+	7.9	9.7	8.9	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	49.3	49.7	50.6	0.0+	0.0+
ASH	30.5	36.5	42.8	40.6	40.5	39.7	38.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							

HYDROGEN	0.0+	0.0+	0.9	1.0	1.0	0.0+	0.0+
CARBON	0.0+	0.0+	50.9	52.5	53.2	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.2	0.4	0.2	0.0+	0.0+
OXYGEN	0.0	0.0	5.0	5.3	4.9	0.0	0.0
SULFUR	0.0+	0.0+	0.2	0.2	0.2	0.0+	0.0+
ASH	30.5	36.5	42.8	40.6	40.5	39.7	38.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	7480.	7830.	7870.	0. +	0. +
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-253	G2-254	G2-255	G2-256	G2-257	G2-258	G2-259
TIME	7:30	9:30	11:30	11:30	13:30	14: 0	17: 0
DATE	8/16/77	8/16/77	8/16/77	8/16/77	8/16/77	8/16/77	8/16/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	6.5	7.7	9.3	0.0+	0.0+	0.0+	8.5
FIXED CARBON	53.7	51.4	54.9	0.0+	0.0+	0.0+	57.6
ASH	39.7	40.9	35.8	36.8	32.7	32.4	33.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AIR DRY MOISTURE	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ULTIMATE ANALYSIS							
HYDROGEN	1.0	0.5	1.0	0.0+	0.0+	0.0+	1.0
CARBON	53.9	55.0	57.4	0.0+	0.0+	0.0+	59.8
NITROGEN	0.2	0.3	0.2	0.0+	0.0+	0.0+	0.2
OXYGEN	5.2	3.0	5.4	0.0	0.0	0.0	4.9
SULFUR	0.1	0.2	0.2	0.0+	0.0+	0.0+	0.2
ASH	39.7	40.9	35.8	36.8	32.7	32.4	33.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HEAT OF COMBUSTION (BTU/LB)	8010.	7920.	8480.	0. +	0. +	0. +	8800.
F. S. I.	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

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G2 - CHAR CAKE SAMPLES

CHEMICAL ANALYSIS

RUN 1-DB-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	G2-260	G2-261	G2-262
TIME	19: 0	23: 0	23: 0
DATE	8/16/77	8/16/77	8/16/77
PROXIMATE ANALYSIS			

VOLATILE MATTER	8.2	0.0+	7.6
FIXED CARBON	53.3	0.0+	49.1
ASH	38.5	41.1	43.2
TOTAL	100.0	100.0	100.0

AIR DRY MOISTURE	0.0+	0.0+	0.0+
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ULTIMATE ANALYSIS

HYDROGEN	0.9	0.0+	0.9
CARBON	55.4	0.0+	50.4
NITROGEN	0.2	0.0+	0.2
OXYGEN	4.8	0.0	5.0
SULFUR	0.1	0.0+	0.2
ASH	38.5	41.1	43.2
TOTAL	100.0	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	8150.	0. +	7500.
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F. S. I.	0.0+	0.0+	0.0+
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+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-A

SAMPLE NUMBER	G2- 76	G2- 77	G2- 78
TIME	3:22	5:10	6:58
DATE	2/24/77	2/24/77	2/24/77

U. S. SIEVE SIZE	CUMMULATIVE WEIGHT PERCENT		
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+8 MESH	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+
+50 MESH	27.1	0.0+	39.4
+60 MESH	37.3	0.0+	50.0
+100 MESH	80.2	0.0+	75.8
+140 MESH	89.4	0.0+	85.9
+200 MESH	94.2	0.0+	90.5
+325 MESH	98.0	0.0+	95.8
-325 MESH(WEIGHT PERCENT)	2.0	0.0+	4.2

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-B

SAMPLE NUMBER	G2- 79	G2- 80	G2- 81	G2- 82	G2- 83	G2- 84	G2- 85
TIME	21:35	23:30	1:53	3:37	5:30	7:20	9:30
DATE	2/24/77	2/24/77	2/25/77	2/25/77	2/25/77	2/25/77	2/25/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	22.1	33.5	26.8	28.4	32.4	24.7	22.6
+60 MESH	31.6	43.7	40.2	39.5	43.8	33.7	32.4
+100 MESH	64.1	84.2	80.6	77.6	79.4	77.0	68.5
+140 MESH	81.6	92.7	90.5	88.3	89.6	87.0	81.6
+200 MESH	85.6	95.0	95.1	93.2	92.3	91.7	85.5
+325 MESH	94.9	98.4	98.5	97.5	96.4	95.5	91.9
-325 MESH(WEIGHT PERCENT)	5.1	1.9	1.5	2.5	3.6	4.5	8.1

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

SAMPLE NUMBER	G2- 86	G2- 87	G2- 88	G2- 89	G2- 90	G2- 91	G2- 92
TIME	11:30	13:30	20:0	22:0	0:0	1:0	3:0
DATE	2/25/77	2/25/77	2/25/77	2/25/77	2/26/77	2/26/77	2/26/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	19.2	22.6	35.1	47.3	42.4	39.2	0.0+
+60 MESH	28.0	33.1	45.7	55.5	52.2	49.9	0.0+
+100 MESH	69.8	70.1	79.2	85.9	82.8	82.1	0.0+
+140 MESH	84.1	86.9	89.4	90.9	91.0	92.0	0.0+
+200 MESH	91.4	90.4	92.3	93.4	95.9	96.3	0.0+
+325 MESH	97.1	96.2	95.3	96.7	98.9	98.9	0.0+
-325 MESH(WEIGHT PERCENT)	2.9	3.8	4.7	3.3	1.1	1.2	0.0+

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-B

SAMPLE NUMBER	G2- 93	G2- 94	G2- 95	G2- 96	G2- 97	G2- 98	G2- 99
TIME	5: 0	7: 0	9: 0	11: 0	13: 0	15: 0	16:40
DATE	2/26/77	2/26/77	2/26/77	2/26/77	2/26/77	2/26/77	2/26/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

U. S. SIEVE SIZE	G2- 93	G2- 94	G2- 95	G2- 96	G2- 97	G2- 98	G2- 99
+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	29.3	20.2	35.8	45.9	33.7	48.6	48.6
+60 MESH	42.6	28.2	45.7	58.8	42.3	57.8	57.5
+100 MESH	79.2	58.6	76.8	86.4	73.5	84.8	81.4
+140 MESH	90.3	70.7	87.3	92.7	79.8	91.3	86.9
+200 MESH	95.9	74.6	93.6	95.5	85.4	94.6	89.9
+325 MESH	99.3	84.2	98.3	98.5	87.5	98.0	95.2
-325 MESH(WEIGHT PERCENT)	0.7	15.8	1.8	1.5	12.5	2.0	4.8

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

SAMPLE NUMBER	G2-100	G2-101
TIME	17:15	17:45
DATE	2/26/77	2/26/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

U. S. SIEVE SIZE	G2-100	G2-101
+8 MESH	0.0+	0.0+
+20 MESH	0.0+	0.0+
+30 MESH	0.0+	0.0+
+50 MESH	41.0	53.9
+60 MESH	50.7	62.7
+100 MESH	69.7	78.9
+140 MESH	75.3	82.0
+200 MESH	77.6	84.2
+325 MESH	83.6	88.2
-325 MESH(WEIGHT PERCENT)	16.4	11.8

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-C

SAMPLE NUMBER	G2-102	G2-103	G2-104	G2-105	G2-106	G2-107	G2-108
TIME	18:30	21: 0	23: 0	4: 0	6: 0	8:45	10:15
DATE	2/27/77	2/27/77	2/27/77	2/28/77	2/28/77	2/28/77	2/28/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

U. S. SIEVE SIZE	G2-102	G2-103	G2-104	G2-105	G2-106	G2-107	G2-108
+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	39.6	55.0	41.2	25.9	30.6	36.7	38.7
+60 MESH	46.5	65.2	50.5	38.8	40.1	46.2	48.5
+100 MESH	71.0	89.4	77.0	75.4	69.5	75.4	80.8
+140 MESH	81.6	95.4	85.1	86.1	79.2	83.6	88.7
+200 MESH	87.6	97.5	86.8	91.3	83.0	87.3	92.0
+325 MESH	95.1	99.1	90.6	97.1	90.9	92.4	95.9
-325 MESH(WEIGHT PERCENT)	4.9	0.9	9.4	2.9	9.1	7.6	4.1

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SAMPLE NUMBER

G2-109

TIME

11:30

DATE

2/28/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

U. S. SIEVE SIZE	G2-109
+8 MESH	0.0+
+20 MESH	0.0+
+30 MESH	0.0+
+50 MESH	39.2
+60 MESH	48.2
+100 MESH	81.6
+140 MESH	89.8
+200 MESH	92.8
+325 MESH	95.8
-325 MESH(WEIGHT PERCENT)	4.2

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-D

SAMPLE NUMBER	G2-110	G2-111	G2-112	G2-113	G2-114	G2-115	G2-116
TIME	17:15	20:0	21:15	0:0	2:0	4:0	6:0
DATE	2/28/77	2/28/77	2/28/77	3/1/77	3/1/77	3/1/77	3/1/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	48.5	38.9	34.4	44.5	0.0+	25.3	33.2
+60 MESH	58.9	47.6	45.5	52.3	0.0+	35.4	42.6
+100 MESH	82.7	81.9	82.7	84.4	0.0+	67.8	76.8
+140 MESH	89.2	88.6	91.6	91.7	0.0+	81.5	86.9
+200 MESH	89.2	92.2	94.9	94.7	0.0+	89.2	91.2
+325 MESH	89.6	95.7	97.4	97.2	0.0+	97.0	94.8
-325 MESH(WEIGHT PERCENT)	10.4	4.3	2.6	2.8	0.0+	3.0	5.2

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SAMPLE NUMBER	G2-117	G2-118	G2-119	G2-120	G2-121	G2-122	G2-123
TIME	9:0	9:30	10:30	11:0	11:15	14:0	15:15
DATE	3/1/77	3/1/77	3/1/77	3/1/77	3/1/77	3/1/77	3/1/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	35.6	37.9	40.2	42.0	36.1	44.5	42.0
+60 MESH	46.7	48.1	51.1	54.2	47.6	55.1	53.7
+100 MESH	78.4	79.9	79.6	85.5	77.8	89.9	88.9
+140 MESH	87.5	90.2	88.2	94.5	87.3	98.3	97.0
+200 MESH	90.2	92.9	91.8	96.7	91.3	99.2	98.0
+325 MESH	94.0	95.4	95.7	98.2	95.9	99.7	99.3
-325 MESH(WEIGHT PERCENT)	6.0	4.6	4.3	1.8	4.1	0.3	0.7

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-0

SAMPLE NUMBER	G2-124	G2-125	G2-126
TIME	16: 0	17: 0	8:30
DATE	3/ 1/77	3/ 1/77	3/ 2/77

U. S. SIEVE SIZE	CUMMULATIVE WEIGHT PERCENT		

+8 MESH	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+
+50 MESH	42.2	44.3	31.4
+60 MESH	53.1	57.1	39.4
+100 MESH	82.3	89.4	75.7
+140 MESH	91.5	97.3	86.0
+200 MESH	92.6	97.3	89.8
+325 MESH	93.2	97.3	94.9
-325 MESH(WEIGHT PERCENT)	6.8	2.7	5.1

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-E

SAMPLE NUMBER	G2-127	G2-128	G2-129	G2-130	G2-131
TIME	22:30	23:00	6:00	6:00	16:30
DATE	3/15/77	3/15/77	3/16/77	3/16/77	3/16/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	44.2	41.5	12.5	46.9	15.5
+60 MESH	52.9	48.7	15.4	56.2	20.6
+100 MESH	79.4	73.7	25.5	79.4	46.8
+140 MESH	90.1	83.1	90.4	87.6	64.3
+200 MESH	90.5	89.8	92.7	90.7	78.8
+325 MESH	97.7	95.3	96.1	96.3	92.0
-325 MESH(WEIGHT PERCENT)	2.3	4.7	3.9	3.7	8.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-F

SAMPLE NUMBER	G2-132	G2-133	G2-134	G2-135	G2-136	G2-137	G2-138
TIME	13:30	17:30	20:30	20:30	22:0	22:0	24:0
DATE	3/22/77	3/22/77	3/22/77	3/22/77	3/22/77	3/22/77	3/22/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	54.2	37.8	37.4	45.9	33.5	32.6	33.8
+60 MESH	61.9	47.4	45.9	55.7	42.4	41.6	42.8
+100 MESH	88.0	81.0	77.7	87.3	70.6	71.9	73.7
+140 MESH	95.3	92.3	88.9	95.0	85.2	84.6	85.9
+200 MESH	98.0	96.3	93.5	96.9	92.2	88.3	91.7
+325 MESH	99.4	98.4	96.4	98.3	97.5	93.4	96.9
-325 MESH(WEIGHT PERCENT)	0.6	1.6	3.6	1.7	2.5	6.6	3.1

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-G

SAMPLE NUMBER	G2-139	G2-140	G2-141
TIME	19: 0	22:15	22:30
DATE	3/31/77	3/31/77	3/31/77

U. S. SIEVE SIZE	CUMMULATIVE WEIGHT PERCENT		
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+8 MESH	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+
+50 MESH	40.6	31.0	35.7
+60 MESH	48.0	38.5	44.9
+100 MESH	77.0	66.6	75.4
+140 MESH	88.1	78.7	87.3
+200 MESH	93.4	84.8	91.7
+325 MESH	96.9	91.6	95.3
-325 MESH(WEIGHT PERCENT)	3.1	8.4	4.7

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-H

SAMPLE NUMBER	G2-142	G2-143	G2-144	G2-145	G2-146	G2-147	G2-148
TIME	6:30	7:0	11:0	14:0	15:0	18:0	19:0
DATE	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77
U. S. SIEVE SIZE	CUMMULATIVE WEIGHT PERCENT						
+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	36.2	33.6	39.5	30.2	50.1	35.2	43.6
+60 MESH	45.4	43.2	50.9	39.2	58.8	45.5	52.3
+100 MESH	74.6	73.7	82.4	71.2	88.0	77.1	84.2
+140 MESH	84.8	85.8	92.3	83.6	95.0	88.4	93.7
+200 MESH	88.3	90.9	95.0	85.5	97.1	92.2	96.6
+325 MESH	93.6	97.2	97.6	92.0	99.0	95.7	98.6
-325 MESH(WEIGHT PERCENT)	6.4	2.8	2.4	8.0	1.0	4.3	1.4

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

SAMPLE NUMBER	G2-149	G2-150	G2-151	G2-152	G2-153	G2-154
TIME	22:0	23:15	3:0	6:0	7:0	11:0
DATE	4/ 1/77	4/ 1/77	4/ 2/77	4/ 2/77	4/ 2/77	4/ 2/77
U. S. SIEVE SIZE	CUMMULATIVE WEIGHT PERCENT					
+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	42.6	29.2	36.6	39.5	43.1	33.4
+60 MESH	50.9	37.9	45.2	48.6	51.0	41.4
+100 MESH	82.4	68.5	76.0	77.8	81.8	82.2
+140 MESH	91.6	80.9	86.6	86.7	89.2	91.1
+200 MESH	94.3	85.3	93.0	90.4	91.9	94.9
+325 MESH	96.9	90.9	97.8	95.5	94.9	97.9
-325 MESH(WEIGHT PERCENT)	3.1	9.1	2.2	4.5	5.1	2.1

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-I

SAMPLE NUMBER	G2-155	G2-156	G2-157	G2-158	G2-159	G2-160	G2-161
TIME	14: 0	15: 0	19: 0	22: 15	23: 0	3: 0	6: 0
DATE	4/ 2/77	4/ 2/77	4/ 2/77	4/ 2/77	4/ 2/77	4/ 3/77	4/ 3/77

U. S. SIEVE SIZE

CUMULATIVE WEIGHT PERCENT

U. S. SIEVE SIZE	G2-155	G2-156	G2-157	G2-158	G2-159	G2-160	G2-161
+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	40.0	38.9	36.9	36.0	43.6	40.9	40.7
+60 MESH	50.0	49.1	45.3	45.1	53.6	50.6	49.6
+100 MESH	84.9	80.0	75.1	77.3	82.3	80.8	78.3
+140 MESH	94.3	90.8	85.4	88.1	90.3	91.1	89.0
+200 MESH	96.1	95.6	89.3	92.2	93.7	92.3	93.3
+325 MESH	96.3	98.7	94.5	95.2	96.7	96.7	97.9
-325 MESH(WEIGHT PERCENT)	3.7	1.3	5.5	4.8	3.3	3.3	2.1

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SAMPLE NUMBER	G2-162	G2-163
TIME	7: 0	11: 0
DATE	4/ 3/77	4/ 3/77

U. S. SIEVE SIZE

CUMULATIVE WEIGHT PERCENT

U. S. SIEVE SIZE	G2-162	G2-163
+8 MESH	0.0+	0.0+
+20 MESH	0.0+	0.0+
+30 MESH	0.0+	0.0+
+50 MESH	39.8	23.5
+60 MESH	48.8	30.4
+100 MESH	78.1	61.5
+140 MESH	89.7	78.0
+200 MESH	93.4	84.4
+325 MESH	96.7	92.2
-325 MESH(WEIGHT PERCENT)	3.3	7.8

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-J

SAMPLE NUMBER	G2-164	G2-165	G2-166	G2-167	G2-168	G2-169	G2-170
TIME	21: 0	22: 0	1: 0	8:30	10: 0	14: 0	17: 0
DATE	4/ 3/77	4/ 3/77	4/ 4/77	4/ 4/77	4/ 4/77	4/ 4/77	4/ 4/77

U. S. SIEVE SIZE

CUMULATIVE WEIGHT PERCENT

U. S. SIEVE SIZE	G2-164	G2-165	G2-166	G2-167	G2-168	G2-169	G2-170
+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	37.8	39.0	35.1	35.4	44.7	25.3	19.2
+60 MESH	45.9	47.4	42.0	43.8	54.4	32.6	25.2
+100 MESH	72.5	77.2	70.5	75.9	83.9	62.7	46.6
+140 MESH	84.7	88.5	83.3	87.2	92.2	78.4	56.1
+200 MESH	89.4	93.0	90.8	91.3	94.4	82.5	72.1
+325 MESH	94.4	96.0	95.7	95.0	97.4	92.0	86.5
-325 MESH(WEIGHT PERCENT)	5.6	4.0	4.3	5.0	2.6	8.0	13.5

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

SAMPLE NUMBER	G2-171	G2-172
TIME	21: 0	22: 0
DATE	4/ 4/77	4/ 4/77

U. S. SIEVE SIZE

CUMULATIVE WEIGHT PERCENT

U. S. SIEVE SIZE	G2-171	G2-172
+8 MESH	0.0+	0.0+
+20 MESH	0.0+	0.0+
+30 MESH	0.0+	0.0+
+50 MESH	14.4	23.6
+60 MESH	18.5	29.7
+100 MESH	39.4	56.9
+140 MESH	55.1	70.4
+200 MESH	67.0	81.4
+325 MESH	84.1	91.5
-325 MESH(WEIGHT PERCENT)	15.9	8.5

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-K

SAMPLE NUMBER

G2-173

G2-174

G2-175

TIME

6:45

6:45

16:0

DATE

4/16/77

4/16/77

4/16/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+
+50 MESH	30.7	39.2	38.4
+60 MESH	38.9	47.6	47.4
+100 MESH	68.8	80.3	75.9
+140 MESH	79.8	88.1	85.2
+200 MESH	86.9	92.1	90.3
+325 MESH	94.2	96.2	94.6
-325 MESH(WEIGHT PERCENT)	5.8	3.8	5.4

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-L

SAMPLE NUMBER	G2-176	G2-177	G2-178
TIME	8:30	9: 0	11: 0
DATE	4/28/77	4/28/77	4/28/77

U. S. SIEVE SIZE	CUMULATIVE WEIGHT PERCENT		
-----	-----		

+8 MESH	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+
+50 MESH	11.3	26.6	30.9
+60 MESH	14.5	33.9	38.2
+100 MESH	33.0	58.0	62.3
+140 MESH	46.6	69.7	73.6
+200 MESH	50.8	77.7	78.8
+325 MESH	73.6	86.4	86.2
-325 MESH(WEIGHT PERCENT)	29.6	13.6	13.8

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-M

SAMPLE NUMBER	G2-179	G2-180	G2-181	G2-182	G2-183	G2-184	G2-185
TIME	7: 0	8:15	10: 0	10: 0	14:30	18:30	13:30
DATE	5/17/77	5/17/77	5/17/77	5/17/77	5/17/77	5/17/77	5/18/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	42.9	39.0	34.2	46.6	32.9	38.6	28.2
+60 MESH	51.9	49.5	42.4	55.3	41.7	49.1	34.5
+100 MESH	79.5	75.6	70.7	81.2	69.5	76.8	55.3
+140 MESH	89.2	86.9	82.9	90.2	82.1	87.8	66.4
+200 MESH	92.8	91.0	88.4	94.4	87.9	90.4	73.2
+325 MESH	96.3	94.9	93.2	97.6	93.9	94.8	82.0
-325 MESH(WEIGHT PERCENT)	3.7	5.1	6.8	2.4	6.1	5.2	18.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-N

SAMPLE NUMBER	G2-186	G2-187	G2-188	G2-189	G2-190	G2-191	G2-192
TIME	22:30	22:30	6:50	7:0	9:0	22:30	21:30
DATE	5/21/77	5/21/77	5/22/77	5/23/77	5/23/77	5/23/77	5/24/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	31.1	26.3	22.9	32.0	45.8	32.2	30.9
+60 MESH	39.8	35.3	29.5	38.7	55.0	38.7	37.1
+100 MESH	67.1	61.9	55.0	64.1	82.0	67.0	68.9
+140 MESH	78.5	74.0	67.7	75.5	90.1	77.3	78.0
+200 MESH	85.8	80.7	74.8	89.8	93.5	84.9	85.6
+325 MESH	92.3	94.1	86.8	93.5	97.8	93.1	94.1
-325 MESH(WEIGHT PERCENT)	7.7	5.9	13.2	6.5	2.2	6.9	5.9

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SAMPLE NUMBER	G2-193	G2-194	G2-195	G2-196	G2-197	G2-198	G2-199
TIME	4:0	7:10	11:40	15:0	19:45	22:0	5:0
DATE	5/25/77	5/25/77	5/25/77	5/25/77	5/25/77	5/25/77	5/26/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	28.1	34.0	46.9	30.8	43.1	35.3	33.4
+60 MESH	34.9	42.0	53.1	37.5	49.4	44.2	41.3
+100 MESH	59.1	67.7	73.4	60.6	70.1	70.4	65.6
+140 MESH	70.5	77.5	82.1	71.9	79.2	82.0	75.9
+200 MESH	76.6	83.3	88.1	80.1	85.9	89.1	78.0
+325 MESH	88.6	91.1	94.8	90.5	93.6	95.4	89.4
-325 MESH(WEIGHT PERCENT)	11.4	8.9	5.2	9.5	6.4	4.6	10.6

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-N

SAMPLE NUMBER	G2-200	G2-201	G2-202	G2-203
TIME	7: 0	6:30	7: 0	14:30
DATE	5/26/77	5/27/77	5/27/77	5/27/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+50 MESH	32. 1	24. 4	34. 0	29. 6
+60 MESH	39. 4	32. 0	41. 0	36. 6
+100 MESH	61. 9	55. 9	60. 7	58. 1
+140 MESH	71. 8	67. 0	70. 4	68. 8
+200 MESH	75. 2	72. 1	78. 6	77. 1
+325 MESH	86. 4	86. 0	91. 6	86. 7
-325 MESH(WEIGHT PERCENT)	13. 6	14. 0	8. 4	13. 3

+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-0

SAMPLE NUMBER	G2-204	G2-205	G2-206	G2-207	G2-208	G2-209	G2-210
TIME	22:20	7:30	14:30	14:45	20:0	20:0	22:0
DATE	8/7/77	8/10/77	8/10/77	8/10/77	8/10/77	8/10/77	8/10/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	23.9	25.2	18.6	18.5	25.2	33.2	10.4
+60 MESH	31.2	31.9	26.0	24.7	34.2	42.8	13.6
+100 MESH	57.2	57.7	52.7	50.8	61.8	70.6	34.3
+140 MESH	68.3	70.9	65.7	64.4	75.5	82.5	50.3
+200 MESH	70.6	78.9	74.8	68.2	83.7	90.3	69.0
+325 MESH	85.0	89.9	88.1	84.5	93.4	96.9	87.9
-325 MESH(WEIGHT PERCENT)	15.0	10.1	11.9	15.5	6.6	3.1	12.1

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SAMPLE NUMBER	G2-211	G2-212	G2-213	G2-214	G2-215	G2-216	G2-217
TIME	24:0	2:0	4:0	6:0	8:0	12:0	15:0
DATE	8/10/77	8/11/77	8/11/77	8/11/77	8/11/77	8/11/77	8/11/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	20.7	18.4	19.7	23.2	28.9	33.9	5.6
+60 MESH	29.3	25.4	26.9	29.0	36.5	42.1	8.6
+100 MESH	66.4	51.2	55.2	55.8	61.9	70.4	28.3
+140 MESH	90.2	66.0	70.1	69.0	73.3	82.2	41.6
+200 MESH	93.3	77.1	83.6	79.2	82.0	89.9	57.3
+325 MESH	98.1	92.3	95.6	91.3	91.7	95.9	75.5
-325 MESH(WEIGHT PERCENT)	1.8	7.7	4.4	8.7	8.3	4.1	24.5

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-0

SAMPLE NUMBER	G2-218	G2-219	G2-220	G2-221	G2-222	G2-223	G2-224
TIME	17:45	19:30	21:00	23:20	1:15	2:45	5:00
DATE	8/11/77	8/11/77	8/11/77	8/11/77	8/12/77	8/12/77	8/12/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	13.3	24.8	19.1	11.1	19.8	5.4	12.8
+60 MESH	17.4	31.4	24.9	15.3	25.7	8.2	17.6
+100 MESH	37.6	54.5	48.6	36.8	50.5	30.4	39.8
+140 MESH	51.6	66.3	61.6	51.4	64.2	48.1	53.8
+200 MESH	61.8	71.3	66.9	60.3	74.9	63.9	65.1
+325 MESH	81.9	84.9	80.9	77.0	90.6	89.3	82.2
-325 MESH(WEIGHT PERCENT)	18.1	15.1	19.1	23.0	9.4	10.7	17.8

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SAMPLE NUMBER	G2-225	G2-226	G2-227	G2-228	G2-229	G2-230	G2-231
TIME	7:00	11:30	14:20	18:30	22:30	1:00	2:30
DATE	8/12/77	8/12/77	8/12/77	8/12/77	8/12/77	8/13/77	8/13/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	8.1	8.3	14.5	20.2	7.7	29.2	14.2
+60 MESH	12.6	13.0	20.3	27.9	14.4	36.9	50.5
+100 MESH	36.5	37.7	45.1	51.0	42.5	67.9	53.3
+140 MESH	50.5	50.7	58.8	63.8	60.1	83.4	68.4
+200 MESH	62.0	61.2	69.2	72.6	73.5	90.1	78.2
+325 MESH	79.2	80.0	86.2	86.7	92.7	97.7	91.5
-325 MESH(WEIGHT PERCENT)	20.8	20.0	13.8	13.3	7.3	2.3	8.5

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-0

SAMPLE NUMBER	G2-232	G2-233	G2-234	G2-235	G2-236	G2-237	G2-238
TIME	6:30	9:20	10:40	15:0	14:45	17:30	18:30
DATE	8/13/77	8/13/77	8/13/77	8/13/77	8/13/77	8/13/77	8/13/77

U. S. SIEVE SIZE

CUMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	17.2	17.3	12.2	19.7	9.6	14.5	12.7
+60 MESH	23.8	24.2	19.0	27.4	15.7	22.6	18.6
+100 MESH	57.9	57.1	48.3	60.5	44.3	51.6	47.1
+140 MESH	74.4	75.6	64.9	75.0	59.9	66.8	61.9
+200 MESH	83.9	85.5	79.2	84.1	70.1	75.9	72.9
+325 MESH	94.5	94.8	95.5	94.6	82.8	88.4	85.1
-325 MESH(WEIGHT PERCENT)	5.5	5.2	4.5	5.4	17.6	11.7	14.9

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SAMPLE NUMBER	G2-239	G2-240	G2-241	G2-242	G2-243	G2-244	G2-245
TIME	0:15	2:0	7:0	11:20	13:20	15:20	15:30
DATE	8/14/77	8/14/77	8/15/77	8/15/77	8/15/77	8/15/77	8/15/77

U. S. SIEVE SIZE

CUMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	13.0	24.8	23.0	20.4	17.7	11.5	16.7
+60 MESH	21.1	34.6	30.5	27.7	23.9	17.5	23.1
+100 MESH	51.0	66.3	64.2	54.6	54.1	44.8	49.4
+140 MESH	69.5	81.6	75.3	68.1	65.6	59.7	62.5
+200 MESH	79.3	89.1	84.4	78.9	75.5	68.4	69.0
+325 MESH	92.4	96.9	95.0	90.1	87.3	82.4	81.2
-325 MESH(WEIGHT PERCENT)	7.6	3.1	5.0	9.9	12.7	17.6	18.8

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-0

SAMPLE NUMBER	G2-246	G2-247	G2-248	G2-249	G2-250	G2-251	G2-252
TIME	17:30	21: 0	23:30	1: 0	3:30	3:30	5:30
DATE	8/15/77	8/15/77	8/15/77	8/16/77	8/16/77	8/16/77	8/16/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	18.0	16.2	18.6	20.4	19.1	22.4	16.8
+60 MESH	25.2	37.1	26.3	28.0	24.9	30.4	23.3
+100 MESH	55.1	59.2	51.7	55.1	49.6	56.7	49.4
+140 MESH	70.4	78.1	65.4	69.5	64.3	70.1	64.1
+200 MESH	80.7	84.7	73.8	73.2	73.5	78.3	72.9
+325 MESH	93.6	95.2	89.9	89.6	91.1	93.4	89.5
-325 MESH(WEIGHT PERCENT)	6.4	4.8	10.1	10.4	8.9	6.6	10.5

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

G2 - CHAR CAKE SAMPLES

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-0

SAMPLE NUMBER	G2-253	G2-254	G2-255	G2-256	G2-257	G2-258	G2-259
TIME	7:30	9:30	11:30	11:30	13:30	14:0	17:0
DATE	8/16/77	8/16/77	8/16/77	8/16/77	8/16/77	8/16/77	8/16/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	17.6	17.1	17.9	30.9	17.2	25.9	16.6
+60 MESH	25.3	22.0	23.6	38.6	23.9	32.8	23.2
+100 MESH	49.5	45.2	46.4	61.5	50.0	58.0	47.6
+140 MESH	64.3	65.0	59.0	72.4	62.9	69.8	61.0
+200 MESH	74.4	78.0	68.4	80.7	72.6	77.0	68.7
+325 MESH	90.7	94.4	85.4	90.0	83.9	86.6	79.7
-325 MESH(WEIGHT PERCENT)	9.3	5.6	14.6	10.0	16.2	13.4	20.3

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SAMPLE NUMBER	G2-260	G2-261	G2-262
TIME	19:0	23:0	23:0
DATE	8/16/77	8/16/77	8/16/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+
+50 MESH	13.4	15.3	4.8
+60 MESH	19.2	21.0	8.6
+100 MESH	43.0	45.6	30.4
+140 MESH	56.6	63.4	59.1
+200 MESH	64.2	80.9	74.9
+325 MESH	76.2	94.9	93.4
-325 MESH(WEIGHT PERCENT)	23.8	5.2	6.6

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S1 - OVERHEAD FROM THE GAS SCRUBBER (DA-201)

RUN 1-DB-0

BASIS: VOLUME PERCENT

SAMPLE NUMBER	S1- 72	S1- 73	S1- 74	S1- 75	S1- 76	S1- 77	S1- 78
TIME	19:23	3:24	5:21	7:23	9:30	11:30	13:30
DATE	8/ 7/77	8/10/77	8/10/77	8/10/77	8/10/77	8/10/77	8/10/77
COMPONENTS							
HYDROGEN	24.6	23.5	25.8	24.7	24.8	25.0	26.9
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.2	0.0*	0.1	0.0*	0.0*	0.1	0.0
METHANE	8.4	7.3	7.7	7.6	8.6	8.8	8.6
CARBON MONOXIDE	2.9	2.3	3.0	2.9	3.2	3.3	3.5
CARBON DIOXIDE	62.8	63.0	58.8	59.8	60.2	59.1	56.4
HYDROGEN SULFIDE	0.0	0.1	0.0	0.2	0.3	0.3	0.4
WATER	0.5	3.2	4.1	4.2	2.3	2.9	3.8
ETHYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ETHANE	0.6	0.6	0.5	0.6	0.6	0.5	0.4
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-0

BASIS: VOLUME PERCENT

SAMPLE NUMBER	S1- 79	S1- 80	S1- 81	S1- 82	S1- 83	S1- 84	S1- 85
TIME	19: 0	21: 0	23: 0	1: 0	3: 0	4:50	6:50
DATE	8/10/77	8/10/77	8/10/77	8/11/77	8/11/77	8/11/77	8/11/77
COMPONENTS							
HYDROGEN	29.0	24.1	28.8	28.8	27.6	26.4	29.4
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.2	0.5	0.2	0.0*	0.1	0.1	0.1
METHANE	9.6	9.8	9.0	9.6	10.1	7.3	9.1
CARBON MONOXIDE	5.8	6.5	5.6	5.3	5.2	4.9	4.9
CARBON DIOXIDE	53.4	55.6	53.2	53.7	54.7	59.2	54.3
HYDROGEN SULFIDE	0.0	0.1	0.1	0.0	0.2	0.1	0.2
WATER	1.7	3.2	2.9	2.4	1.8	1.8	1.7
ETHYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ETHANE	0.3	0.2	0.2	0.2	0.3	0.2	0.3
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S1 - OVERHEAD FROM THE GAS SCRUBBER (DA-201)

RUN 1-DB-0

BASIS: VOLUME PERCENT

SAMPLE NUMBER	S1- 86	S1- 87	S1- 88	S1- 89	S1- 90	S1- 91	S1- 92
TIME	9: 7	14:30	16:30	18:55	20:30	22:30	0:30
DATE	8/11/77	8/11/77	8/11/77	8/11/77	8/11/77	8/11/77	8/12/77
COMPONENTS							
HYDROGEN	28.4	29.1	30.3	30.4	28.1	31.5	31.0
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.3	0.0*	0.1	0.1	0.0	0.1	0.1
METHANE	10.4	6.2	8.0	7.2	7.6	6.9	7.3
CARBON MONOXIDE	5.4	6.0	5.9	7.9	7.7	7.2	6.8
CARBON DIOXIDE	54.2	58.2	54.6	54.5	53.9	50.7	52.2
HYDROGEN SULFIDE	0.1	0.0*	0.1	0.3	0.0*	0.0	0.2
WATER	0.8	0.5	0.8	0.0	2.6	3.6	2.3
ETHYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ETHANE	0.4	0.0*	0.2	0.1	0.1	0.0*	0.1
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-0

BASIS: VOLUME PERCENT

SAMPLE NUMBER	S1- 93	S1- 94	S1- 95	S1- 96	S1- 97	S1- 98	S1- 99
TIME	2:30	4:26	6:23	8:30	10:50	12:38	14:31
DATE	8/12/77	8/12/77	8/12/77	8/12/77	8/12/77	8/12/77	8/12/77
COMPONENTS							
HYDROGEN	31.1	30.6	30.6	31.8	32.3	32.2	30.9
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.1	0.0*	0.0*	0.0*	0.0*	0.0*	0.0*
METHANE	7.4	7.5	7.5	7.0	8.0	8.7	8.3
CARBON MONOXIDE	6.9	7.6	7.6	7.2	7.9	7.8	7.3
CARBON DIOXIDE	51.3	53.0	53.3	52.6	50.6	49.7	52.0
HYDROGEN SULFIDE	0.1	0.2	0.2	0.2	0.2	0.2	0.1
WATER	3.0	1.0	0.7	1.1	0.9	1.3	1.3
ETHYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ETHANE	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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** = SUSPECT ANALYSIS

S1 - OVERHEAD FROM THE GAS SCRUBBER (DA-201)

RUN 1-DB-0

BASIS: VOLUME PERCENT

SAMPLE NUMBER	S1-100	S1-101	S1-102	S1-103
TIME	16:30	18:30	20:30	22:30
DATE	8/12/77	8/12/77	8/12/77	8/12/77
COMPONENTS				

HYDROGEN	30.9	32.6	31.2	32.7
OXYGEN	0.0	0.0	0.0	0.0
NITROGEN	0.0*	0.0*	0.1	0.1
METHANE	8.5	8.9	8.0	8.6
CARBON MONOXIDE	7.2	8.4	8.3	8.6
CARBON DIOXIDE	48.6	48.0	49.2	47.3
HYDROGEN SULFIDE	0.1	0.1	0.2	0.2
WATER	4.6	1.9	2.9	2.4
ETHYLENE	0.0	0.0	0.0	0.0
ETHANE	0.1	0.1	0.1	0.1
PROPYLENE	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-08-A

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 1	SC2- 2	SC2- 3
TIME	2: 5	4: 0	6:13
DATE	2/24/77	2/24/77	2/24/77

COMPONENTS

HYDROGEN	25.6	25.2	25.7
OXYGEN	0.0	0.0	0.0
NITROGEN	0.1	0.1	0.1
METHANE	8.9	9.7	9.4
CARBON MONOXIDE	6.1	6.6	6.7
CARBON DIOXIDE	55.6	55.4	54.8
HYDROGEN SULFIDE	0.4	0.1	0.4
WATER	2.9	2.6	2.6
ETHYLENE	0.0	0.0	0.0
ETHANE	0.4	0.3	0.3
PROPYLENE	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0
I-BUTENE	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0

* = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-B

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 4	SC2- 5	SC2- 6	SC2- 7	SC2- 8	SC2- 9	SC2- 10
TIME	20:35	22:25	0:34	2:27	4:38	6:30	8:37
DATE	2/24/77	2/24/77	2/25/77	2/25/77	2/25/77	2/25/77	2/25/77
COMPONENTS							
HYDROGEN	27.7	26.9	0.0+	26.7	27.0	26.7	26.4
OXYGEN	0.0	0.0	0.0+	0.0	0.0	0.0	0.0
NITROGEN	0.2	0.1	0.0+	0.1	0.0*	0.1	0.1
METHANE	8.9	8.5	0.0+	9.8	10.1	9.5	9.2
CARBON MONOXIDE	8.2	7.6	0.0+	8.1	7.8	7.8	7.7
CARBON DIOXIDE	51.0	51.9	0.0+	52.8	53.4	53.6	52.7
HYDROGEN SULFIDE	0.2	0.3	0.0+	0.9	0.7	0.5	0.6
WATER	3.5	4.4	0.0+	1.2	0.6	1.3	2.9
ETHYLENE	0.0	0.0	0.0+	0.0	0.0	0.0	0.0
ETHANE	0.3	0.3	0.0+	0.4	0.4	0.5	0.4
PROPYLENE	0.0	0.0	0.0+	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0+	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0+	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0+	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-B

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 11	SC2- 12	SC2- 13	SC2- 14	SC2- 15	SC2- 16	SC2- 17
TIME	10:30	12:30	14:30	18:56	21: 6	23: 0	1: 0
DATE	2/25/77	2/25/77	2/25/77	2/25/77	2/25/77	2/25/77	2/26/77
COMPONENTS							
HYDROGEN	27.0	27.0	27.5	27.0	26.1	26.3	26.0
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.0*	0.0*	0.1	0.1	0.1	0.1	0.2
METHANE	9.6	9.5	9.7	9.3	9.7	9.6	9.8
CARBON MONOXIDE	8.5	7.9	8.6	8.9	8.0	8.2	8.2
CARBON DIOXIDE	51.3	51.6	50.8	50.6	50.8	51.1	51.0
HYDROGEN SULFIDE	0.5	0.5	0.4	0.3	0.4	0.7	0.7
WATER	2.8	3.2	2.7	3.6	4.7	3.8	3.9
ETHYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ETHANE	0.3	0.3	0.2	0.2	0.2	0.2	0.2
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-B

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 18	SC2- 19	SC2- 20	SC2- 21	SC2- 22	SC2- 23	SC2- 24
TIME	3: 0	5: 0	7: 0	9:10	11:10	13: 0	14:55
DATE	2/26/77	2/26/77	2/26/77	2/26/77	2/26/77	2/26/77	2/26/77
COMPONENTS							
HYDROGEN	26.5	26.7	26.4	24.1	25.0	25.1	26.1
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.2	0.1	0.1	0.1	0.1	0.1	0.1
METHANE	10.2	9.8	9.8	11.7	11.1	11.3	10.8
CARBON MONOXIDE	8.1	8.1	8.3	6.3	6.6	6.9	7.8
CARBON DIOXIDE	50.7	50.6	52.3	54.4	52.7	52.4	51.1
HYDROGEN SULFIDE	0.7	0.2	0.2	0.7	0.3	0.5	0.3
WATER	3.3	4.3	2.7	2.1	3.8	3.3	3.5
ETHYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ETHANE	0.3	0.2	0.2	0.6	0.4	0.4	0.3
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1. BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-B

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 25	SC2- 26
TIME	17: 4	17:30
DATE	2/26/77	2/26/77
COMPONENTS		
HYDROGEN	28.2	28.1
OXYGEN	0.0	0.0
NITROGEN	0.1	0.1
METHANE	10.2	9.9
CARBON MONOXIDE	9.8	9.5
CARBON DIOXIDE	47.0	47.8
HYDROGEN SULFIDE	0.3	1.2
WATER	4.2	3.2
ETHYLENE	0.0	0.0
ETHANE	0.2	0.2
PROPYLENE	0.0	0.0
PROPANE	0.0	0.0
1. BUTENE	0.0	0.0
N-BUTANE	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GA FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-C

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 27	SC2- 28	SC2- 29	SC2- 30	SC2- 31	SC2- 32	SC2- 33
TIME	17:15	20: 0	21:55	1: 0	3:15	5:10	7:15
DATE	2/27/77	2/27/77	2/27/77	2/28/77	2/28/77	2/28/77	2/28/77
COMPONENTS							
HYDROGEN	25.8	26.2	25.1	26.3	24.8	22.7	26.4
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.1	0.1	0.2	0.5	0.1	0.1	0.1
METHANE	10.1	9.3	9.7	10.0	10.7	10.7	9.1
CARBON MONOXIDE	11.3	9.3	8.7	8.0	7.3	6.1	8.4
CARBON DIOXIDE	50.1	53.2	53.1	54.4	53.8	57.8	52.8
HYDROGEN SULFIDE	0.6	0.2	1.2	1.2	0.2	0.3	0.4
WATER	1.8	1.4	1.6	2.2	2.5	1.6	2.6
ETHYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ETHANE	0.2	0.3	0.4	0.0	0.0	0.0	0.0
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.7	0.2
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-C

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 34	SC2- 35
TIME	9:15	11:15
DATE	2/28/77	2/28/77
COMPONENTS		
HYDROGEN	26.3	27.5
OXYGEN	0.0	0.0
NITROGEN	0.0*	0.0*
METHANE	10.1	9.7
CARBON MONOXIDE	7.2	7.4
CARBON DIOXIDE	52.6	52.7
HYDROGEN SULFIDE	0.6	0.6
WATER	2.8	1.8
ETHYLENE	0.0	0.0
ETHANE	0.4	0.3
PROPYLENE	0.0	0.0
PROPANE	0.0	0.0
PROPANE	0.0	0.0
1, BUTENE	0.0	0.0
N-BUTANE	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-D

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 36	SC2- 37	SC2- 38	SC2- 39	SC2- 40	SC2- 41	SC2- 42
TIME	14:40	17: 0	19: 0	21: 0	23: 0	1: 0	3: 0
DATE	2/28/77	2/28/77	2/28/77	2/28/77	2/28/77	3/ 1/77	3/ 1/77
COMPONENTS							
HYDROGEN	27.2	25.8	26.5	26.5	28.0	27.4	27.7
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.0*	0.1	0.0*	0.2	0.0*	0.0*	0.1
METHANE	9.7	9.9	9.8	9.4	9.5	9.8	9.8
CARBON MONOXIDE	8.1	6.8	7.3	6.8	7.8	7.5	7.5
CARBON DIOXIDE	49.9	52.6	50.9	52.8	52.4	52.9	53.1
HYDROGEN SULFIDE	0.6	0.3	0.7	0.6	0.5	0.6	0.2
WATER	4.3	4.0	4.8	3.5	1.4	1.6	1.4
ETHYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ETHANE	0.2	0.3	0.2	0.2	0.4	0.2	0.2
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-D

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 43	SC2- 44	SC2- 45	SC2- 46	SC2- 47	SC2- 48	SC2- 49
TIME	5: 0	7: 0	8:55	11: 0	13:40	15: 0	17: 0
DATE	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77
COMPONENTS							
HYDROGEN	28.0	27.8	27.3	28.0	27.2	26.7	26.3
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.1	0.1	0.1	0.0*	0.0*	0.0*	0.0*
METHANE	9.7	9.5	10.1	9.8	10.0	10.2	10.3
CARBON MONOXIDE	7.6	7.3	7.1	7.4	7.6	7.1	7.2
CARBON DIOXIDE	51.8	52.4	53.4	52.5	52.9	52.8	53.1
HYDROGEN SULFIDE	0.9	1.0	0.5	0.8	0.7	0.5	0.5
WATER	1.8	1.7	1.3	1.3	1.4	2.5	2.4
ETHYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ETHANE	0.1	0.2	0.2	0.2	0.2	0.2	0.2
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-E

BASIS: VOLUME PERCENT

SAMPLE NUMBER SC2- 50 SC2- 51

TIME 22:55 8:10
DATE 3/15/77 3/16/77

COMPONENTS

HYDROGEN	26.8	25.3
OXYGEN	0.0	0.0
NITROGEN	0.6	0.1
METHANE	11.2	13.0
CARBON MONOXIDE	6.3	8.5
CARBON DIOXIDE	50.8	49.8
HYDROGEN SULFIDE	0.7	0.2
WATER	3.1	2.7
ETHYLENE	0.0	0.0
ETHANE	0.5	0.4
PROPYLENE	0.0	0.0
PROPANE	0.0	0.0
1, BUTENE	0.0	0.0
N-BUTANE	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-F

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 52	SC2- 53	SC2- 54	SC2- 55	SC2- 56
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TIME	14:40	17:30	19:30	21:30	23:26
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DATE	3/22/77	3/22/77	3/22/77	3/22/77	3/22/77
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COMPONENTS

HYDROGEN	30.3	26.3	24.6	26.7	27.3
OXYGEN	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.0*	0.0*	0.0*	0.1	0.1
METHANE	9.9	10.8	10.3	11.2	11.2
CARBON MONOXIDE	10.5	7.7	7.5	8.7	9.3
CARBON DIOXIDE	45.2	51.0	50.1	50.0	49.3
HYDROGEN SULFIDE	0.3	1.5	0.8	0.3	0.5
WATER	3.7	2.5	6.1	2.6	1.9
ETHYLENE	0.0	0.0	0.0	0.0	0.0
ETHANE	0.2	0.2	0.6	0.4	0.4
PROPYLENE	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-G

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 57	SC2- 58
TIME	17:35	19:28
DATE	3/31/77	3/31/77
COMPONENTS		

HYDROGEN	26.0	26.4
OXYGEN	0.0	0.0
NITROGEN	0.1	0.3
METHANE	10.8	10.2
CARBON MONOXIDE	8.1	8.6
CARBON DIOXIDE	48.0	47.5
HYDROGEN SULFIDE	0.3	0.2
WATER	5.3	5.5
ETHYLENE	0.0	0.0
ETHANE	1.4	1.3
PROPYLENE	0.0	0.0
PROPANE	0.0	0.0
1, BUTENE	0.0	0.0
N-BUTANE	0.0	0.0

+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-H

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 59	SC2- 60	SC2- 61	SC2- 62	SC2- 63	SC2- 64	SC2- 65
TIME	6:30	9: 0	11:10	13:15	15: 5	17: 0	19: 0
DATE	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77
COMPONENTS							
HYDROGEN	24.3	24.7	25.0	24.5	25.3	26.4	24.7
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.1	0.0*	0.0*	0.2	0.0*	0.1	0.0
METHANE	9.9	10.7	11.0	10.6	10.7	10.2	9.9
CARBON MONOXIDE	8.3	8.1	9.4	9.1	8.8	9.9	8.0
CARBON DIOXIDE	54.0	54.6	55.0	54.4	54.9	52.9	56.6
HYDROGEN SULFIDE	0.2	0.2	0.1	0.1	0.0*	0.0*	0.1
WATER	2.6	0.4	0.0	0.8	0.0	0.3	0.5
ETHYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ETHANE	0.6	1.3	0.3	0.3	0.3	0.2	0.2
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-H

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 66	SC2- 67	SC2- 68	SC2- 69	SC2- 70	SC2- 71	SC2- 72
TIME	20:56	23: 3	1: 8	3: 0	4:55	6:58	9: 0
DATE	4/ 1/77	4/ 1/77	4/ 2/77	4/ 2/77	4/ 2/77	4/ 2/77	4/ 2/77
COMPONENTS							
HYDROGEN	25.9	24.7	0.0+	23.4	0.0+	24.2	25.2
OXYGEN	0.0	0.0	0.0+	0.0	0.0+	0.0	0.0
NITROGEN	0.1	0.6	0.0+	0.2	0.0+	0.0*	0.1
METHANE	9.2	10.4	0.0+	11.1	0.0+	9.1	9.0
CARBON MONOXIDE	8.9	8.6	0.0+	7.1	0.0+	8.0	7.9
CARBON DIOXIDE	55.8	54.6	0.0+	57.4	0.0+	58.3	57.7
HYDROGEN SULFIDE	0.0*	0.0*	0.0+	0.0*	0.0+	0.0*	0.0*
WATER	0.0	0.8	0.0+	0.2	0.0+	0.2	0.0
ETHYLENE	0.0	0.0	0.0+	0.0	0.0+	0.0	0.0
ETHANE	0.2	0.3	0.0+	0.6	0.0+	0.2	0.2
PROPYLENE	0.0	0.0	0.0+	0.0	0.0+	0.0	0.0
PROPANE	0.0	0.0	0.0+	0.0	0.0+	0.0	0.0
1, BUTENE	0.0	0.0	0.0+	0.0	0.0+	0.0	0.0
N-BUTANE	0.0	0.0	0.0+	0.0	0.0+	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-H

BASIS: VOLUME PERCENT

SAMPLE NUMBER SC2- 73

TIME 11: 0

DATE 4/ 2/77

COMPONENTS

HYDROGEN	24. 0
OXYGEN	0. 0
NITROGEN	0. 0*
METHANE	9. 1
CARBON MONOXIDE	8. 1
CARBON DIOXIDE	57. 7
HYDROGEN SULFIDE	0. 0*
WATER	0. 9
ETHYLENE	0. 0
ETHANE	0. 2
PROPYLENE	0. 0
PROPANE	0. 0
1, BUTENE	0. 0
N-BUTANE	0. 0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-I

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 74	SC2- 75	SC2- 76	SC2- 77	SC2- 78	SC2- 79	SC2- 80
TIME	13: 0	14: 0	19: 2	20:56	22:58	0:58	2:58
DATE	4/ 2/77	4/ 2/77	4/ 2/77	4/ 2/77	4/ 2/77	4/ 3/77	4/ 3/77
COMPONENTS							
HYDROGEN	23.5	24.5	24.2	24.8	26.4	24.2	21.9
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.1	0.2	0.2	0.0*	0.1	0.7	0.2
METHANE	10.2	9.5	10.8	10.4	10.2	10.0	9.7
CARBON MONOXIDE	8.4	9.2	9.4	9.4	9.9	8.5	7.4
CARBON DIOXIDE	56.1	51.6	54.6	54.8	54.1	53.4	52.9
HYDROGEN SULFIDE	0.1	0.0*	0.1	0.0*	0.0	0.2	0.3
WATER	1.4	4.9	0.5	0.4	0.0	2.8	7.3
ETHYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ETHANE	0.2	0.1	0.2	0.2	0.2	0.2	0.3
PROPYLENE	0.0	0.0	0.0	0.0	0.0+	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0+	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0+	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0+	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-I

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 81
TIME	5: 4
DATE	4/ 3/77
COMPONENTS	
HYDROGEN	22.6
OXYGEN	0.0
NITROGEN	0.1
METHANE	11.8
CARBON MONOXIDE	6.1
CARBON DIOXIDE	58.3
HYDROGEN SULFIDE	0.1
WATER	0.3
ETHYLENE	0.0
ETHANE	0.7
PROPYLENE	0.0
PROPANE	0.0
1, BUTENE	0.0
N-BUTANE	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-J

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 82	SC2- 83	SC2- 84	SC2- 85	SC2- 86
TIME	18:57	22:58	1:18	16: 0	18: 0
DATE	4/ 3/77	4/ 3/77	4/ 4/77	4/ 4/77	4/ 4/77
COMPONENTS					
HYDROGEN	24.4	22.2	22.9	24.9	23.3
OXYGEN	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.0*	0.0*	0.0*	0.0*	0.0*
METHANE	8.8	11.5	10.7	10.7	10.8
CARBON MONOXIDE	6.4	5.4	5.6	6.4	4.7
CARBON DIOXIDE	58.7	60.1	58.4	56.9	59.1
HYDROGEN SULFIDE	0.1	0.1	0.1	0.1	0.1
WATER	0.7	0.0	1.4	0.0	0.7
ETHYLENE	0.0	0.0	0.0	0.0	0.0
ETHANE	0.9	1.2	0.9	1.1	1.3
PROPYLENE	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0
1. BUTENE	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-K

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 87	SC2- 88	SC2- 89	SC2- 90	SC2- 91	SC2- 92
TIME	0:58	2:59	4:55	6:59	8:59	11: 0
DATE	4/16/77	4/16/77	4/16/77	4/16/77	4/16/77	4/16/77
COMPONENTS						

HYDROGEN	20.8	20.4	21.4	0.0+	18.1	19.1
OXYGEN	0.0	0.0	0.0	0.0+	0.0	0.0
NITROGEN	0.2	0.2	0.2	0.0+	0.2	0.1
METHANE	8.0	7.2	7.9	0.0+	10.0	10.4
CARBON MONOXIDE	7.7	8.7	8.4	0.0+	6.5	8.2
CARBON DIOXIDE	55.9	59.3	62.0	0.0+	63.5	59.8
HYDROGEN SULFIDE	0.0	0.2	0.0	0.0+	0.2	0.0
WATER	7.4	3.4	0.0	0.0+	1.2	2.2
ETHYLENE	0.0	0.0	0.0	0.0+	0.0	0.0
ETHANE	0.0	0.6	0.6	0.0+	0.3	0.2
PROPYLENE	0.0	0.0	0.0	0.0+	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0+	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0+	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0+	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-L

BASIS: VOLUME PERCENT

SAMPLE NUMBER SC2- 93 SC2- 94 SC2- 95

TIME 5: 0 7: 0 9: 3

DATE 4/28/77 4/28/77 4/28/77

COMPONENTS

HYDROGEN	26.5	26.8	26.6
OXYGEN	0.0	0.0	0.0
NITROGEN	0.1	0.0	0.0
METHANE	9.5	8.9	10.4
CARBON MONOXIDE	8.6	10.1	9.7
CARBON DIOXIDE	56.4	55.7	55.0
HYDROGEN SULFIDE	0.1	0.2	0.7
WATER	0.0	0.0	0.0
ETHYLENE	0.0	0.0	0.0
ETHANE	0.2	0.2	0.1
PROPYLENE	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-M

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2- 96	SC2- 97	SC2- 98	SC2- 99	SC2-100	SC2-101	SC2-102
TIME	22:59	1: 0	3: 5	5: 3	7: 1	9: 0	11: 0
DATE	5/16/77	5/17/77	5/17/77	5/17/77	5/17/77	5/17/77	5/17/77
COMPONENTS							
HYDROGEN	23.6	24.1	23.3	22.3	24.2	22.5	20.0
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.1	0.0*	0.0*	0.0*	0.0*	0.0*	0.1
METHANE	10.0	9.6	9.5	10.0	10.3	10.1	9.1
CARBON MONOXIDE	4.1	4.0	3.9	3.9	4.4	4.0	3.4
CARBON DIOXIDE	63.8	62.6	62.7	64.3	62.4	62.0	67.2
HYDROGEN SULFIDE	0.1	0.3	0.3	0.0*	0.3	0.0*	0.4
WATER	0.0	0.0	0.0	0.0	0.0	0.3	0.0
ETHYLENE	0.0	0.0	0.0	0.0*	0.0	0.0	0.0*
ETHANE	0.8	0.7	0.8	0.9	0.6	1.1	1.1
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-M

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2-103	SC2-104	SC2-105
TIME	13: 0	15: 0	17: 0
DATE	5/17/77	5/17/77	5/17/77
COMPONENTS			
HYDROGEN	22.9	22.7	22.9
OXYGEN	0.0	0.0	0.0
NITROGEN	0.0	0.0	0.0
METHANE	8.8	8.6	8.8
CARBON MONOXIDE	4.0	4.2	4.4
CARBON DIOXIDE	64.6	64.6	64.7
HYDROGEN SULFIDE	0.2	0.3	0.1
WATER	0.0	0.0	0.0
ETHYLENE	0.0	0.0	0.0
ETHANE	0.9	0.7	0.7
PROPYLENE	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-N

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2-106	SC2-107	SC2-108	SC2-109	SC2-110	SC2-111	SC2-112
TIME	21: 0	23: 0	1:10	3:30	5:30	17: 2	19: 2
DATE	5/21/77	5/21/77	5/22/77	5/23/77	5/23/77	5/24/77	5/24/77
COMPONENTS							
HYDROGEN	22.5	20.8	21.7	21.2	20.0	23.6	22.4
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.0	0.1	0.3	0.0	0.0	0.0	0.0
METHANE	7.7	7.5	8.1	7.0	6.2	7.9	7.9
CARBON MONOXIDE	2.4	2.6	3.0	2.3	2.0	2.5	2.6
CARBON DIOXIDE	66.2	67.4	66.6	69.2	71.1	65.4	68.3
HYDROGEN SULFIDE	0.3	0.1	0.3	0.4	0.4	0.5	0.3
WATER	0.1	0.7	0.0	0.0	0.0	0.0	0.0
ETHYLENE	0.0	0.0	0.0	0.0*	0.0*	0.0	0.0
ETHANE	0.8	0.8	0.8	0.8	0.9	0.9	0.9
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-N

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2-113	SC2-114	SC2-115	SC2-116	SC2-117	SC2-118	SC2-119
TIME	21: 0	23: 5	1:20	3: 0	5: 0	11: 1	13: 0
DATE	5/24/77	5/24/77	5/25/77	5/25/77	5/25/77	5/25/77	5/25/77
COMPONENTS							
HYDROGEN	23.1	22.3	23.7	16.8	23.3	23.8	24.8
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
METHANE	8.6	8.3	8.7	5.6	7.0	7.2	7.9
CARBON MONOXIDE	3.1	3.0	3.3	2.3	3.4	3.7	4.0
CARBON DIOXIDE	65.8	66.8	64.4	73.3	63.2	65.2	62.0
HYDROGEN SULFIDE	0.8	0.6	0.4	0.7	0.8	0.8	0.3
WATER	0.0	0.0	0.0	0.4	1.5	0.0	0.0
ETHYLENE	0.0*	0.0	0.0	0.1	0.0	0.0	0.0
ETHANE	1.0	1.0	0.9	0.8	0.8	0.9	1.0
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-N

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2-120	SC2-121	SC2-122	SC2-123	SC2-124	SC2-125	SC2-126
TIME	15: 0	17: 0	19: 6	19: 7	23:12	2:30	5: 0
DATE	5/25/77	5/25/77	5/25/77	5/25/77	5/25/77	5/26/77	5/26/77
COMPONENTS							
HYDROGEN	23.7	23.8	23.1	22.1	19.4	21.6	20.2
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
METHANE	7.8	6.9	8.7	7.8	8.0	8.1	8.2
CARBON MONOXIDE	3.5	3.4	3.4	3.0	2.6	2.7	3.0
CARBON DIOXIDE	64.0	64.6	64.8	66.0	68.3	64.8	65.2
HYDROGEN SULFIDE	0.4	0.3	0.8	0.2	0.3	0.4	0.3
WATER	0.0	0.2	0.0	0.0	0.3	1.5	2.1
ETHYLENE	0.0	0.0	0.0	0.0	0.0	0.0*	0.0
ETHANE	1.0	0.8	1.0	0.9	1.1	0.9	1.0
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-N

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2-127	SC2-128	SC2-129	SC2-130
TIME	23:26	1:30	3:30	19: 0
DATE	5/26/77	5/27/77	5/27/77	5/27/77
COMPONENTS				
HYDROGEN	21.8	16.0	20.9	21.7
OXYGEN	0.0	0.0	0.0	0.0
NITROGEN	0.0	0.0	0.0	0.0
METHANE	8.2	6.6	7.5	7.4
CARBON MONOXIDE	3.0	1.9	3.0	2.2
CARBON DIOXIDE	65.6	74.0	67.2	66.3
HYDROGEN SULFIDE	0.3	0.4	0.5	0.9
WATER	0.3	0.1	0.0	0.5
ETHYLENE	0.1	0.1	0.0	0.0
ETHANE	0.7	0.9	0.9	1.0
PROPYLENE	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0
1-BUTENE	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-0

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2-131	SC2-132	SC2-133	SC2-134	SC2-135	SC2-136	SC2-137
TIME	16:12	18:00	0:30	2:30	4:30	6:30	8:30
DATE	8/6/77	8/6/77	8/13/77	8/13/77	8/13/77	8/13/77	8/13/77
COMPONENTS							
HYDROGEN	0.0+	0.0+	33.1	32.7	32.0	32.9	32.4
OXYGEN	0.0+	0.0+	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.0+	0.0+	0.1	0.1	0.1	0.0	0.1
METHANE	0.0+	0.0+	9.0	9.1	8.3	8.4	9.6
CARBON MONOXIDE	0.0+	0.0+	8.5	8.6	7.5	7.5	8.3
CARBON DIOXIDE	0.0+	0.0+	48.4	47.7	50.3	51.0	52.7
HYDROGEN SULFIDE	0.0+	0.0+	0.1	0.1	0.2	0.4	0.0*
WATER	0.0+	0.0+	0.7	1.6	1.5	0.0	0.0
ETHYLENE	0.0+	0.0+	0.0	0.0	0.0	0.0	0.0
ETHANE	0.0+	0.0+	0.1	0.1	0.1	0.1	0.1
PROPYLENE	0.0+	0.0+	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0+	0.0+	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0+	0.0+	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0+	0.0+	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-0

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2-138	SC2-139	SC2-140	SC2-141	SC2-142	SC2-143	SC2-144
TIME	10:30	12:31	14:41	16:30	18:30	20:30	8:30
DATE	8/13/77	8/13/77	8/13/77	8/13/77	8/13/77	8/13/77	8/15/77
COMPONENTS							
HYDROGEN	30.2	29.7	30.0	29.9	30.3	29.2	29.3
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.1	0.1	0.1	0.0*	0.0*	0.0*	0.0*
METHANE	10.1	9.9	9.7	9.7	9.5	10.5	9.7
CARBON MONOXIDE	9.3	8.5	9.1	9.5	8.5	8.8	8.6
CARBON DIOXIDE	52.8	52.5	53.2	52.4	52.2	54.7	51.0
HYDROGEN SULFIDE	0.3	0.4	0.3	0.2	0.3	0.1	0.2
WATER	0.0	0.0	0.0	0.0	0.0	0.0	1.1
ETHYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ETHANE	0.1	0.1	0.1	0.1	0.2	0.2	0.1
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-0

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2-145	SC2-146	SC2-147	SC2-148	SC2-149	SC2-150	SC2-151
TIME	10:23	12:25	18:0	19:50	22:0	0:1	2:10
DATE	8/15/77	8/15/77	8/15/77	8/15/77	8/15/77	8/16/77	8/16/77
COMPONENTS							
HYDROGEN	29.6	29.6	29.4	30.3	31.0	30.8	31.2
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.0*	0.1	0.0*	0.0*	0.4	0.4	0.2
METHANE	9.5	10.1	9.1	9.8	9.5	9.7	8.7
CARBON MONOXIDE	7.7	10.5	9.2	10.9	9.9	10.1	10.6
CARBON DIOXIDE	51.6	48.5	51.2	48.8	46.2	46.1	45.1
HYDROGEN SULFIDE	0.3	0.0*	0.1	0.2	0.1	0.1	0.2
WATER	1.1	1.0	0.7	0.0	2.7	2.7	3.9
ETHYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ETHANE	0.2	0.2	0.3	0.2	0.2	0.1	0.1
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-0

BASIS: VOLUME PERCENT

SAMPLE NUMBER	SC2-152	SC2-153	SC2-154	SC2-155	SC2-156	SC2-157	SC2-158
TIME	4:0	6:10	8:17	10:5	12:5	17:0	18:52
DATE	8/16/77	8/16/77	8/16/77	8/16/77	8/16/77	8/16/77	8/16/77
COMPONENTS							
HYDROGEN	30.1	29.7	31.4	28.1	29.5	31.4	31.2
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NITROGEN	0.4	0.5	0.1	0.1	0.1	0.0*	0.1
METHANE	10.6	8.1	8.7	11.2	7.3	8.6	9.0
CARBON MONOXIDE	10.5	10.2	10.7	11.0	9.7	9.4	11.5
CARBON DIOXIDE	45.9	49.0	48.3	47.7	51.8	49.6	47.4
HYDROGEN SULFIDE	0.9	0.1	0.3	0.1	0.2	0.2	0.2
WATER	1.4	2.3	0.4	1.5	1.3	0.7	0.5
ETHYLENE	0.0	0.0	0.0	0.0*	0.0	0.0	0.0
ETHANE	0.2	0.1	0.1	0.3	0.1	0.1	0.1
PROPYLENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1, BUTENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N-BUTANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SC2 - GAS FROM ABSORBER FEED
K. O. DRUM (FA-203)

RUN 1-DB-0

BASIS: VOLUME PERCENT

SAMPLE NUMBER SC2-159

TIME 21: 0

DATE 8/16/77

COMPONENTS

HYDROGEN	30.2
OXYGEN	0.0
NITROGEN	0.1
METHANE	10.0
CARBON MONOXIDE	10.9
CARBON DIOXIDE	47.6
HYDROGEN SULFIDE	0.3
WATER	0.8
ETHYLENE	0.0
ETHANE	0.1
PROPYLENE	0.0
PROPANE	0.0
1, BUTENE	0.0
N-BUTANE	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

WATER SAMPLES

RUN 1-DB-B

SAMPLE NUMBER	S2- 1	S2- 2	S2- 3	S2- 4	S2- 5
TIME	16: 0	20: 0	11: 0	15: 0	20: 0
DATE	2/24/77	2/24/77	2/25/77	2/25/77	2/25/77
COMPONENTS					
PHENOLS (PPM)	0.0	0.0+	44.0	3.0	0.5
COD (PPM)	0.0+	0.0+	2110.0	223.0	0.0+
P-ALKALINITY (GR/GAL)	0.0*	0.0+	160.0	124.0	52.0
M-ALKALINITY (GR/GAL)	0.0*	0.0+	342.0	655.0	320.0
N AS NH3 (PPM)	185.0	0.0+	3920.0	1890.0	1750.0
S (PPM)	12.4	0.0+	34.3	62.9	3.3
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
PH	7.2	8.1	9.2	8.6	7.9
TSS (WEIGHT %)	16.2	60.8	0.1	0.1	27.7

+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

WATER SAMPLES

RUN 1-DB-C

SAMPLE NUMBER	S2- 6	S2- 7	S2- 8	S2- 9	S2- 10
TIME	20: 0	0: 0	4: 0	8: 0	12: 0
DATE	2/27/77	2/28/77	2/28/77	2/28/77	2/28/77

COMPONENTS

PHENOLS (PPM)	1.4	0.2	0.3	0.5	0.0+
COD (PPM)	336.0	148.0	168.0	0.0+	0.0+
P-ALKALINITY (GR/GAL)	0.0	0.0*	0.0*	0.0+	0.0+
M-ALKALINITY (GR/GAL)	118.0	374.0	384.0	0.0+	0.0+
N AS NH3 (PPM)	670.0	2590.0	2400.0	0.0+	0.0+
S (PPM)	43.0	46.0	5.1	0.0+	0.0+
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
PH	7.7	8.3	8.3	8.8	0.0+
TSS (WEIGHT %)	5.2	24.3	9.4	52.0	100.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

WATER SAMPLES

RUN 1-DB-D

SAMPLE NUMBER	S2- 11	S2- 12	S2- 13	S2- 14	S2- 15	S2- 16	S2- 17
TIME	16: 0	20: 0	0: 0	4: 0	8: 0	12: 0	16:15
DATE	2/28/77	2/28/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77
COMPONENTS							
PHENOLS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0	0.0+	0.6
COD (PPM)	0.0+	0.0+	0.0+	0.0+	129.0	0.0+	198.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	0.0+	0.0+	0.0+	0.0+	2100.0	0.0+	2480.0
S (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	0.0+	0.0+	0.0+	0.0+	8.8	0.0+	8.4
TSS (WEIGHT %)	100.0	100.0	100.0	100.0	65.0	100.0	32.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

WATER SAMPLES

RUN 1-DB-E

SAMPLE NUMBER	S2- 18	S2- 19	S2- 20
TIME	15:55	14:15	18: 0
DATE	3/15/77	3/16/77	3/16/77
COMPONENTS			

PHENOLS (PPM)	20.0	2400.0	400.0
COD (PPM)	15.2	12500.0	1260.0
P-ALKALINITY (GR/GAL)	0.0	0.0	0.0
M-ALKALINITY (GR/GAL)	12.0	470.0	414.0
N AS NH3 (PPM)	280.0	2760.0	2280.0
S (PPM)	24.7	77.8	41.5
CHLORINE (PPM)	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+
PH	6.0	7.5	7.9
TSS (WEIGHT %)	0.1	0.3	14.1

+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

WATER SAMPLES

RUN 1-DB-F

SAMPLE NUMBER	S2- 21	S2- 22	S2- 23	S2- 24
TIME	9: 0	13:30	17: 0	21: 0
DATE	3/22/77	3/22/77	3/22/77	3/22/77
COMPONENTS				

PHENOLS (PPM)	0.0+	0.0+	5.8	10.8
COD (PPM)	0.0+	0.0+	212.0	123.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	103.0
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	288.0
N AS NH3 (PPM)	0.0+	0.0+	2420.0	1590.0
S (PPM)	0.0+	0.0+	33.5	47.0
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+
PH	0.0+	0.0+	8.7	8.9
TSS (WEIGHT %)	100.0	100.0	45.1	21.3

+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

WATER SAMPLES

RUN 1-DB-G

SAMPLE NUMBER S2- 25

TIME 12:45

DATE 3/31/77

COMPONENTS

PHENOLS (PPM)	18.0
COD (PPM)	10.4
P-ALKALINITY (GR/GAL)	0.0
M-ALKALINITY (GR/GAL)	40.2
N AS NH3 (PPM)	17.3
S (PPM)	18.0
CHLORINE (PPM)	0.0+
DISSOLVED SOLIDS (PPM)	0.0+
THIOCYANATE (PPM)	0.0+
CYANIDE (PPM)	0.0+
PH	6.0
TSS (WEIGHT %)	0.0*

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

WATER SAMPLES

RUN 1-DB-H

SAMPLE NUMBER	S2- 26	S2- 27
TIME	1:45	5: 0
DATE	4/ 1/77	4/ 1/77
COMPONENTS		
PHENOLS (PPM)	0.1	168.0
COD (PPM)	21.6	726.0
P-ALKALINITY (GR/GAL)	0.0	0.0
M-ALKALINITY (GR/GAL)	141.0	191.0
N AS NH3 (PPM)	890.0	1130.0
S (PPM)	42.7	43.8
CHLORINE (PPM)	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+
PH	8.1	8.2
TSS (WEIGHT %)	14.9	12.0

+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

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S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S2U- 1	S2U- 2	S2U- 3	S2U- 4	S2U- 5
TIME	16: 0	20: 0	11: 0	15: 0	20: 0
DATE	2/24/77	2/24/77	2/25/77	2/25/77	2/25/77
PROXIMATE ANALYSIS					

VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +
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+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S2U- 6	S2U- 7	S2U- 8	S2U- 9	S2U- 10
TIME	20: 0	0: 0	4: 0	8: 0	12: 0
DATE	2/27/77	2/28/77	2/28/77	2/28/77	2/28/77
PROXIMATE ANALYSIS					

VOLATILE MATTER	8.6	0.0+	0.0+	8.3	8.2
FIXED CARBON	68.4	0.0+	0.0+	67.0	67.6
ASH	23.0	0.0+	0.0+	24.6	24.2
TOTAL	100.0	0.0	0.0	100.0	100.0

ULTIMATE ANALYSIS

HYDROGEN	1.6	0.0+	0.0+	1.7	1.6
CARBON	70.2	0.0+	0.0+	68.6	69.5
NITROGEN	0.7	0.0+	0.0+	0.6	0.6
OXYGEN	4.1	0.0	0.0	4.2	3.9
SULFUR	0.3	0.0+	0.0+	0.3	0.2
ASH	23.0	0.0+	0.0+	24.6	24.2
TOTAL	100.0	0.0	0.0	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	10900.	0. +	0. +	10600.	10600.
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S2U- 11	S2U- 12	S2U- 13	S2U- 14	S2U- 15	S2U- 16	S2U- 17
TIME	16: 0	20: 0	0: 0	4: 0	8: 0	12: 0	16:15
DATE	2/28/77	2/28/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77
PROXIMATE ANALYSIS							

VOLATILE MATTER	8.9	10.2	0.0+	8.6	8.8	7.9	0.0+
FIXED CARBON	67.8	60.1	0.0+	66.0	66.6	69.0	0.0+
ASH	23.2	29.7	0.0+	25.4	24.5	23.1	0.0+
TOTAL	100.0	100.0	0.0	100.0	100.0	100.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	1.8	1.4	0.0+	1.5	1.7	1.5	0.0+
CARBON	69.6	62.3	0.0+	68.2	68.2	70.1	0.0+
NITROGEN	0.9	0.7	0.0+	0.7	0.6	0.6	0.0+
OXYGEN	4.3	5.7	0.0	3.9	4.6	4.3	0.0
SULFUR	0.2	0.2	0.0+	0.4	0.3	0.3	0.0+
ASH	23.2	29.7	0.0+	25.4	24.5	23.1	0.0+
TOTAL	100.0	100.0	0.0	100.0	100.0	100.0	0.0

HEAT OF COMBUSTION (BTU/LB)	10700.	9430.	0. +	10400.	10500.	10700.	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S2U- 18	S2U- 19	S2U- 20
TIME	15:55	14:15	18: 0
DATE	3/15/77	3/16/77	3/16/77
PROXIMATE ANALYSIS			

VOLATILE MATTER	0.0+	0.0+	14.8
FIXED CARBON	0.0+	0.0+	62.0
ASH	0.0+	0.0+	23.2
TOTAL	0.0	0.0	100.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	2.4
CARBON	0.0+	0.0+	68.1
NITROGEN	0.0+	0.0+	0.8
OXYGEN	0.0	0.0	4.9
SULFUR	0.0+	0.0+	0.5
ASH	0.0+	0.0+	23.2
TOTAL	0.0	0.0	100.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	10900.
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S2U- 21	S2U- 22	S2U- 23	S2U- 24
TIME	9: 0	13:30	17: 0	21: 0
DATE	3/22/77	3/22/77	3/22/77	3/22/77
PROXIMATE ANALYSIS				

VOLATILE MATTER	0.0+	16.2	12.6	0.0+
FIXED CARBON	0.0+	64.5	67.5	0.0+
ASH	0.0+	19.3	19.9	0.0+
TOTAL	0.0	100.0	100.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	2.4	2.5	0.0+
CARBON	0.0+	69.7	72.3	0.0+
NITROGEN	0.0+	0.9	0.8	0.0+
OXYGEN	0.0	7.2	4.2	0.0
SULFUR	0.0+	0.6	0.3	0.0+
ASH	0.0+	19.3	19.9	0.0+
TOTAL	0.0	100.0	100.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	11000.	11600.	0. +
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+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER S2U- 25

TIME 12:45

DATE 3/31/77

PROXIMATE ANALYSIS

VOLATILE MATTER 0. 0+

FIXED CARBON 0. 0+

ASH 0. 0+

TOTAL 0. 0

ULTIMATE ANALYSIS

HYDROGEN 0. 0+

CARBON 0. 0+

NITROGEN 0. 0+

OXYGEN 0. 0

SULFUR 0. 0+

ASH 0. 0+

TOTAL 0. 0

HEAT OF COMBUSTION (BTU/LB) 0. +

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER S2U- 26 S2U- 27

TIME 1:45 5: 0

DATE 4/ 1/77 4/ 1/77

PROXIMATE ANALYSIS

	S2U- 26	S2U- 27
VOLATILE MATTER	0.0+	0.0+
FIXED CARBON	0.0+	0.0+
ASH	0.0+	0.0+
TOTAL	0.0	0.0

ULTIMATE ANALYSIS

	S2U- 26	S2U- 27
HYDROGEN	0.0+	0.0+
CARBON	0.0+	0.0+
NITROGEN	0.0+	0.0+
OXYGEN	0.0	0.0
SULFUR	0.0+	0.0+
ASH	0.0+	0.0+
TOTAL	0.0	0.0

HEAT OF COMBUSTION (BTU/LB) 0. + 0. +

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

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S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-08-8

SAMPLE NUMBER

S2U- 1 - S2U- 2 S2U- 3 S2U- 4 S2U- 5

TIME

16: 0 20: 0 11: 0 15: 0 20: 0

DATE

2/24/77 2/24/77 2/25/77 2/25/77 2/25/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
-325 MESH(WEIGHT PERCENT)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-C

SAMPLE NUMBER	S2U- 6	S2U- 7	S2U- 8	S2U- 9	S2U- 10
TIME	20: 0	0: 0	4: 0	8: 0	12: 0
DATE	2/27/77	2/28/77	2/28/77	2/28/77	2/28/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.5	0.0+	0.0+	0.5	0.0*
+20 MESH	1.4	0.0+	0.0+	0.5	0.1
+30 MESH	2.1	0.0+	0.0+	0.5	0.1
+50 MESH	2.6	0.0+	0.0+	0.5	0.2
+60 MESH	2.6	0.0+	0.0+	0.5	0.4
+100 MESH	7.3	0.0+	0.0+	3.4	8.3
+140 MESH	21.4	0.0+	0.0+	13.9	37.6
+200 MESH	43.8	0.0+	0.0+	88.6	58.5
+325 MESH	82.4	0.0+	0.0+	97.5	82.2
-325 MESH(WEIGHT PERCENT)	17.6	0.0+	0.0+	2.5	17.8

+ = NO. ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-D

SAMPLE NUMBER	S2U- 11	S2U- 12	S2U- 13	S2U- 14	S2U- 15	S2U- 16	S2U- 17
TIME	16: 0	20: 0	0: 0	4: 0	8: 0	12: 0	16:15
DATE	2/28/77	2/28/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.2	0.0	0.0+	0.0	0.3	0.0	0.0+
+20 MESH	0.4	0.0*	0.0+	0.0*	0.6	0.0	0.0+
+30 MESH	0.5	0.0*	0.0+	0.0*	0.9	0.0	0.0+
+50 MESH	0.7	0.3	0.0+	0.1	1.1	0.1	0.0+
+60 MESH	0.9	0.8	0.0+	0.2	1.2	0.8	0.0+
+100 MESH	5.2	35.4	0.0+	36.3	6.4	26.8	0.0+
+140 MESH	17.7	62.6	0.0+	70.7	27.5	60.1	0.0+
+200 MESH	36.3	80.5	0.0+	85.0	54.3	74.6	0.0+
+325 MESH	83.7	93.3	0.0+	45.0	80.5	91.1	0.0+
-325 MESH(WEIGHT PERCENT)	16.3	6.7	0.0+	5.0	19.5	8.9	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-E

SAMPLE NUMBER	S2U- 18	S2U- 19	S2U- 20
TIME	15:55	14:15	18: 0
DATE	3/15/77	3/16/77	3/16/77

U. S. SIEVE SIZE	CUMMULATIVE WEIGHT PERCENT		
-----	-----		
+8 MESH	0.0+	0.0+	0.0
+20 MESH	0.0+	0.0+	0.0
+30 MESH	0.0+	0.0+	0.1
+50 MESH	0.0+	0.0+	0.5
+60 MESH	0.0+	0.0+	0.6
+100 MESH	0.0+	0.0+	29.2
+140 MESH	0.0+	0.0+	73.7
+200 MESH	0.0+	0.0+	92.8
+325 MESH	0.0+	0.0+	98.2
-325 MESH<WEIGHT PERCENT>	0.0+	0.0+	1.8

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-F

SAMPLE NUMBER	S2U- 21	S2U- 22	S2U- 23	S2U- 24
TIME	9: 0	13:30	17: 0	21: 0
DATE	3/22/77	3/22/77	3/22/77	3/22/77

U. S. SIEVE SIZE	CUMMULATIVE WEIGHT PERCENT			
-----	-----			
+8 MESH	0.0+	0.0	0.0	0.0+
+20 MESH	0.0+	1.4	0.0	0.0+
+30 MESH	0.0+	2.3	0.0	0.0+
+50 MESH	0.0+	2.8	0.0	0.0+
+60 MESH	0.0+	3.0	0.1	0.0+
+100 MESH	0.0+	7.0	1.4	0.0+
+140 MESH	0.0+	13.2	5.2	0.0+
+200 MESH	0.0+	22.0	13.7	0.0+
+325 MESH	0.0+	42.6	40.4	0.0+
-325 MESH(WEIGHT PERCENT)	0.0+	57.4	59.6	0.0+

+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

SOLIDS FILTERED FROM SAMPLE
PARTICLE SIZE DISTRIBUTION

RUN 1-08-G

SAMPLE NUMBER

S2U- 25

TIME

12:45

DATE

3/31/77

U. S. SIEVE SIZE

CUMULATIVE WEIGHT PERCENT

+8 MESH	0.0+
+20 MESH	0.0+
+30 MESH	0.0+
+50 MESH	0.0+
+60 MESH	0.0+
+100 MESH	0.0+
+140 MESH	0.0+
+200 MESH	0.0+
+325 MESH	0.0+
-325 MESH(WEIGHT PERCENT)	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S2U - SAMPLE FROM SCRUBBER SURGE TANK
(FA-215) - CENTER COMPARTMENT BOTTOM

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-H

SAMPLE NUMBER

S2U- 26

S2U- 27

TIME

1:45

5: 0

DATE

4/ 1/77

4/ 1/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+
-325 MESH(WEIGHT PERCENT)	0. 0+	0. 0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-A

SAMPLE NUMBER	S3- 97	S3- 98
TIME	15:30	5: 0
DATE	2/23/77	2/24/77
COMPONENTS		

PHENOLS (PPM)	13.5	0.7
COD (PPM)	524.0	125.0
P-ALKALINITY (GR/GAL)	0.0	0.0*
M-ALKALINITY (GR/GAL)	2.0	280.0
N AS NH3 (PPM)	3480.0	1590.0
S (PPM)	1.3	33.8
CHLORINE (PPM)	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+
PH	5.9	8.0
TSS (WEIGHT %)	0.3	5.8

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-B

SAMPLE NUMBER	S3- 99	S3-100	S3-101	S3-102	S3-103	S3-104	S3-105
TIME	16: 0	20: 0	3:10	7: 0	11: 0	15: 0	20: 0
DATE	2/24/77	2/24/77	2/25/77	2/25/77	2/25/77	2/25/77	2/25/77
COMPONENTS							
PHENOLS (PPM)	134.0	16.0	1.0	0.2	0.1	0.0*	0.0
COD (PPM)	415.0	3080.0	100.0	185.0	274.0	148.0	149.0
P-ALKALINITY (GR/GAL)	0.0	74.6	94.3	0.0*	0.0*	0.0*	0.0*
M-ALKALINITY (GR/GAL)	18.1	313.0	423.0	523.0	411.0	375.0	391.0
N AS NH3 (PPM)	2430.0	1760.0	2460.0	2610.0	2390.0	2170.0	2240.0
S (PPM)	6.2	42.2	50.4	72.2	45.2	21.2	21.0
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	6.0	8.5	8.5	8.2	7.8	7.8	8.4
TSS (WEIGHT %)	0.1	7.5	7.8	8.6	9.3	20.5	8.8

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

RUN 1-DB-B

SAMPLE NUMBER	S3-106	S3-107	S3-108	S3-109	S3-110
TIME	0: 0	4: 0	8: 0	12:30	16:15
DATE	2/26/77	2/26/77	2/26/77	2/26/77	2/26/77
COMPONENTS					
PHENOLS (PPM)	0.0*	0.1	0.0	0.2	1.9
COD (PPM)	176.0	145.0	141.0	195.0	122.0
P-ALKALINITY (GR/GAL)	0.0*	0.0*	69.0	88.0	57.5
M-ALKALINITY (GR/GAL)	217.0	558.0	288.0	284.0	343.0
N AS NH3 (PPM)	1320.0	3440.0	1880.0	2100.0	1590.0
S (PPM)	16.1	66.1	44.6	16.8	63.6
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
PH	9.0	8.2	8.0	7.5	8.1
TSS (WEIGHT %)	15.6	15.5	18.7	21.3	25.7

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER(EE-201)

WATER SAMPLES

RUN 1-DB-C

SAMPLE NUMBER	S3-111	S3-112	S3-113	S3-114	S3-115
TIME	20: 0	0: 0	4: 0	8: 0	12: 0
DATE	2/27/77	2/28/77	2/28/77	2/28/77	2/28/77
COMPONENTS					
PHENOLS (PPM)	0.6	0.3	2.4	0.3	0.0*
COD (PPM)	277.0	227.0	314.0	195.0	131.0
P-ALKALINITY (GR/GAL)	0.0*	92.0	74.2	104.0	131.0
M-ALKALINITY (GR/GAL)	531.0	485.0	514.0	549.0	401.0
N AS NH3 (PPM)	1950.0	2920.0	3080.0	3380.0	2480.0
S (PPM)	83.2	90.0	68.0	50.3	42.6
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
PH	8.5	8.4	8.3	8.4	8.5
TSS (WEIGHT %)	12.1	10.6	4.1	10.8	8.1

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-D

SAMPLE NUMBER	S3-116	S3-117	S3-118	S3-119	S3-120	S3-121	S3-122
TIME	16:0	20:0	0:0	4:0	8:0	12:0	16:15
DATE	2/28/77	2/28/77	3/1/77	3/1/77	3/1/77	3/1/77	3/1/77
COMPONENTS							
PHENOLS (PPM)	0.0	0.0	0.0	0.0	0.0	0.5	0.5
COD (PPM)	211.0	205.0	251.0	197.0	255.0	112.0	166.0
P-ALKALINITY (GR/GAL)	72.0	0.0*	0.0	79.4	0.0*	20.7	0.0
M-ALKALINITY (GR/GAL)	348.0	451.0	382.0	643.0	477.0	307.0	427.0
N AS NH3 (PPM)	2170.0	2660.0	2450.0	2170.0	2870.0	1750.0	2480.0
S (PPM)	39.8	37.1	70.3	53.4	35.9	19.5	46.0
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	8.4	8.3	7.9	8.8	8.0	9.3	7.8
TSS (WEIGHT %)	19.2	10.8	4.8	10.8	9.4	9.3	4.8

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

RUN 1-DB-D

SAMPLE NUMBER	S3-123
TIME	21:30
DATE	3/1/77
COMPONENTS	
PHENOLS (PPM)	0.4
COD (PPM)	23.6
P-ALKALINITY (GR/GAL)	0.0
M-ALKALINITY (GR/GAL)	104.0
N AS NH3 (PPM)	615.0
S (PPM)	4.5
CHLORINE (PPM)	0.0+
DISSOLVED SOLIDS (PPM)	0.0+
THIOCYANATE (PPM)	0.0+
CYANIDE (PPM)	0.0+
PH	7.1
TSS (WEIGHT %)	0.1

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-E

SAMPLE NUMBER	S3-124	S3-125	S3-126	S3-127	S3-128	S3-129	S3-130
TIME	15:45	19: 0	23: 0	3: 0	7: 0	14:15	18: 0
DATE	3/15/77	3/15/77	3/15/77	3/16/77	3/16/77	3/16/77	3/16/77
COMPONENTS							
PHENOLS (PPM)	54.0	1130.0	14.0	1120.0	44.0	1120.0	200.0
COD (PPM)	109.0	7190.0	779.0	27600.0	331.0	33900.0	1490.0
P-ALKALINITY (GR/GAL)	0.0	0.0	40.3	29.3	57.5	86.3	0.0
M-ALKALINITY (GR/GAL)	6.7	184.0	362.0	426.0	459.0	288.0	50.1
N AS NH3 (PPM)	20.5	936.0	2230.0	2380.0	2710.0	1570.0	260.0
S (PPM)	0.0	0.0	65.1	49.4	64.0	0.0	2.5
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	5.7	6.9	8.1	8.0	8.0	8.6	6.2
TSS (WEIGHT %)	0.0*	0.1	1.3	0.1	1.8	0.0*	1.2

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-F

SAMPLE NUMBER	53-131	53-132	53-133	53-134
TIME	9: 0	13:30	17: 0	21: 0
DATE	3/22/77	3/22/77	3/22/77	3/22/77
COMPONENTS				

PHENOLS (PPM)	560.0	1000.0	0.6	0.2
COD (PPM)	6940.0	0.0+	79.8	74.1
P-ALKALINITY (GR/GAL)	0.0	0.0	119.0	101.0
M-ALKALINITY (GR/GAL)	80.9	125.0	309.0	310.0
N AS NH3 (PPM)	373.0	732.0	1970.0	1780.0
S (PPM)	1.7	62.5	40.1	55.1
CHLORINE (PPM)	0.0+	0.0+	137.0	78.1
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+
PH	7.2	8.2	8.2	8.0
TSS (WEIGHT %)	0.0*	2.3	15.1	21.9

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-G

SAMPLE NUMBER	S3-135	S3-136
TIME	12:45	17: 0
DATE	3/31/77	3/31/77
COMPONENTS		

PHENOLS (PPM)	0.4	1.5
COD (PPM)	193.0	256.0
P-ALKALINITY (GR/GAL)	0.0	52.8
M-ALKALINITY (GR/GAL)	5.7	360.0
N AS NH3 (PPM)	34.5	2450.0
S (PPM)	80.6	285.0
CHLORINE (PPM)	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+
PH	6.3	8.8
TSS (WEIGHT %)	0.2	14.5

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-H

SAMPLE NUMBER	S3-137	S3-138	S3-139	S3-140	S3-141	S3-142	S3-143
TIME	1:45	5:0	9:0	13:0	17:0	21:0	1:15
DATE	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 2/77
COMPONENTS							
PHENOLS (PPM)	0.0*	240.0	1.2	0.2	0.3	0.3	0.0
COD (PPM)	1.6	954.0	0.0+	140.0	182.0	98.4	150.0
P-ALKALINITY (GR/GAL)	0.0	0.0*	6.8	0.0+	0.0*	0.0	0.0
M-ALKALINITY (GR/GAL)	47.4	308.0	348.0	0.0+	273.0	290.0	363.0
N AS NH3 (PPM)	228.0	1970.0	2310.0	2840.0	2210.0	2000.0	2410.0
S (PPM)	13.9	172.0	240.0	203.0	328.0	285.0	293.0
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	7.7	8.8	8.3	8.4	8.4	7.3	7.7
TSS (WEIGHT %)	2.8	4.6	28.9	34.3	40.6	32.5	7.1

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-H

SAMPLE NUMBER	S3-144
TIME	9:0
DATE	4/ 2/77
COMPONENTS	
PHENOLS (PPM)	0.1
COD (PPM)	69.6
P-ALKALINITY (GR/GAL)	13.5
M-ALKALINITY (GR/GAL)	309.0
N AS NH3 (PPM)	2090.0
S (PPM)	210.0
CHLORINE (PPM)	0.0+
DISSOLVED SOLIDS (PPM)	0.0+
THIOCYANATE (PPM)	0.0+
CYANIDE (PPM)	0.0+
PH	8.1
TSS (WEIGHT %)	27.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-I

SAMPLE NUMBER	S3-145	S3-146	S3-147	S3-148	S3-149
TIME	13: 0	17:30	21: 0	0:55	5: 0
DATE	4/ 2/77	4/ 2/77	4/ 2/77	4/ 3/77	4/ 3/77
COMPONENTS					
<hr/>					
PHENOLS (PPM)	0.0*	780.0	0.7	0.2	0.0*
COD (PPM)	78.4	1290.0	224.0	103.0	61.6
P-ALKALINITY (GR/GAL)	19.0	0.0	0.0	0.0*	0.0
M-ALKALINITY (GR/GAL)	339.0	252.0	466.0	412.0	469.0
N AS NH3 (PPM)	2520.0	1970.0	2800.0	2920.0	2520.0
S (PPM)	221.0	64.3	147.0	180.0	198.0
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
PH	8.0	8.0	8.2	8.6	8.2
TSS (WEIGHT %)	30.8	4.0	1.9	16.9	9.5

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-J

SAMPLE NUMBER	S3-150	S3-151	S3-152	S3-153	S3-154	S3-155	S3-156
TIME	17:30	21:30	1:30	14:30	18:30	11:30	15:30
DATE	4/ 3/77	4/ 3/77	4/ 4/77	4/ 4/77	4/ 4/77	4/ 5/77	4/ 5/77
COMPONENTS							
PHENOLS (PPM)	1760.0	10.8	192.0	1040.0	720.0	4.6	0.2
COD (PPM)	5380.0	527.0	739.0	3810.0	6920.0	278.0	89.6
P-ALKALINITY (GR/GAL)	0.0*	65.0	0.0	0.0	0.0	0.0	0.0
M-ALKALINITY (GR/GAL)	237.0	417.0	417.0	151.0	329.0	11.2	11.2
N AS NH3 (PPM)	1420.0	2630.0	2650.0	870.0	2110.0	166.0	1900.0
S (PPM)	162.0	192.0	180.0	45.2	50.0	8.7	93.6
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	8.5	8.8	7.8	7.6	7.9	6.9	8.2
TSS (WEIGHT %)	0.7	7.1	8.1	1.8	2.2	0.1	18.6

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-K

SAMPLE NUMBER	S3-157	S3-158	S3-159	S3-160
TIME	21:30	1:30	5:30	9:30
DATE	4/15/77	4/16/77	4/16/77	4/16/77
COMPONENTS				
PHENOLS (PPM)	25900.0	0.4	0.2	0.3
COD (PPM)	12400.0	720.0	242.0	1260.0
P-ALKALINITY (GR/GAL)	0.0	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	305.0	0.0+	0.0+	0.0+
N AS NH3 (PPM)	1030.0	1850.0	1850.0	1800.0
S (PPM)	31.0	130.0	106.0	103.0
CHLORINE (PPM)	0.0+	123.0	66.4	57.6
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+
PH	7.0	8.1	7.9	8.0
TSS (WEIGHT %)	0.0*	15.0	25.5	17.2

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-L

SAMPLE NUMBER	S3-161	S3-162	S3-163	S3-164	S3-165
TIME	14:00	15:30	19:30	21:30	7:30
DATE	4/27/77	4/27/77	4/27/77	4/27/77	4/28/77
COMPONENTS					

PHENOLS (PPM)	0.8	0.6	5.5	3.5	522.0
COD (PPM)	13.9	29.0	196.0	153.0	2580.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	0.0	28.0	1980.0	2080.0	1520.0
S (PPM)	111.0	103.0	246.0	155.0	156.0
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0	0.0	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
PH	6.0	5.9	8.3	8.5	8.1
TSS (WEIGHT %)	0.0*	0.0*	16.6	6.7	5.5

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-M

SAMPLE NUMBER	S3-166	S3-167	S3-168	S3-169	S3-170	S3-171	S3-172
TIME	13:30	14:30	19:30	22:30	2:30	6:30	10:30
DATE	5/16/77	5/16/77	5/16/77	5/16/77	5/17/77	5/17/77	5/17/77
COMPONENTS							
PHENOLS (PPM)	0.5	9.6	2000.0	376.0	16.0	44.0	278.0
COD (PPM)	499.0	384.0	9100.0	1000.0	99.0	120.0	1320.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	0.0	0.0*	1140.0	1710.0	1680.0	2250.0	1880.0
S (PPM)	162.0	71.2	19.5	93.1	47.3	265.0	148.0
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	105.0	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	5.8	5.2	7.1	8.0	7.9	8.0	9.5
TSS (WEIGHT %)	0.0*	0.0*	0.2	9.5	15.3	14.2	17.8

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-M

SAMPLE NUMBER	S3-173
TIME	14:30
DATE	5/17/77
COMPONENTS	
PHENOLS (PPM)	2.9
COD (PPM)	75.2
P-ALKALINITY (GR/GAL)	0.0+
M-ALKALINITY (GR/GAL)	0.0+
N AS NH3 (PPM)	1770.0
S (PPM)	268.0
CHLORINE (PPM)	93.0
DISSOLVED SOLIDS (PPM)	0.0+
THIOCYANATE (PPM)	0.0
CYANIDE (PPM)	0.0+
PH	8.0
TSS (WEIGHT %)	18.8

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-N

SAMPLE NUMBER	S3-174	S3-175	S3-176	S3-177	S3-178	S3-179	S3-180
TIME	13:30	14:45	14:00	14:30	17:30	18:30	22:30
DATE	5/20/77	5/20/77	5/21/77	5/21/77	5/21/77	5/21/77	5/21/77
COMPONENTS							
PHENOLS (PPM)	10.0	15.0	1200.0	20.0	1600.0	1320.0	428.0
COD (PPM)	190.0	230.0	8250.0	1620.0	14600.0	7990.0	10300.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	114.0	39.7	1210.0	199.0	869.0	977.0	1260.0
S (PPM)	168.0	16.8	239.0	338.0	11.5	264.0	81.7
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	7.0	5.6	7.5	5.8	7.7	7.1	7.7
TSS (WEIGHT %)	0.0	0.1	1.6	0.3	0.0*	0.0*	1.2

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-N

SAMPLE NUMBER	S3-181	S3-182	S3-183	S3-184	S3-185	S3-186	S3-187
TIME	2:30	14:45	22:15	23:30	3:30	7:45	10:30
DATE	5/22/77	5/22/77	5/22/77	5/22/77	5/23/77	5/23/77	5/23/77
COMPONENTS							
PHENOLS (PPM)	256.0	5.4	12.0	28.0	23.0	1720.0	60.0
COD (PPM)	2480.0	570.0	82.4	218.0	5400.0	2980.0	463.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	409.0	153.0	165.0	199.0	562.0	988.0	170.0
S (PPM)	21.8	13.5	8.0	26.1	15.1	31.3	5.8
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	7.1	5.3	6.2	5.9	7.3	6.6	5.7
TSS (WEIGHT %)	0.7	0.0	0.0*	0.6	0.0*	2.0	0.5

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-N

SAMPLE NUMBER	S3-188	S3-189	S3-190	S3-191	S3-192	S3-193	S3-194
TIME	15: 0	11: 0	13: 0	17: 0	21: 0	1:30	5:30
DATE	5/23/77	5/24/77	5/24/77	5/24/77	5/24/77	5/25/77	5/25/77
COMPONENTS							
PHENOLS (PPM)	1440.0	64.0	24.0	1520.0	540.0	252.0	212.0
COD (PPM)	13000.0	895.0	879.0	6660.0	1940.0	602.0	665.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	664.0	273.0	11.1	977.0	948.0	778.0	920.0
S (PPM)	9.3	12.5	30.0	50.6	47.3	55.1	59.3
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	6.4	5.2	5.3	7.6	7.6	7.2	7.5
TSS (WEIGHT %)	0.0*	0.0*	0.9	1.4	12.6	10.4	6.1

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

RUN 1-DB-N

SAMPLE NUMBER	S3-195	S3-196	S3-197	S3-198	S3-199	S3-200	S3-201
TIME	9:30	13:30	17:15	21:30	1:30	5:30	22: 0
DATE	5/25/77	5/25/77	5/25/77	5/25/77	5/26/77	5/26/77	5/26/77
COMPONENTS							
PHENOLS (PPM)	1640.0	364.0	244.0	668.0	1640.0	2200.0	1100.0
COD (PPM)	6640.0	1940.0	809.0	2130.0	10500.0	8470.0	7790.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	892.0	835.0	1060.0	1230.0	636.0	806.0	200.0
S (PPM)	63.3	69.1	59.9	0.0+	36.5	164.0	35.9
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	7.0	7.9	8.1	7.5	6.6	6.2	5.7
TSS (WEIGHT %)	2.2	8.6	6.1	4.9	3.1	1.0	0.0*

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER<EE-201>

WATER SAMPLES

RUN 1-DB-N

SAMPLE NUMBER	S3-202	S3-203	S3-204	S3-205	S3-206
TIME	2: 0	6:15	10:15	14: 0	16: 0
DATE	5/27/77	5/27/77	5/27/77	5/27/77	5/27/77
COMPONENTS					
PHENOLS (PPM)	2800.0	1800.0	1640.0	680.0	1960.0
COD (PPM)	17700.0	6550.0	1180.0	634.0	12400.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	1990.0	1280.0	610.0	510.0	1130.0
S (PPM)	85.0	38.3	51.0	12.2	33.9
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
PH	7.4	6.7	7.4	6.3	7.6
TSS (WEIGHT %)	0.0*	0.5	3.0	0.2	2.1

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-0

SAMPLE NUMBER	S3-207	S3-208	S3-209	S3-210	S3-211	S3-212	S3-213
TIME	18:0	1:30	5:30	9:30	13:30	17:30	21:30
DATE	8/5/77	8/10/77	8/10/77	8/10/77	8/10/77	8/10/77	8/10/77
COMPONENTS							
PHENOLS (PPM)	20.4	0.0+	39.0	7.6	3.5	1.2	0.2
COD (PPM)	430.0	0.0+	1060.0	70.0	77.6	28.9	277.0
P-ALKALINITY (GR/GAL)	0.0	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0*	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	48.3	0.0+	0.0+	1030.0	966.0	690.0	1070.0
S (PPM)	6.6	0.0+	70.1	34.8	6.0	35.7	26.1
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	5.3	6.2	7.5	7.6	6.8	7.1	7.8
TSS (WEIGHT %)	0.0*	0.0*	3.3	5.7	5.3	5.7	14.7

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-0

SAMPLE NUMBER	S3-214	S3-215	S3-216	S3-217	S3-218	S3-219	S3-220
TIME	1:30	5:30	9:30	6:0	10:0	14:0	22:0
DATE	8/11/77	8/11/77	8/11/77	8/12/77	8/12/77	8/12/77	8/12/77
COMPONENTS							
PHENOLS (PPM)	0.0+	0.0	33.9	0.0+	0.0*	0.0*	0.0*
COD (PPM)	0.0+	184.0	305.0	0.0+	102.0	159.0	370.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	0.0+	966.0	1000.0	0.0+	628.0	821.0	1540.0
S (PPM)	0.0+	373.0	112.0	0.0+	4.4	120.0	835.0
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	8.1	7.0	8.3	8.0	8.3	7.8	8.6
TSS (WEIGHT %)	14.8	17.4	38.1	35.1	25.1	17.4	33.9

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-0

SAMPLE NUMBER	S3-221	S3-222	S3-223	S3-224	S3-225	S3-226	S3-227
TIME	2: 0	6: 0	10: 0	14: 0	18: 0	22: 0	23:30
DATE	8/13/77	8/13/77	8/13/77	8/13/77	8/13/77	8/13/77	8/14/77
COMPONENTS							
PHENOLS (PPM)	0.0	0.0	0.0	0.2	0.0	0.0	0.0+
COD (PPM)	305.0	57.7	33.9	315.0	352.0	247.0	0.0+
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	1230.0	1070.0	1200.0	1080.0	1170.0	1100.0	0.0+
S (PPM)	79.5	54.7	31.0	99.6	55.5	52.2	0.0+
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	7.9	8.1	7.9	8.0	8.4	8.2	6.5
TSS (WEIGHT %)	35.5	5.1	6.6	22.4	28.9	38.4	0.1

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-0

SAMPLE NUMBER	S3-228	S3-229	S3-230	S3-231	S3-232	S3-233	S3-234
TIME	11:30	19:30	23:30	3:30	7:30	11:30	17:30
DATE	8/15/77	8/15/77	8/15/77	8/16/77	8/16/77	8/16/77	8/16/77
COMPONENTS							
PHENOLS (PPM)	0.0*	0.0+	0.0*	0.0+	0.0*	0.0+	0.0
COD (PPM)	271.0	0.0+	287.0	0.0+	279.0	0.0+	273.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	1200.0	0.0+	1380.0	0.0+	1280.0	0.0+	1030.0
S (PPM)	50.8	0.0+	22.8	0.0+	19.4	0.0+	0.6
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	7.8	8.4	8.0	8.0	7.3	7.3	8.3
TSS (WEIGHT %)	17.4	15.8	8.5	9.8	7.7	2.5	9.1

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

WATER SAMPLES

RUN 1-DB-0

SAMPLE NUMBER S3-235

TIME 21:30

DATE 8/16/77

COMPONENTS

PHENOLS (PPM)	0.0+
COD (PPM)	0.0+
P-ALKALINITY (GR/GAL)	0.0+
M-ALKALINITY (GR/GAL)	0.0+
N AS NH3 (PPM)	0.0+
S (PPM)	0.0+
CHLORINE (PPM)	0.0+
DISSOLVED SOLIDS (PPM)	0.0+
THIOCYANATE (PPM)	0.0+
CYANIDE (PPM)	0.0+
PH	7.8
TSS (WEIGHT %)	10.2

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-A

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3- 97	S3- 98
TIME	15:30	5: 0
DATE	2/23/77	2/24/77
PROXIMATE ANALYSIS		

VOLATILE MATTER	0.0+	0.0+
FIXED CARBON	0.0+	0.0+
ASH	0.0+	0.0+
TOTAL	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+
CARBON	0.0+	0.0+
NITROGEN	0.0+	0.0+
OXYGEN	0.0	0.0
SULFUR	0.0+	0.0+
ASH	0.0+	0.0+
TOTAL	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +
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+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-B

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3- 99	S3-100	S3-101	S3-102	S3-103	S3-104	S3-105
TIME	16: 0	20: 0	3:10	7: 0	11: 0	15: 0	20: 0
DATE	2/24/77	2/24/77	2/25/77	2/25/77	2/25/77	2/25/77	2/25/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB) 0. + 0. + 0. + 0. + 0. + 0. + 0. +

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-B

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-106	S3-107	S3-108	S3-109	S3-110
TIME	0: 0	4: 0	8: 0	12:30	16:15
DATE	2/26/77	2/26/77	2/26/77	2/26/77	2/26/77
PROXIMATE ANALYSIS					

VOLATILE MATTER	0.0+	10.5	8.6	0.0+	8.1
FIXED CARBON	0.0+	67.7	69.0	0.0+	70.2
ASH	0.0+	21.8	22.4	0.0+	21.7
TOTAL	0.0	100.0	100.0	0.0	100.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	2.0	1.5	0.0+	1.7
CARBON	0.0+	70.4	71.0	0.0+	70.9
NITROGEN	0.0+	0.8	0.6	0.0+	0.7
OXYGEN	0.0	4.4	4.1	0.0	4.7
SULFUR	0.0+	0.6	0.3	0.0+	0.3
ASH	0.0+	21.8	22.4	0.0+	21.7
TOTAL	0.0	100.0	100.0	0.0	100.0

HEAT OF COMBUSTION (BTU/LB)	0. +	10800.	10900.	0. +	10900.
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-C

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-111	S3-112	S3-113	S3-114	S3-115
TIME	20: 0	0: 0	4: 0	8: 0	12: 0
DATE	2/27/77	2/28/77	2/28/77	2/28/77	2/28/77
PROXIMATE ANALYSIS					

VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER<EE-201>

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-D

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-116	S3-117	S3-118	S3-119	S3-120	S3-121	S3-122
TIME	16: 0	20: 0	0: 0	4: 0	8: 0	12: 0	16:15
DATE	2/28/77	2/28/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77
PROXIMATE ANALYSIS							

VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER<EE-201>

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DE-D

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER S3-123

TIME 21:30

DATE 3/ 1/77

PROXIMATE ANALYSIS

VOLATILE MATTER	0.0+
FIXED CARBON	0.0+
ASH	0.0+
TOTAL	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+
CARBON	0.0+
NITROGEN	0.0+
OXYGEN	0.0
SULFUR	0.0+
ASH	0.0+
TOTAL	0.0

HEAT OF COMBUSTION (BTU/LB) 0. +

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER<EE-201>

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-E

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-124	S3-125	S3-126	S3-127	S3-128	S3-129	S3-130
TIME	15:45	19:0	23:0	3:0	7:0	14:15	18:0
DATE	3/15/77	3/15/77	3/15/77	3/16/77	3/16/77	3/16/77	3/16/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	29.8	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	100.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	1.6	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	64.3	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	4.4	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	29.8	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	100.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB) 0. + 0. + 0. + 0. + 0. + 0. + 0. +

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER<EE-201>

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-F

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-131	S3-132	S3-133	S3-134
TIME	9: 0	13:30	17: 0	21: 0
DATE	3/22/77	3/22/77	3/22/77	3/22/77
PROXIMATE ANALYSIS				

VOLATILE MATTER	0.0+	0.0+	8.2	0.0+
FIXED CARBON	0.0+	0.0+	69.4	0.0+
ASH	0.0+	0.0+	22.3	0.0+
TOTAL	0.0	0.0	100.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	1.6	0.0+
CARBON	0.0+	0.0+	71.6	0.0+
NITROGEN	0.0+	0.0+	0.6	0.0+
OXYGEN	0.0	0.0	3.4	0.0
SULFUR	0.0+	0.0+	0.4	0.0+
ASH	0.0+	0.0+	22.3	0.0+
TOTAL	0.0	0.0	100.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	11000	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-G

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-135	S3-136
TIME	12:45	17: 0
DATE	3/31/77	3/31/77
PROXIMATE ANALYSIS		

VOLATILE MATTER	0.0+	0.0+
FIXED CARBON	0.0+	0.0+
ASH	0.0+	0.0+
TOTAL	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+
CARBON	0.0+	0.0+
NITROGEN	0.0+	0.0+
OXYGEN	0.0	0.0
SULFUR	0.0+	0.0+
ASH	0.0+	0.0+
TOTAL	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +
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+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER(EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-H

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-137	S3-138	S3-139	S3-140	S3-141	S3-142	S3-143
TIME	1:45	5:0	9:0	13:0	17:0	21:0	1:15
DATE	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 2/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	0.0+	0.0+	8.9	8.6	8.9	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	69.2	68.9	67.4	0.0+	0.0+
ASH	0.0+	0.0+	21.9	22.5	23.7	0.0+	0.0+
TOTAL	0.0	0.0	100.0	100.0	100.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	1.7	1.6	1.6	0.0+	0.0+
CARBON	0.0+	0.0+	71.5	69.7	69.4	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.6	0.6	0.6	0.0+	0.0+
OXYGEN	0.0	0.0	3.9	5.1	4.3	0.0	0.0
SULFUR	0.0+	0.0+	0.4	0.5	0.4	0.0+	0.0+
ASH	0.0+	0.0+	21.9	22.5	23.7	0.0+	0.0+
TOTAL	0.0	0.0	100.0	100.0	100.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	11000.	10800.	10700.	0. +	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-H

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER S3-144

TIME 9: 0

DATE 4/ 2/77

PROXIMATE ANALYSIS

VOLATILE MATTER	8.7
FIXED CARBON	64.7
ASH	26.6
TOTAL	100.0

ULTIMATE ANALYSIS

HYDROGEN	1.6
CARBON	66.5
NITROGEN	0.6
OXYGEN	4.4
SULFUR	0.3
ASH	26.6
TOTAL	100.0

HEAT OF COMBUSTION (BTU/LB) 10300

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-I

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-145	S3-146	S3-147	S3-148	S3-149
TIME	13: 0	17:30	21: 0	0:55	5: 0
DATE	4/ 2/77	4/ 2/77	4/ 2/77	4/ 3/77	4/ 3/77

PROXIMATE ANALYSIS

VOLATILE MATTER	8.4	0.0+	0.0+	8.7	0.0+
FIXED CARBON	65.4	0.0+	0.0+	65.0	0.0+
ASH	26.2	0.0+	0.0+	26.3	0.0+
TOTAL	100.0	0.0	0.0	100.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	1.7	0.0+	0.0+	1.6	0.0+
CARBON	66.9	0.0+	0.0+	67.3	0.0+
NITROGEN	0.6	0.0+	0.0+	0.6	0.0+
OXYGEN	4.3	0.0	0.0	3.8	0.0
SULFUR	0.3	0.0+	0.0+	0.4	0.0+
ASH	26.2	0.0+	0.0+	26.3	0.0+
TOTAL	100.0	0.0	0.0	100.0	0.0

HEAT OF COMBUSTION (BTU/LB)	10400.	0. +	0. +	10300.	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-J

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-150	S3-151	S3-152	S3-153	S3-154	S3-155	S3-156
TIME	17:30	21:30	1:30	14:30	18:30	11:30	15:30
DATE	4/ 3/77	4/ 3/77	4/ 4/77	4/ 4/77	4/ 4/77	4/ 5/77	4/ 5/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB) 0. + 0. + 0. + 0. + 0. + 0. + 0. +

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-K

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-157	S3-158	S3-159	S3-160
TIME	21:30	1:30	5:30	9:30
DATE	4/15/77	4/16/77	4/16/77	4/16/77
PROXIMATE ANALYSIS				

VOLATILE MATTER	0.0+	8.7	8.5	8.5
FIXED CARBON	0.0+	67.3	64.5	61.4
ASH	0.0+	24.0	27.0	30.1
TOTAL	0.0	100.0	100.0	100.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	1.8	1.6	1.5
CARBON	0.0+	69.5	66.5	63.1
NITROGEN	0.0+	0.6	0.6	0.7
OXYGEN	0.0	3.7	4.0	4.2
SULFUR	0.0+	0.4	0.3	0.3
ASH	0.0+	24.0	27.0	30.1
TOTAL	0.0	100.0	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	0. +	10800.	10200.	9700.
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+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER<EE-201>

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-L

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-161	S3-162	S3-163	S3-164	S3-165
TIME	14: 0	15:30	19:30	21:30	7:30
DATE	4/27/77	4/27/77	4/27/77	4/27/77	4/28/77

PROXIMATE ANALYSIS

VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	32.8	35.6	30.8
TOTAL	0.0	0.0	100.0	100.0	100.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	1.8	1.7	1.9
CARBON	0.0+	0.0+	60.2	58.6	61.5
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	5.2	4.1	5.8
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	32.8	35.6	30.8
TOTAL	0.0	0.0	100.0	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-M

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-166	S3-167	S3-168	S3-169	S3-170	S3-171	S3-172
TIME	13:30	14:30	19:30	22:30	2:30	6:30	10:30
DATE	5/16/77	5/16/77	5/16/77	5/16/77	5/17/77	5/17/77	5/17/77
PROXIMATE ANALYSIS							

VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	11.0	11.3	11.6
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	68.0	65.9	66.2
ASH	0.0+	0.0+	0.0+	0.0+	21.0	22.8	22.2
TOTAL	0.0	0.0	0.0	0.0	100.0	100.0	100.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	2.3	2.2	2.4
CARBON	0.0+	0.0+	0.0+	0.0+	71.5	69.7	70.5
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.8	0.7	0.8
OXYGEN	0.0	0.0	0.0	0.0	4.0	4.1	3.7
SULFUR	0.0+	0.0+	0.0+	0.0+	0.4	0.4	0.5
ASH	0.0+	0.0+	0.0+	0.0+	21.0	22.8	22.2
TOTAL	0.0	0.0	0.0	0.0	100.0	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	11500.	11200.	11200.
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-M

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER S3-173

TIME 14:30

DATE 5/17/77

PROXIMATE ANALYSIS

VOLATILE MATTER	10.3
FIXED CARBON	66.1
ASH	23.6
TOTAL	100.0

ULTIMATE ANALYSIS

HYDROGEN	2.0
CARBON	69.6
NITROGEN	0.7
OXYGEN	3.7
SULFUR	0.3
ASH	23.6
TOTAL	100.0

HEAT OF COMBUSTION (BTU/LB) 11100

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-N

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-174	S3-175	S3-176	S3-177	S3-178	S3-179	S3-180
TIME	13:30	14:45	14:00	14:30	17:30	18:30	22:30
DATE	5/20/77	5/20/77	5/21/77	5/21/77	5/21/77	5/21/77	5/21/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB) 0. + 0. + 0. + 0. + 0. + 0. + 0. +

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-N

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-181	S3-182	S3-183	S3-184	S3-185	S3-186	S3-187
TIME	2:30	14:45	22:15	23:30	3:30	7:45	10:30
DATE	5/22/77	5/22/77	5/22/77	5/22/77	5/23/77	5/23/77	5/23/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB) 0. + 0. + 0. + 0. + 0. + 0. + 0. +

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER<EE-201>

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-N

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-188	S3-189	S3-190	S3-191	S3-192	S3-193	S3-194
TIME	15: 0	11: 0	13: 0	17: 0	21: 0	1:30	5:30
DATE	5/23/77	5/24/77	5/24/77	5/24/77	5/24/77	5/25/77	5/25/77

PROXIMATE ANALYSIS

VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	12.2	12.1	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	60.9	58.8	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	26.9	29.1	0.0+
TOTAL	0.0	0.0	0.0	0.0	100.0	100.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	2.3	2.1	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	65.8	64.8	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.7	0.7	0.0+
OXYGEN	0.0	0.0	0.0	0.0	4.1	3.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.3	0.3	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	26.9	29.1	0.0+
TOTAL	0.0	0.0	0.0	0.0	100.0	100.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	10500	10300	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-N

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-195	S3-196	S3-197	S3-198	S3-199	S3-200	S3-201
TIME	9:30	13:30	17:15	21:30	1:30	5:30	22:0
DATE	5/25/77	5/25/77	5/25/77	5/25/77	5/26/77	5/26/77	5/26/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB) 0. + 0. + 0. + 0. + 0. + 0. + 0. +

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER<EE-201>

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-N

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-202	S3-203	S3-204	S3-205	S3-206
TIME	2: 0	6:15	10:15	14: 0	16: 0
DATE	5/27/77	5/27/77	5/27/77	5/27/77	5/27/77
PROXIMATE ANALYSIS					

VOLATILE MATTER	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
FIXED CARBON	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
ASH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
TOTAL	0. 0	0. 0	0. 0	0. 0	0. 0

ULTIMATE ANALYSIS

HYDROGEN	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
CARBON	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
NITROGEN	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
OXYGEN	0. 0	0. 0	0. 0	0. 0	0. 0
SULFUR	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
ASH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
TOTAL	0. 0	0. 0	0. 0	0. 0	0. 0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-207	S3-208	S3-209	S3-210	S3-211	S3-212	S3-213
TIME	18:00	1:30	5:30	9:30	13:30	17:30	21:30
DATE	8/5/77	8/10/77	8/10/77	8/10/77	8/10/77	8/10/77	8/10/77

PROXIMATE ANALYSIS

VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	9.0
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	62.8
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	28.3
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	100.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	1.4
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	64.8
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.4
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	4.8
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.3
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	28.3
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	100.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	10000.
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

55 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE PARTICLE SIZE DISTRIBUTION

RUN 1-DB-0

SAMPLE NUMBER	55-206	55-207	55-208
TIME	23:30	7:30	17:30
DATE	8/15/77	8/16/77	8/16/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+
+50 MESH	0.0+	0.0+	0.0+
+60 MESH	0.0+	0.0+	0.0+
+100 MESH	0.0+	0.0+	0.0+
+140 MESH	0.0+	0.0+	0.0+
+200 MESH	0.0+	0.0+	0.0+
+325 MESH	0.0+	0.0+	0.0+
-325 MESH (WEIGHT PERCENT)	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-08-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-214	S3-215	S3-216	S3-217	S3-218	S3-219	S3-220
TIME	1:30	5:30	9:30	6:0	10:0	14:0	22:0
DATE	8/11/77	8/11/77	8/11/77	8/12/77	8/12/77	8/12/77	8/12/77

PROXIMATE ANALYSIS

VOLATILE MATTER	0.0+	0.0+	8.0	0.0+	0.0+	7.5	0.0+
FIXED CARBON	0.0+	0.0+	64.0	0.0+	0.0+	49.2	0.0+
ASH	0.0+	0.0+	28.0	0.0+	0.0+	43.2	0.0+
TOTAL	0.0	0.0	100.0	0.0	0.0	100.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	1.6	0.0+	0.0+	1.1	0.0+
CARBON	0.0+	0.0+	65.5	0.0+	0.0+	51.3	0.0+
NITROGEN	0.0+	0.0+	0.5	0.0+	0.0+	0.3	0.0+
OXYGEN	0.0	0.0	4.3	0.0	0.0	3.9	0.0
SULFUR	0.0+	0.0+	0.2	0.0+	0.0+	0.2	0.0+
ASH	0.0+	0.0+	28.0	0.0+	0.0+	43.2	0.0+
TOTAL	0.0	0.0	100.0	0.0	0.0	100.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	10100.	0. +	0. +	7680.	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-221	S3-222	S3-223	S3-224	S3-225	S3-226	S3-227
TIME	2: 0	6: 0	10: 0	14: 0	18: 0	22: 0	23:30
DATE	8/13/77	8/13/77	8/13/77	8/13/77	8/13/77	8/13/77	8/14/77
PROXIMATE ANALYSIS							

VOLATILE MATTER	8.8	0.0+	0.0+	0.0+	7.5	8.3	0.0+
FIXED CARBON	52.2	0.0+	0.0+	0.0+	54.0	62.7	0.0+
ASH	39.0	0.0+	0.0+	0.0+	38.5	29.0	0.0+
TOTAL	100.0	0.0	0.0	0.0	100.0	100.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	1.2	0.0+	0.0+	0.0+	1.1	1.3	0.0+
CARBON	54.1	0.0+	0.0+	0.0+	56.2	64.2	0.0+
NITROGEN	0.4	0.0+	0.0+	0.0+	0.4	0.5	0.0+
OXYGEN	5.1	0.0	0.0	0.0	3.6	4.6	0.0
SULFUR	0.2	0.0+	0.0+	0.0+	0.2	0.4	0.0+
ASH	39.0	0.0+	0.0+	0.0+	38.5	29.0	0.0+
TOTAL	100.0	0.0	0.0	0.0	100.0	100.0	0.0

HEAT OF COMBUSTION (BTU/LB)	8130.	0. +	0. +	0. +	8370.	9790.	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER<EE-201>

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S3-228	S3-229	S3-230	S3-231	S3-232	S3-233	S3-234
TIME	10:30	19:30	23:30	3:30	7:30	11:30	17:30
DATE	8/15/77	8/15/77	8/15/77	8/16/77	8/16/77	8/16/77	8/16/77
PROXIMATE ANALYSIS							

VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN: 1-DB-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER 53-235

TIME 21:30

DATE 8/16/77

PROXIMATE ANALYSIS

VOLATILE MATTER	0.0+
FIXED CARBON	0.0+
ASH	0.0+
TOTAL	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+
CARBON	0.0+
NITROGEN	0.0+
OXYGEN	0.0
SULFUR	0.0+
ASH	0.0+
TOTAL	0.0

HEAT OF COMBUSTION (BTU/LB) 0. +

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-A

SAMPLE NUMBER	53- 97	53- 98
TIME	15:30	5: 0
DATE	2/23/77	2/24/77

U. S. SIEVE SIZE		CUMMULATIVE WEIGHT PERCENT
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+8 MESH	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+
-325 MESH(WEIGHT PERCENT)	0. 0+	0. 0+

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-B

SAMPLE NUMBER	S3- 99	S3-100	S3-101	S3-102	S3-103	S3-104	S3-105
TIME	16: 0	20: 0	3:10	7: 0	11: 0	15: 0	20: 0
DATE	2/24/77	2/24/77	2/25/77	2/25/77	2/25/77	2/25/77	2/25/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
-325 MESH(WEIGHT PERCENT)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

RUN 1-DB-B

SAMPLE NUMBER	S3-106	S3-107	S3-108	S3-109	S3-110
TIME	0: 0	4: 0	8: 0	12:30	16:15
DATE	2/26/77	2/26/77	2/26/77	2/26/77	2/26/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0. 0+	0. 1	0. 4	0. 0+	0. 2
+20 MESH	0. 0+	0. 3	0. 8	0. 0+	0. 7
+30 MESH	0. 0+	0. 6	1. 3	0. 0+	0. 9
+50 MESH	0. 0+	1. 9	1. 8	0. 0+	1. 4
+60 MESH	0. 0+	2. 5	1. 8	0. 0+	1. 6
+100 MESH	0. 0+	29. 8	5. 4	0. 0+	6. 0
+140 MESH	0. 0+	62. 4	19. 8	0. 0+	24. 6
+200 MESH	0. 0+	78. 2	43. 5	0. 0+	51. 9
+325 MESH	0. 0+	93. 5	79. 1	0. 0+	84. 0
-325 MESH(WEIGHT PERCENT)	0. 0+	6. 5	20. 8	0. 0+	16. 0

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-C

SAMPLE NUMBER

S3-111 S3-112 S3-113 S3-114 S3-115

TIME

20: 0 0: 0 4: 0 8: 0 12: 0

DATE

2/27/77 2/28/77 2/28/77 2/28/77 2/28/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
-325 MESH(WEIGHT PERCENT)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI CRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-D

SAMPLE NUMBER	S3-116	S3-117	S3-118	S3-119	S3-120	S3-121	S3-122
TIME	16: 0	20: 0	0: 0	4: 0	8: 0	12: 0	16:15
DATE	2/28/77	2/28/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

U. S. SIEVE SIZE	S3-116	S3-117	S3-118	S3-119	S3-120	S3-121	S3-122
+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
-325 MESH(WEIGHT PERCENT)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

RUN 1-DB-D

SAMPLE NUMBER	S3-123
TIME	21:30
DATE	3/ 1/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

U. S. SIEVE SIZE	S3-123
+8 MESH	0. 0+
+20 MESH	0. 0+
+30 MESH	0. 0+
+50 MESH	0. 0+
+60 MESH	0. 0+
+100 MESH	0. 0+
+140 MESH	0. 0+
+200 MESH	0. 0+
+325 MESH	0. 0+
-325 MESH(WEIGHT PERCENT)	0. 0+

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI CRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-E

SAMPLE NUMBER	S3-124	S3-125	S3-126	S3-127	S3-128	S3-129	S3-130
TIME	15:45	19:0	23:0	3:0	7:0	14:15	18:0
DATE	3/15/77	3/15/77	3/15/77	3/16/77	3/16/77	3/16/77	3/16/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+60 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+100 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+140 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+200 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+325 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
-325 MESH(WEIGHT PERCENT)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

RUN 1-DB-E

SAMPLE NUMBER	S3-131	S3-132	S3-133	S3-134
TIME	9:0	13:30	17:0	21:0
DATE	3/22/77	3/22/77	3/22/77	3/22/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0	0.0+
+20 MESH	0.0+	0.0+	0.0	0.0+
+30 MESH	0.0+	0.0+	0.0	0.0+
+50 MESH	0.0+	0.0+	0.0	0.0+
+60 MESH	0.0+	0.0+	0.0	0.0+
+100 MESH	0.0+	0.0+	0.6	0.0+
+140 MESH	0.0+	0.0+	8.4	0.0+
+200 MESH	0.0+	0.0+	45.8	0.0+
+325 MESH	0.0+	0.0+	55.2	0.0+
-325 MESH(WEIGHT PERCENT)	0.0+	0.0+	44.8	0.0+

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-G

SAMPLE NUMBER

S3-135 S3-136

TIME

12:45 17:0

DATE

3/31/77 3/31/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+
+20 MESH	0.0+	0.0+
+30 MESH	0.0+	0.0+
+50 MESH	0.0+	0.0+
+60 MESH	0.0+	0.0+
+100 MESH	0.0+	0.0+
+140 MESH	0.0+	0.0+
+200 MESH	0.0+	0.0+
+325 MESH	0.0+	0.0+
-325 MESH(WEIGHT PERCENT)	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-H

SAMPLE NUMBER	S3-137	S3-138	S3-139	S3-140	S3-141	S3-142	S3-143
TIME	1:45	5: 0	9: 0	13: 0	17: 0	21: 0	1:15
DATE	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 2/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0	0.0	0.0	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0	0.0	0.0	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0	0.0	0.0	0.0+	0.0+
+50 MESH	0.0+	0.0+	0.0	0.0	0.0	0.0+	0.0+
+60 MESH	0.0+	0.0+	0.1	0.2	0.0	0.0+	0.0+
+100 MESH	0.0+	0.0+	0.5	4.1	1.5	0.0+	0.0+
+140 MESH	0.0+	0.0+	9.2	17.3	13.6	0.0+	0.0+
+200 MESH	0.0+	0.0+	32.1	40.0	33.2	0.0+	0.0+
+325 MESH	0.0+	0.0+	60.7	67.6	58.3	0.0+	0.0+
-325 MESH(WEIGHT PERCENT)	0.0+	0.0+	39.3	32.4	41.7	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-H

SAMPLE NUMBER	S3-144
TIME	9: 0
DATE	4/ 2/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0
+20 MESH	0.0
+30 MESH	0.0
+50 MESH	0.0
+60 MESH	0.0
+100 MESH	1.3
+140 MESH	13.1
+200 MESH	26.9
+325 MESH	53.6
-325 MESH(WEIGHT PERCENT)	47.4

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI CRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-I

SAMPLE NUMBER	S3-145	S3-146	S3-147	S3-148	S3-149
TIME	13: 0	17:30	21: 0	0:55	5: 0
DATE	4/ 2/77	4/ 2/77	4/ 2/77	4/ 3/77	4/ 3/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0	0.0+	0.0+	0.0	0.0+
+20 MESH	0.0	0.0+	0.0+	0.0	0.0+
+30 MESH	0.0	0.0+	0.0+	0.0	0.0+
+50 MESH	0.0	0.0+	0.0+	0.0	0.0+
+60 MESH	0.3	0.0+	0.0+	0.1	0.0+
+100 MESH	0.8	0.0+	0.0+	0.4	0.0+
+140 MESH	12.2	0.0+	0.0+	8.1	0.0+
+200 MESH	26.4	0.0+	0.0+	26.6	0.0+
+325 MESH	47.0	0.0+	0.0+	50.6	0.0+
-325 MESH(WEIGHT PERCENT)	53.0	0.0+	0.0+	49.4	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-J

SAMPLE NUMBER	S3-150	S3-151	S3-152	S3-153	S3-154	S3-155	S3-156
TIME	17:30	21:30	1:30	14:30	18:30	11:30	15:30
DATE	4/ 3/77	4/ 3/77	4/ 4/77	4/ 4/77	4/ 4/77	4/ 5/77	4/ 5/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

U. S. SIEVE SIZE	S3-150	S3-151	S3-152	S3-153	S3-154	S3-155	S3-156
+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+60 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+100 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+140 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+200 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+325 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
-325 MESH(WEIGHT PERCENT)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-K

SAMPLE NUMBER	S3-157	S3-158	S3-159	S3-160
TIME	21:30	1:30	5:30	9:30
DATE	4/15/77	4/16/77	4/16/77	4/16/77
U. S. SIEVE SIZE	CUMMULATIVE WEIGHT PERCENT			
+8 MESH	0.0+	0.0+	0.0	0.0+
+20 MESH	0.0+	0.0+	0.1	0.0+
+30 MESH	0.0+	0.0+	0.3	0.0+
+50 MESH	0.0+	0.0+	0.7	0.0+
+60 MESH	0.0+	0.0+	1.0	0.2
+100 MESH	0.0+	0.0+	1.7	1.3
+140 MESH	0.0+	0.0+	10.7	6.9
+200 MESH	0.0+	0.0+	28.1	15.8
+325 MESH	0.0+	0.0+	49.9	38.1
-325 MESH(WEIGHT PERCENT)	0.0+	0.0+	50.1	61.9

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-L

SAMPLE NUMBER	S3-161	S3-162	S3-163	S3-164	S3-165
TIME	14:00	15:30	19:30	21:30	7:30
DATE	4/27/77	4/27/77	4/27/77	4/27/77	4/28/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	0.0+	0.0+	0.0+	0.0+	0.0+
+60 MESH	0.0+	0.0+	0.0+	0.0+	0.0+
+100 MESH	0.0+	0.0+	0.0+	0.0+	0.0+
+140 MESH	0.0+	0.0+	0.0+	0.0+	0.0+
+200 MESH	0.0+	0.0+	0.0+	0.0+	0.0+
+325 MESH	0.0+	0.0+	0.0+	0.0+	0.0+
-325 MESH(WEIGHT PERCENT)	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI CRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-M

SAMPLE NUMBER	S3-166	S3-167	S3-168	S3-169	S3-170	S3-171	S3-172
TIME	13:30	14:30	19:30	22:30	2:30	6:30	10:30
DATE	5/16/77	5/16/77	5/16/77	5/16/77	5/17/77	5/17/77	5/17/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	0.0+	0.0+	0.0+	0.0+	0.4	0.2	0.7
+60 MESH	0.0+	0.0+	0.0+	0.0+	3.1	3.2	0.8
+100 MESH	0.0+	0.0+	0.0+	0.0+	4.5	8.6	1.6
+140 MESH	0.0+	0.0+	0.0+	0.0+	9.6	17.5	5.9
+200 MESH	0.0+	0.0+	0.0+	0.0+	31.2	37.9	23.8
+325 MESH	0.0+	0.0+	0.0+	0.0+	62.6	64.1	53.2
-325 MESH(WEIGHT PERCENT)	0.0+	0.0+	0.0+	0.0+	37.4	35.9	46.8

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

RUN 1-DB-M

SAMPLE NUMBER	S3-173
TIME	14:30
DATE	5/17/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+
+20 MESH	0.0+
+30 MESH	0.0+
+50 MESH	0.0
+60 MESH	0.1
+100 MESH	1.1
+140 MESH	8.2
+200 MESH	25.9
+325 MESH	59.2
-325 MESH(WEIGHT PERCENT)	40.8

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-N

SAMPLE NUMBER	S3-174	S3-175	S3-176	S3-177	S3-178	S3-179	S3-180
TIME	13:30	14:45	14:00	14:30	17:30	18:30	22:30
DATE	5/20/77	5/20/77	5/21/77	5/21/77	5/21/77	5/21/77	5/21/77

U. S. SIEVE SIZE

CUMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+60 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+100 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+140 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+200 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+325 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
-325 MESH(WEIGHT PERCENT)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

RUN 1-DB-N

SAMPLE NUMBER	S3-181	S3-182	S3-183	S3-184	S3-185	S3-186	S3-187
TIME	2:30	14:45	22:15	23:30	3:30	7:45	10:30
DATE	5/22/77	5/22/77	5/22/77	5/22/77	5/23/77	5/23/77	5/23/77

U. S. SIEVE SIZE

CUMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+60 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+100 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+140 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+200 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+325 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
-325 MESH(WEIGHT PERCENT)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI CRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-N

SAMPLE NUMBER	S3-188	S3-189	S3-190	S3-191	S3-192	S3-193	S3-194
TIME	15: 0	11: 0	13: 0	17: 0	21: 0	1:30	5:30
DATE	5/23/77	5/24/77	5/24/77	5/24/77	5/24/77	5/25/77	5/25/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

U. S. SIEVE SIZE	S3-188	S3-189	S3-190	S3-191	S3-192	S3-193	S3-194
+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0	0. 0	0. 0+
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 2	0. 0	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 3	0. 1	0. 0+
+50 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 4	0. 5	0. 0+
+60 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 4	1. 1	0. 0+
+100 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 6	1. 6	0. 0+
+140 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 9	2. 9	0. 0+
+200 MESH	0. 0+	0. 0+	0. 0+	0. 0+	1. 6	3. 8	0. 0+
+325 MESH	0. 0+	0. 0+	0. 0+	0. 0+	27. 8	22. 2	0. 0+
-325 MESH(WEIGHT PERCENT)	0. 0+	0. 0+	0. 0+	0. 0+	72. 2	77. 8	0. 0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-N

SAMPLE NUMBER	S3-195	S3-196	S3-197	S3-198	S3-199	S3-200	S3-201
TIME	9:30	13:30	17:15	21:30	1:30	5:30	22: 0
DATE	5/25/77	5/25/77	5/25/77	5/25/77	5/26/77	5/26/77	5/26/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

U. S. SIEVE SIZE	S3-195	S3-196	S3-197	S3-198	S3-199	S3-200	S3-201
+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
-325 MESH(WEIGHT PERCENT)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI CRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-N

SAMPLE NUMBER	S3-202	S3-203	S3-204	S3-205	S3-206
TIME	2: 0	6:15	10:15	14: 0	16: 0
DATE	5/27/77	5/27/77	5/27/77	5/27/77	5/27/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
-325 MESH(WEIGHT PERCENT)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-0

SAMPLE NUMBER	S3-207	S3-208	S3-209	S3-210	S3-211	S3-212	S3-213
TIME	18: 0	1:30	5:30	9:30	13:30	17:30	21:30
DATE	8/ 5/77	8/10/77	8/10/77	8/10/77	8/10/77	8/10/77	8/10/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

U. S. SIEVE SIZE	S3-207	S3-208	S3-209	S3-210	S3-211	S3-212	S3-213
+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0
+50 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 1
+60 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 2
+100 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	1. 0
+140 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	1. 4
+200 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	2. 4
+325 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	27. 8
-325 MESH(WEIGHT PERCENT)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	72. 2

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

RUN 1-DB-0

SAMPLE NUMBER	S3-214	S3-215	S3-216	S3-217	S3-218	S3-219	S3-220
TIME	1:30	5:30	9:30	6: 0	10: 0	14: 0	22: 0
DATE	8/11/77	8/11/77	8/11/77	8/12/77	8/12/77	8/12/77	8/12/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

U. S. SIEVE SIZE	S3-214	S3-215	S3-216	S3-217	S3-218	S3-219	S3-220
+8 MESH	0. 0+	0. 0+	0. 0	0. 0+	0. 0+	0. 0	0. 0+
+20 MESH	0. 0+	0. 0+	0. 0	0. 0+	0. 0+	0. 0	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0	0. 0+	0. 0+	0. 0	0. 0+
+50 MESH	0. 0+	0. 0+	0. 0*	0. 0+	0. 0+	0. 0*	0. 0+
+60 MESH	0. 0+	0. 0+	0. 1	0. 0+	0. 0+	0. 0*	0. 0+
+100 MESH	0. 0+	0. 0+	0. 8	0. 0+	0. 0+	0. 4	0. 0+
+140 MESH	0. 0+	0. 0+	1. 7	0. 0+	0. 0+	1. 5	0. 0+
+200 MESH	0. 0+	0. 0+	20. 9	0. 0+	0. 0+	6. 4	0. 0+
+325 MESH	0. 0+	0. 0+	69. 4	0. 0+	0. 0+	65. 0	0. 0+
-325 MESH(WEIGHT PERCENT)	0. 0+	0. 0+	30. 6	0. 0+	0. 0+	35. 0	0. 0+

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-0

SAMPLE NUMBER	S3-221	S3-222	S3-223	S3-224	S3-225	S3-226	S3-227
TIME	2: 0	6: 0	10: 0	14: 0	18: 0	22: 0	23:30
DATE	8/13/77	8/13/77	8/13/77	8/13/77	8/13/77	8/13/77	8/14/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0	0.0+	0.0+	0.0+	0.0	0.0	0.0+
+20 MESH	0.0	0.0+	0.0+	0.0+	0.0	0.0	0.0+
+30 MESH	0.0	0.0+	0.0+	0.0+	0.0	0.0	0.0+
+50 MESH	0.8	0.0+	0.0+	0.0+	0.0	0.3	0.0+
+60 MESH	1.2	0.0+	0.0+	0.0+	0.3	0.4	0.0+
+100 MESH	1.4	0.0+	0.0+	0.0+	0.5	0.7	0.0+
+140 MESH	1.8	0.0+	0.0+	0.0+	1.8	2.8	0.0+
+200 MESH	2.3	0.0+	0.0+	0.0+	4.6	5.5	0.0+
+325 MESH	4.8	0.0+	0.0+	0.0+	13.0	19.3	0.0+
-325 MESH(WEIGHT PERCENT)	95.2	0.0+	0.0+	0.0+	87.0	80.7	0.0+

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

RUN 1-DB-0

SAMPLE NUMBER	S3-228	S3-229	S3-230	S3-231	S3-232	S3-233	S3-234
TIME	10:30	19:30	23:30	3:30	7:30	11:30	17:30
DATE	8/15/77	8/15/77	8/15/77	8/16/77	8/16/77	8/16/77	8/16/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+50 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+60 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+100 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+140 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+200 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
+325 MESH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
-325 MESH(WEIGHT PERCENT)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S3 - WATER TO VENTURI SCRUBBER (EE-201)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-0

SAMPLE NUMBER

53-235

TIME

21:30

DATE

8/16/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+
+20 MESH	0.0+
+30 MESH	0.0+
+50 MESH	0.0+
+60 MESH	0.0+
+100 MESH	0.0+
+140 MESH	0.0+
+200 MESH	0.0+
+325 MESH	0.0+
-325 MESH(WEIGHT PERCENT)	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER (DA-201)

WATER SAMPLES

RUN 1-DB-A

SAMPLE NUMBER	S4- 95	S4- 96
TIME	15:30	5: 0
DATE	2/23/77	2/24/77
COMPONENTS		

PHENOLS (PPM)	4.5	8.0
COD (PPM)	94.7	208.0
P-ALKALINITY (GR/GAL)	0.0	0.0*
M-ALKALINITY (GR/GAL)	0.0*	771.0
N AS NH3 (PPM)	13.7	220.0
S (PPM)	240.0	45.8
CHLORINE (PPM)	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+
PH	5.3	8.7
TSS (WEIGHT %)	0.0*	0.7

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER(DA-201)

WATER SAMPLES

RUN 1-DB-B

SAMPLE NUMBER	S4- 97	S4- 98	S4- 99	S4-100	S4-101	S4-102	S4-103
TIME	16: 0	20: 0	3:10	7: 0	11: 0	15: 0	20: 0
DATE	2/24/77	2/24/77	2/25/77	2/25/77	2/25/77	2/25/77	2/25/77
COMPONENTS							
PHENOLS (PPM)	60. 0	325. 0	35. 0	12. 0	115. 0	2. 1	0. 0*
COD (PPM)	5150. 0	5440. 0	608. 0	1790. 0	2600. 0	220. 0	57. 9
P-ALKALINITY (GR/GAL)	0. 0	0. 0	73. 6	0. 0	0. 0*	0. 0	0. 0*
M-ALKALINITY (GR/GAL)	24. 7	975. 0	904. 0	850. 0	947. 0	850. 0	597. 0
N AS NH3 (PPM)	164. 0	4530. 0	4530. 0	5680. 0	5540. 0	5110. 0	3680. 0
S (PPM)	18. 6	40. 8	2. 0	174. 0	281. 0	26. 5	0. 0+
CHLORINE (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
DISSOLVED SOLIDS (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
THIOCYANATE (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
CYANIDE (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
PH	5. 9	8. 0	8. 3	8. 3	9. 2	7. 9	8. 5
TSS (WEIGHT %)	0. 0*	0. 0	0. 0*	0. 0	0. 1	0. 0*	5. 5

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-B

SAMPLE NUMBER	S4-104	S4-105	S4-106	S4-107	S4-108
TIME	0: 0	4: 0	8: 0	12:30	16:15
DATE	2/26/77	2/26/77	2/26/77	2/26/77	2/26/77
COMPONENTS					
PHENOLS (PPM)	0. 0*	0. 0	0. 6	0. 0	0. 0
COD (PPM)	154. 0	111. 0	142. 0	119. 0	508. 0
P-ALKALINITY (GR/GAL)	0. 0*	66. 0	36. 2	57. 5	67. 9
M-ALKALINITY (GR/GAL)	512. 0	316. 0	541. 0	423. 0	429. 0
N AS NH3 (PPM)	3210. 0	1960. 0	3180. 0	2970. 0	3080. 0
S (PPM)	31. 2	28. 8	55. 6	41. 6	31. 5
CHLORINE (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
DISSOLVED SOLIDS (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
THIOCYANATE (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
CYANIDE (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
PH	8. 9	8. 7	7. 9	7. 5	8. 2
TSS (WEIGHT %)	9. 7	19. 8	18. 0	15. 3	15. 9

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER (DA-201)

WATER SAMPLES

RUN 1-DB-C

SAMPLE NUMBER	S4-109	S4-110	S4-111	S4-112	S4-113
TIME	20: 0	0: 0	4: 0	8: 0	12: 0
DATE	2/27/77	2/28/77	2/28/77	2/28/77	2/28/77
COMPONENTS					
PHENOLS (PPM)	7. 0	1. 1	0. 2	0. 0	2. 4
COD (PPM)	1060. 0	136. 0	291. 0	252. 0	203. 0
P-ALKALINITY (GR/GAL)	215. 0	0. 0*	229. 0	220. 0	215. 0
M-ALKALINITY (GR/GAL)	832. 0	280. 0	780. 0	845. 0	864. 0
N AS NH3 (PPM)	4930. 0	1760. 0	4720. 0	4890. 0	203. 0
S (PPM)	67. 0	65. 0	85. 0	87. 4	109. 0
CHLORINE (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
DISSOLVED SOLIDS (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
THIOCYANATE (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
CYANIDE (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
PH	8. 7	8. 7	8. 9	8. 8	8. 3
TSS (WEIGHT %)	6. 9	3. 9	9. 7	5. 3	7. 1

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER(DA-201)

WATER SAMPLES

RUN 1-DB-D

SAMPLE NUMBER	S4-114	S4-115	S4-116	S4-117	S4-118	S4-119	S4-120
TIME	16: 0	20: 0	0: 0	4: 0	8: 0	12: 0	16:15
DATE	2/28/77	2/28/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77
COMPONENTS							
PHENOLS (PPM)	0.1	0.1	0.0	0.0	0.0	0.7	0.5
COD (PPM)	268.0	155.0	300.0	231.0	98.0	190.0	212.0
P-ALKALINITY (GR/GAL)	0.0*	0.0*	0.0*	0.0*	73.6	0.0	158.0
M-ALKALINITY (GR/GAL)	679.0	564.0	753.0	845.0	704.0	630.0	659.0
N AS NH3 (PPM)	4120.0	4360.0	3430.0	4930.0	4220.0	3760.0	3940.0
S (PPM)	68.0	39.0	65.0	80.0	34.6	19.1	111.0
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	8.5	8.7	8.4	8.4	7.8	7.9	8.9
TSS (WEIGHT %)	6.1	6.0	7.7	8.2	4.7	7.0	8.7

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-D

SAMPLE NUMBER	S4-121
TIME	21:34
DATE	3/ 1/77
COMPONENTS	
PHENOLS (PPM)	0.3
COD (PPM)	32.7
P-ALKALINITY (GR/GAL)	0.0
M-ALKALINITY (GR/GAL)	144.0
N AS NH3 (PPM)	929.0
S (PPM)	52.2
CHLORINE (PPM)	0.0+
DISSOLVED SOLIDS (PPM)	0.0+
THIOCYANATE (PPM)	0.0+
CYANIDE (PPM)	0.0+
PH	7.5
TSS (WEIGHT %)	0.3

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER(DA-201)

WATER SAMPLES

RUN 1-DB-E

SAMPLE NUMBER	S4-122	S4-123	S4-124	S4-125	S4-126	S4-127	S4-128
TIME	15:45	19:0	23:0	3:0	7:0	14:15	18:0
DATE	3/15/77	3/15/77	3/15/77	3/16/77	3/16/77	3/16/77	3/16/77
COMPONENTS							
PHENOLS (PPM)	280.0	960.0	348.0	2160.0	208.0	1000.0	880.0
COD (PPM)	1410.0	4720.0	2660.0	7100.0	1010.0	5730.0	874.0
P-ALKALINITY (GR/GAL)	0.0	0.0	0.0	63.3	121.0	0.0	0.0
M-ALKALINITY (GR/GAL)	2.1	345.0	782.0	659.0	905.0	271.0	455.0
N AS NH3 (PPM)	34.0	2020.0	4670.0	3920.0	5370.0	1490.0	2540.0
S (PPM)	20.3	20.9	92.6	86.8	110.0	35.4	8.2
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	5.9	7.0	8.4	8.3	8.5	6.9	7.4
TSS (WEIGHT %)	0.0	0.0	0.0*	0.0*	0.0+	0.0*	0.0*

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER(DA-201)

WATER SAMPLES

RUN 1-DB-F

SAMPLE NUMBER	S4-129	S4-130	S4-131	S4-132
TIME	9: 0	13:30	17: 0	21: 0
DATE	3/22/77	3/22/77	3/22/77	3/22/77
COMPONENTS				
PHENOLS (PPM)	192.0	980.0	293.0	40.0
COD (PPM)	1590.0	4560.0	1390.0	3330.0
P-ALKALINITY (GR/GAL)	0.0	0.0	147.0	277.0
M-ALKALINITY (GR/GAL)	20.7	504.0	842.0	770.0
N AS NH3 (PPM)	62.1	2900.0	5280.0	4800.0
S (PPM)	25.4	98.1	151.0	207.0
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+
PH	6.6	8.1	8.5	8.9
TSS (WEIGHT %)	0.0*	0.0*	0.0*	0.0*

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER (DA-201)

WATER SAMPLES

RUN 1-DB-G

SAMPLE NUMBER	S4-133	S4-134
TIME	12:45	17: 0
DATE	3/31/77	3/31/77
COMPONENTS		

PHENOLS (PPM)	0.2	960.0
COD (PPM)	0.8	2080.0
P-ALKALINITY (GR/GAL)	0.0	107.0
M-ALKALINITY (GR/GAL)	5.7	890.0
N AS NH3 (PPM)	27.6	4830.0
S (PPM)	0.4	106.0
CHLORINE (PPM)	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+
PH	5.6	8.8
TSS (WEIGHT %)	0.0	0.0*

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER(DA-201)

WATER SAMPLES

RUN 1-DB-H

SAMPLE NUMBER	S4-135	S4-136	S4-137	S4-138	S4-139	S4-140	S4-141
TIME	1:45	5:0	9:0	13:0	17:0	21:0	1:15
DATE	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 1/77	4/ 2/77
COMPONENTS							
PHENOLS (PPM)	21.0	22.0	5.2	6.3	8.0	6.5	18.2
COD (PPM)	160.0	4560.0	498.0	441.0	326.0	278.0	363.0
P-ALKALINITY (GR/GAL)	0.0	0.0*	0.0	35.2	256.0	0.0*	0.0
M-ALKALINITY (GR/GAL)	111.0	452.0	775.0	764.0	731.0	667.0	710.0
N AS NH3 (PPM)	697.0	2810.0	4540.0	4630.0	4490.0	4120.0	4590.0
S (PPM)	6.0	66.0	55.9	66.1	147.0	47.1	76.8
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	7.3	8.3	7.9	8.3	8.9	8.4	8.2
TSS (WEIGHT %)	0.0*	0.0*	0.0*	0.0*	0.0	0.0	0.0*

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-H

SAMPLE NUMBER	S4-142	S4-143
TIME	4:55	9:0
DATE	4/ 2/77	4/ 2/77
COMPONENTS		
PHENOLS (PPM)	10.0	9.0
COD (PPM)	554.0	267.0
P-ALKALINITY (GR/GAL)	0.0	32.5
M-ALKALINITY (GR/GAL)	802.0	650.0
N AS NH3 (PPM)	4940.0	3910.0
S (PPM)	76.2	69.1
CHLORINE (PPM)	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+
PH	8.0	7.8
TSS (WEIGHT %)	0.0*	0.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER (DA-201)

WATER SAMPLES

RUN 1-DB-I

SAMPLE NUMBER	S4-144	S4-145	S4-146	S4-147	S4-148
TIME	13: 0	17:30	21: 0	0:55	5: 0
DATE	4/ 2/77	4/ 2/77	4/ 2/77	4/ 3/77	4/ 3/77
COMPONENTS					

PHENOLS (PPM)	1. 1	130. 0	45. 0	1. 6	13. 5
COD (PPM)	343. 0	5000. 0	665. 0	270. 0	390. 0
P-ALKALINITY (GR/GAL)	32. 5	0. 0	0. 0	0. 0*	565. 0
M-ALKALINITY (GR/GAL)	677. 0	217. 0	819. 0	807. 0	859. 0
N AS NH3 (PPM)	4040. 0	1300. 0	5110. 0	4900. 0	4390. 0
S (PPM)	68. 7	43. 0	60. 7	54. 9	82. 4
CHLORINE (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
DISSOLVED SOLIDS (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
THIOCYANATE (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
CYANIDE (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
PH	7. 9	7. 4	8. 2	8. 3	8. 6
TSS (WEIGHT %)	0. 0*	0. 0	0. 0	0. 3	0. 0*

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER(DA-201)

WATER SAMPLES

RUN 1-DB-J

SAMPLE NUMBER	S4-149	S4-150	S4-151	S4-152	S4-153	S4-154	S4-155
TIME	17:30	21:30	1:30	5:30	14:30	18:30	11:30
DATE	4/ 3/77	4/ 3/77	4/ 4/77	4/ 4/77	4/ 4/77	4/ 4/77	4/ 5/77
COMPONENTS							
PHENOLS (PPM)	365.0	195.0	315.0	40.0	615.0	620.0	30.0
COD (PPM)	6480.0	5520.0	1300.0	152.0	2360.0	2920.0	208.0
P-ALKALINITY (GR/GAL)	0.0	51.5	198.0	0.0	0.0	0.0	0.0
M-ALKALINITY (GR/GAL)	63.9	857.0	677.0	82.9	224.0	786.0	14.3
N AS NH3 (PPM)	352.0	4630.0	3970.0	387.0	1210.0	4800.0	145.0
S (PPM)	72.3	19.5	99.0	45.5	27.8	35.6	13.7
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	6.6	8.5	9.0	7.2	7.0	7.8	5.6
TSS (WEIGHT %)	0.0	0.0*	1.0	0.0*	0.0*	0.0	0.0*

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-J

SAMPLE NUMBER	S4-156
TIME	15:30
DATE	4/ 5/77
COMPONENTS	
PHENOLS (PPM)	290.0
COD (PPM)	1440.0
P-ALKALINITY (GR/GAL)	0.0
M-ALKALINITY (GR/GAL)	819.0
N AS NH3 (PPM)	4360.0
S (PPM)	87.4
CHLORINE (PPM)	0.0+
DISSOLVED SOLIDS (PPM)	0.0+
THIOCYANATE (PPM)	0.0+
CYANIDE (PPM)	0.0+
PH	7.8
TSS (WEIGHT %)	0.0*

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER(DA-201)

WATER SAMPLES

RUN 1-DB-K

SAMPLE NUMBER	S4-157	S4-158	S4-159	S4-160
TIME	21:30	1:30	5:30	9:30
DATE	4/15/77	4/16/77	4/16/77	4/16/77
COMPONENTS				

PHENOLS (PPM)	11900.0	185.0	17.8	13.3
COD (PPM)	9200.0	8210.0	1180.0	1300.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+
N AS. NH3 (PPM)	324.0	4490.0	4240.0	4210.0
S (PPM)	25.3	98.6	102.0	67.7
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+
PH	6.7	8.3	8.5	7.3
TSS (WEIGHT %)	0.1	0.0*	0.0	0.0*

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER (DA-201)

WATER SAMPLES

RUN 1-DB-L

SAMPLE NUMBER	S4-161	S4-162	S4-163	S4-164	S4-165
TIME	14:00	15:30	19:30	23:30	7:30
DATE	4/27/77	4/27/77	4/27/77	4/27/77	4/28/77
COMPONENTS					
PHENOLS (PPM)	1.6	1.4	468.0	482.0	80.0
COD (PPM)	83.2	42.4	1860.0	3760.0	3560.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	23.0	0.0	329.0	4330.0	4240.0
S (PPM)	86.4	14.6	72.9	45.1	54.9
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
PH	6.1	5.5	8.3	7.8	8.0
TSS (WEIGHT %)	0.0*	0.0	0.1	0.0*	0.0*

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER(DA-201)

WATER SAMPLES

RUN 1-DB-M

SAMPLE NUMBER	S4-166	S4-167	S4-168	S4-169	S4-170	S4-171	S4-172
TIME	13:30	14:30	19:30	23:30	2:30	6:30	10:30
DATE	5/16/77	5/16/77	5/16/77	5/16/77	5/17/77	5/17/77	5/17/77
COMPONENTS							
PHENOLS (PPM)	1.0	1.1	1880.0	1000.0	660.0	460.0	304.0
COD (PPM)	0.0	37.6	11000.0	4800.0	2450.0	1750.0	2660.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	0.0	24.1	1240.0	3700.0	4100.0	4440.0	4950.0
S (PPM)	95.6	42.6	55.5	103.0	77.8	57.8	39.6
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	130.0
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	5.9	5.5	7.8	7.7	8.0	8.0	8.0
TSS (WEIGHT %)	0.0*	0.0*	0.0*	0.0*	0.0	0.0	0.0*

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

RUN 1-DB-M

SAMPLE NUMBER	S4-173
TIME	14:30
DATE	5/17/77
COMPONENTS	
PHENOLS (PPM)	644.0
COD (PPM)	2770.0
P-ALKALINITY (GR/GAL)	0.0+
M-ALKALINITY (GR/GAL)	0.0+
N AS NH3 (PPM)	3980.0
S (PPM)	12.1
CHLORINE (PPM)	0.0+
DISSOLVED SOLIDS (PPM)	0.0+
THIOCYANATE (PPM)	0.0+
CYANIDE (PPM)	0.0+
PH	7.5
TSS (WEIGHT %)	0.0*

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER (DA-201)

WATER SAMPLES

RUN 1-DB-N

SAMPLE NUMBER	S4-174	S4-175	S4-176	S4-177	S4-178	S4-179	S4-180
TIME	13:30	14:45	14:00	14:30	17:30	18:30	22:30
DATE	5/20/77	5/20/77	5/21/77	5/21/77	5/21/77	5/21/77	5/21/77
COMPONENTS							
PHENOLS (PPM)	2.5	1.5	135.0	13.5	1400.0	1300.0	875.0
COD (PPM)	67.3	19.3	1690.0	443.0	10000.0	4240.0	9520.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	136.0	79.5	227.0	170.0	1470.0	1980.0	3300.0
S (PPM)	31.9	48.1	15.9	12.5	26.9	42.7	67.2
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	5.2	5.4	5.3	4.8	7.9	7.7	8.4
TSS (WEIGHT %)	0.0*	0.0*	0.0*	0.0*	0.0*	0.0*	0.0*

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-N

SAMPLE NUMBER	S4-181	S4-182	S4-183	S4-184	S4-185	S4-186	S4-187
TIME	2:30	14:45	22:15	23:30	3:30	7:45	10:30
DATE	5/22/77	5/22/77	5/22/77	5/22/77	5/23/77	5/23/77	5/23/77
COMPONENTS							
PHENOLS (PPM)	14.0	6.0	6.0	6.0	2280.0	1030.0	190.0
COD (PPM)	1090.0	128.0	81.2	60.2	10500.0	5030.0	626.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	1700.0	79.5	136.0	114.0	2860.0	1640.0	295.0
S (PPM)	18.8	26.2	46.7	47.5	93.3	29.4	169.0
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	6.7	5.0	4.8	5.0	6.1	6.9	6.3
TSS (WEIGHT %)	0.0*	0.0*	0.0*	0.0*	0.4	0.0*	0.0*

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER(DA-201)

WATER SAMPLES

RUN 1-DB-N

SAMPLE NUMBER	S4-188	S4-189	S4-190	S4-191	S4-192	S4-193	S4-194
TIME	15:0	11:0	13:0	17:0	21:0	1:30	5:30
DATE	5/23/77	5/24/77	5/24/77	5/24/77	5/24/77	5/25/77	5/25/77
COMPONENTS							
PHENOLS (PPM)	2030.0	10.0	13.2	1960.0	524.0	628.0	572.0
COD (PPM)	11900.0	444.0	211.0	13500.0	3260.0	3130.0	2830.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	2110.0	170.0	13.9	2710.0	2820.0	3070.0	3100.0
S (PPM)	84.8	33.7	32.6	78.2	116.0	64.0	80.9
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	7.5	4.5	4.9	8.0	7.4	7.6	7.2
TSS (WEIGHT %)	0.0*	0.0*	0.0*	0.0*	0.0	0.0*	0.0*

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-N

SAMPLE NUMBER	S4-195	S4-196	S4-197	S4-198	S4-199	S4-200	S4-201
TIME	9:30	13:30	17:15	21:30	1:30	5:30	22:0
DATE	5/25/77	5/25/77	5/25/77	5/25/77	5/26/77	5/26/77	5/26/77
COMPONENTS							
PHENOLS (PPM)	2680.0	860.0	608.0	1000.0	1720.0	920.0	600.0
COD (PPM)	10600.0	3530.0	2540.0	3720.0	8080.0	3790.0	998.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	2430.0	3100.0	2930.0	3210.0	2130.0	1100.0	55.4
S (PPM)	54.8	50.4	51.7	49.5	44.7	66.8	23.8
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	8.3	8.0	8.1	7.8	7.3	8.1	5.3
TSS (WEIGHT %)	0.0*	0.0*	0.0*	0.0*	0.0*	0.0*	0.0*

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER(DA-201)

WATER SAMPLES

RUN 1-DB-N

SAMPLE NUMBER	S4-202	S4-203	S4-204	S4-205	S4-206
TIME	2: 0	6:15	10:15	14: 0	16: 0
DATE	5/27/77	5/27/77	5/27/77	5/27/77	5/27/77
COMPONENTS					

PHENOLS (PPM)	3380. 0	7300. 0	3220. 0	980. 0	2650. 0
COD (PPM)	13500. 0	2850. 0	6680. 0	3920. 0	12800. 0
P-ALKALINITY (GR/GAL)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
M-ALKALINITY (GR/GAL)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
N AS NH3 (PPM)	2540. 0	1330. 0	11800. 0	2880. 0	665. 0
S (PPM)	102. 0	3. 3	52. 1	25. 7	65. 7
CHLORINE (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
DISSOLVED SOLIDS (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
THIOCYANATE (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
CYANIDE (PPM)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
PH	8. 6	7. 5	7. 5	6. 5	7. 7
TSS (WEIGHT %)	0. 0*	0. 0*	0. 0*	0. 0*	0. 2

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER (DA-201)

WATER SAMPLES

RUN 1-DB-0

SAMPLE NUMBER	S4-207	S4-208	S4-209	S4-210	S4-211	S4-212	S4-213
TIME	18:5	1:30	5:30	9:30	13:30	17:30	21:30
DATE	8/5/77	8/10/77	8/10/77	8/10/77	8/10/77	8/10/77	8/10/77
COMPONENTS							
PHENOLS (PPM)	51.6	0.0+	706.0	703.0	30.4	0.0+	0.0+
COD (PPM)	730.0	0.0+	2540.0	1270.0	218.0	0.0+	0.0+
P-ALKALINITY (GR/GAL)	0.0	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	62.1	0.0+	2620.0	2480.0	3070.0	0.0+	0.0+
S (PPM)	12.9	0.0+	19.5	36.7	79.1	0.0+	0.0+
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	5.3	7.2	7.3	7.1	8.2	7.1	8.4
TSS (WEIGHT %)	0.0*	0.0	0.0	0.0*	0.0*	0.1	0.0*

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-0

SAMPLE NUMBER	S4-214	S4-215	S4-216	S4-217	S4-218	S4-219	S4-220
TIME	1:30	5:30	9:30	14:0	18:0	22:0	2:0
DATE	8/11/77	8/11/77	8/11/77	8/11/77	8/11/77	8/11/77	8/12/77
COMPONENTS							
PHENOLS (PPM)	0.0+	9.5	6.3	0.0+	0.8	0.4	0.0*
COD (PPM)	0.0+	331.0	277.0	0.0+	123.0	119.0	127.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	0.0+	2870.0	3380.0	0.0+	1400.0	1550.0	1650.0
S (PPM)	0.0+	91.2	97.0	0.0+	331.0	232.0	46.7
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	3.6	7.7	8.5	8.7	7.9	8.5	7.7
TSS (WEIGHT %)	0.0	0.0*	0.0*	72.0	11.3	5.9	3.2

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER (DA-201)

WATER SAMPLES

RUN 1-DB-0

SAMPLE NUMBER	S4-221	S4-222	S4-223	S4-224	S4-225	S4-226	S4-227
TIME	6: 0	10: 0	14: 0	18: 0	22: 0	2: 0	6: 0
DATE	8/12/77	8/12/77	8/12/77	8/12/77	8/12/77	8/13/77	8/13/77
COMPONENTS							
PHENOLS (PPM)	1.7	0.0*	0.0*	0.4	0.2	0.2	3.0
COD (PPM)	137.0	103.0	150.0	168.0	166.0	132.0	135.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	1820.0	1360.0	1310.0	1260.0	1620.0	1740.0	1840.0
S (PPM)	77.5	686.0	222.0	162.0	379.0	88.1	90.3
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	7.7	7.8	7.7	8.1	8.0	7.8	7.8
TSS (WEIGHT %)	0.1	1.4	1.9	5.1	1.8	1.0	0.1

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

RUN 1-DB-0

SAMPLE NUMBER	S4-228	S4-229	S4-230	S4-231	S4-232	S4-233	S4-234
TIME	10: 0	14: 0	18: 0	22: 0	23:30	11:30	15:30
DATE	8/13/77	8/13/77	8/13/77	8/13/77	8/14/77	8/15/77	8/15/77
COMPONENTS							
PHENOLS (PPM)	3.1	2.1	0.0+	0.0+	0.0+	5.4	0.0+
COD (PPM)	307.0	444.0	0.0+	0.0+	0.0+	45.5	0.0+
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	2110.0	1880.0	0.0+	0.0+	0.0+	2590.0	0.0+
S (PPM)	156.0	156.0	0.0+	0.0+	0.0+	126.0	0.0+
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	7.7	8.2	8.2	8.2	6.0	8.9	8.3
TSS (WEIGHT %)	0.0*	0.2	0.0*	0.5	0.0*	0.0*	0.1

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S4 - WATER TO RAW GAS SCRUBBER(DA-201)

WATER SAMPLES

RUN 1-DB-0

SAMPLE NUMBER	S4-235	S4-236	S4-237	S4-238	S4-239	S4-240	S4-241
TIME	19:30	23:30	3:30	7:30	11:30	17:30	20:30
DATE	8/15/77	8/15/77	8/16/77	8/16/77	8/16/77	8/16/77	8/16/77
COMPONENTS							
PHENOLS (PPM)	0.0+	2.0	0.0+	2.4	0.0+	2.9	0.0+
COD (PPM)	0.0+	216.0	0.0+	252.0	0.0+	226.0	0.0+
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	0.0+	2270.0	0.0+	2170.0	0.0+	1860.0	0.0+
S (PPM)	0.0+	58.5	0.0+	72.3	0.0+	55.5	0.0+
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	8.6	8.3	7.5	8.6	7.9	8.5	8.5
TSS (WEIGHT %)	0.5	0.0*	0.0*	0.0*	0.0*	0.0*	0.0*

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-DB-A

SAMPLE NUMBER	S5-124	S5-125
TIME	15:30	5: 0
DATE	2/23/77	2/24/77
COMPONENTS		

PHENOLS (PPM)	43.5	1.9
COD (PPM)	805.0	100.0
P-ALKALINITY (GR/GAL)	0.0	0.0*
M-ALKALINITY (GR/GAL)	129.0	293.0
N AS NH3 (PPM)	109.0	1980.0
S (PPM)	14.7	26.2
CHLORINE (PPM)	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+
PH	5.5	8.2
TSS (WEIGHT %)	0.0*	3.2

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

55 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-DB-B

SAMPLE NUMBER	S5-126	S5-127	S5-128	S5-129	S5-130	S5-131	S5-132
TIME	20: 0	7: 0	11: 0	15: 0	20: 0	0: 0	4:45
DATE	2/24/77	2/25/77	2/25/77	2/25/77	2/25/77	2/26/77	2/26/77
COMPONENTS							
PHENOLS (PPM)	1420.0	0.7	2.3	0.0*	4.9	0.4	0.3
COD (PPM)	5900.0	125.0	123.0	71.8	277.0	197.0	169.0
P-ALKALINITY (GR/GAL)	0.0	0.0	58.0	0.0	0.0*	0.0*	216.0
M-ALKALINITY (GR/GAL)	182.0	743.0	383.0	229.0	446.0	525.0	366.0
N AS NH3 (PPM)	1220.0	4410.0	2280.0	1420.0	2690.0	2860.0	2240.0
S (PPM)	19.9	30.6	20.6	9.2	51.1	27.2	59.6
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	6.9	8.0	8.2	7.9	8.3	8.0	9.5
TSS (WEIGHT %)	0.2	6.9	11.2	13.9	0.8	2.5	0.6

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

RUN 1-DB-B

SAMPLE NUMBER	S5-133
TIME	8: 0
DATE	2/26/77
COMPONENTS	
PHENOLS (PPM)	0.0*
COD (PPM)	152.0
P-ALKALINITY (GR/GAL)	209.0
M-ALKALINITY (GR/GAL)	358.0
N AS NH3 (PPM)	2260.0
S (PPM)	19.2
CHLORINE (PPM)	0.0+
DISSOLVED SOLIDS (PPM)	0.0+
THIOCYANATE (PPM)	0.0+
CYANIDE (PPM)	0.0+
PH	9.5
TSS (WEIGHT %)	5.1

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-DB-C

SAMPLE NUMBER	SS-134	SS-135	SS-136	SS-137	SS-138
TIME	20: 0	0: 0	4: 0	8: 0	12: 0
DATE	2/27/77	2/28/77	2/28/77	2/28/77	2/28/77
COMPONENTS					

PHENOLS (PPM)	0.5	0.4	0.4	0.0*	0.0*
COD (PPM)	3900.0	445.0	79.8	133.0	141.0
P-ALKALINITY (GR/GAL)	0.0*	164.0	47.0	89.7	57.5
M-ALKALINITY (GR/GAL)	572.0	819.0	179.0	477.0	481.0
N AS NH3 (PPM)	2670.0	5010.0	977.0	2870.0	2840.0
S (PPM)	63.1	109.0	25.4	51.0	20.3
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
PH	8.5	8.8	8.5	8.0	8.0
TSS (WEIGHT %)	18.4	14.2	19.8	10.5	13.7

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

55 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-DB-D

SAMPLE NUMBER	S5-139	S5-140	S5-141	S5-142	S5-143	S5-144	S5-145
TIME	16: 0	20: 0	0: 0	4: 0	8: 0	12: 0	16:15
DATE	2/28/77	2/28/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77
COMPONENTS							
PHENOLS (PPM)	0.1	0.0	0.1	0.0	0.0	0.5	0.0*
COD (PPM)	379.0	261.0	185.0	116.0	167.0	109.0	0.0
P-ALKALINITY (GR/GAL)	0.0*	49.0	0.0*	65.6	75.3	0.0*	39.4
M-ALKALINITY (GR/GAL)	343.0	402.0	659.0	418.0	514.0	715.0	672.0
N AS NH3 (PPM)	2210.0	2380.0	4350.0	2460.0	3020.0	4110.0	4000.0
S (PPM)	39.6	37.0	40.3	20.7	18.8	23.2	51.7
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	8.1	8.3	8.5	8.4	8.0	7.5	8.0
TSS (WEIGHT %)	33.4	7.3	6.4	24.1	9.8	8.6	66.8

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-DB-E

SAMPLE NUMBER	S5-146	S5-147	S5-148	S5-149
TIME	15:55	23: 0	7: 0	14:15
DATE	3/15/77	3/15/77	3/16/77	3/16/77
COMPONENTS				

PHENOLS (PPM)	140.0	68.0	128.0	3200.0
COD (PPM)	8130.0	383.0	526.0	6380.0
P-ALKALINITY (GR/GAL)	0.0	0.0	22.0	0.0
M-ALKALINITY (GR/GAL)	127.0	388.0	612.0	336.0
N AS NH3 (PPM)	656.0	2340.0	3510.0	1880.0
S (PPM)	118.0	253.0	115.0	80.6
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+
PH	7.5	8.3	7.9	7.4
TSS (WEIGHT %)	0.0*	5.0	0.5	0.1

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-08-F

SAMPLE NUMBER	SS-150	SS-151
TIME	9: 0	17: 0
DATE	3/22/77	3/22/77
COMPONENTS		

PHENOLS (PPM)	600.0	1.0
COD (PPM)	7220.0	94.6
P-ALKALINITY (GR/GAL)	0.0	77.0
M-ALKALINITY (GR/GAL)	42.1	579.0
N AS NH3 (PPM)	138.0	2760.0
S (PPM)	56.3	59.3
CHLORINE (PPM)	0.0+	95.5
DISSOLVED SOLIDS (PPM)	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+
PH	6.6	8.1
TSS (WEIGHT %)	0.0	7.3

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-DB-G

SAMPLE NUMBER S5-152

TIME 12:45

DATE 3/31/77

COMPONENTS

PHENOLS (PPM)	0.4
COD (PPM)	8.4
P-ALKALINITY (GR/GAL)	0.0
M-ALKALINITY (GR/GAL)	4.1
N AS NH3 (PPM)	44.9
S (PPM)	44.6
CHLORINE (PPM)	0.0+
DISSOLVED SOLIDS (PPM)	0.0+
THIOCYANATE (PPM)	0.0+
CYANIDE (PPM)	0.0+
PH	5.9
TSS (WEIGHT %)	0.1

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-DB-H

SAMPLE NUMBER	SS-153	SS-154	SS-155	SS-156
TIME	5: 0	17: 0	1:15	9: 0
DATE	4/ 1/77	4/ 1/77	4/ 2/77	4/ 2/77
COMPONENTS				
PHENOLS (PPM)	600.0	1.6	2.3	1.0
COD (PPM)	2030.0	96.8	98.4	43.2
P-ALKALINITY (GR/GAL)	0.0	0.0	0.0	5.4
M-ALKALINITY (GR/GAL)	499.0	244.0	553.0	507.0
N AS NH3 (PPM)	2980.0	1830.0	3410.0	3350.0
S (PPM)	55.4	150.0	115.0	88.5
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+
PH	8.2	7.5	8.1	8.0
TSS (WEIGHT %)	0.9	0.2	20.9	9.0

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-DB-I

SAMPLE NUMBER	SS-157	SS-158
TIME	17:30	0:55
DATE	4/ 2/77	4/ 3/77
COMPONENTS		

PHENOLS (PPM)	123.0	1.0
COD (PPM)	437.0	85.6
P-ALKALINITY (GR/GAL)	0.0	0.0
M-ALKALINITY (GR/GAL)	248.0	450.0
N AS NH3 (PPM)	1550.0	3070.0
S (PPM)	4.8	276.0
CHLORINE (PPM)	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+
PH	8.0	8.5
TSS (WEIGHT %)	2.4	20.3

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-DB-J

SAMPLE NUMBER	S5-159	S5-160	S5-161	S5-162
TIME	17:30	1:30	14:30	11:30
DATE	4/ 3/77	4/ 4/77	4/ 4/77	4/ 5/77
COMPONENTS				

PHENOLS (PPM)	1720.0	252.0	1560.0	6.0
COD (PPM)	8250.0	548.0	9310.0	182.0
P-ALKALINITY (GR/GAL)	0.0	0.0	36.4	0.0
M-ALKALINITY (GR/GAL)	163.0	25.9	238.0	73.0
N AS NH3 (PPM)	1000.0	3480.0	1760.0	476.0
S (PPM)	125.0	222.0	152.0	55.4
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+
PH	7.4	7.9	8.7	7.6
TSS (WEIGHT %)	0.1	5.0	1.0	0.2

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-DB-K

SAMPLE NUMBER	SS-163	SS-164
TIME	21:30	5:30
DATE	4/15/77	4/16/77
COMPONENTS		

PHENOLS (PPM)	12500.0	1.8
COD (PPM)	17300.0	281.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+
N AS NH3 (PPM)	1350.0	2380.0
S (PPM)	12.8	73.1
CHLORINE (PPM)	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+
PH	6.7	8.2
TSS (WEIGHT %)	0.1	15.5

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

55 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-DB-L

SAMPLE NUMBER	55-165	55-166	55-167	55-168
TIME	14:00	15:30	23:30	7:30
DATE	4/27/77	4/27/77	4/27/77	4/28/77
COMPONENTS				

PHENOLS (PPM)	3.0	0.6	294.0	2.0
COD (PPM)	41.6	13.9	844.0	119.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	6.0	57.0	3040.0	3280.0
S (PPM)	11.3	7.0	62.4	15.5
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+
PH	6.0	6.1	8.5	8.3
TSS (WEIGHT %)	0.0*	0.0*	1.5	0.7

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-DB-M

SAMPLE NUMBER	SS-169	SS-170	SS-171	SS-172	SS-173
TIME	13:30	14:30	22:30	6:30	14:30
DATE	5/16/77	5/16/77	5/16/77	5/17/77	5/17/77
COMPONENTS					
PHENOLS (PPM)	0.0+	3.8	660.0	24.0	68.0
COD (PPM)	0.0+	182.0	1900.0	271.0	328.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	0.0+	31.2	2160.0	1940.0	2530.0
S (PPM)	0.0+	121.0	73.6	123.0	115.0
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	153.0
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+
PH	5.9	5.2	8.8	8.7	8.3
TSS (WEIGHT %)	0.0*	0.0*	2.4	9.7	9.4

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

55 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-DB-N

SAMPLE NUMBER	S5-174	S5-175	S5-176	S5-177	S5-178	S5-179	S5-180
TIME	13:30	14:45	14: 0	14:30	22:30	14:45	22:15
DATE	5/20/77	5/20/77	5/21/77	5/21/77	5/21/77	5/22/77	5/22/77
COMPONENTS							
PHENOLS (PPM)	2.1	1.5	8.5	6.0	710.0	8.3	4.6
COD (PPM)	13.5	18.2	72.1	57.0	3310.0	93.1	64.2
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	102.0	136.0	494.0	239.0	2330.0	153.0	182.0
S (PPM)	96.4	112.0	7.8	55.8	68.4	37.1	40.1
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	5.2	5.6	5.2	5.3	8.7	5.3	5.9
TSS (WEIGHT %)	0.0*	0.0*	0.0*	0.0*	0.1	0.0*	0.0*

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-N

SAMPLE NUMBER	S5-181	S5-182	S5-183	S5-184	S5-185	S5-186	S5-187
TIME	23:30	10:30	11: 0	13: 0	21: 0	5:30	13:30
DATE	5/22/77	5/23/77	5/24/77	5/24/77	5/24/77	5/25/77	5/25/77
COMPONENTS							
PHENOLS (PPM)	4.5	71.0	40.0	47.0	919.0	431.0	1270.0
COD (PPM)	167.0	508.0	138.0	779.0	2800.0	1490.0	3360.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	182.0	200.0	111.0	13.9	1910.0	2360.0	2110.0
S (PPM)	90.5	49.5	36.5	147.0	41.2	294.0	166.0
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	6.2	6.6	5.2	5.5	8.1	7.9	7.8
TSS (WEIGHT %)	0.2	0.1	0.0*	0.0*	0.2	0.7	0.3

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-DB-N

SAMPLE NUMBER	SS-188	SS-189	SS-190	SS-191
TIME	21:30	5:30	6:15	16:0
DATE	5/25/77	5/26/77	5/27/77	5/27/77
COMPONENTS				
<hr/>				
PHENOLS (PPM)	2680.0	495.0	212.0	2680.0
COD (PPM)	3190.0	2510.0	2240.0	12800.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	2350.0	2210.0	499.0	2050.0
S (PPM)	75.8	346.0	164.0	80.5
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+
PH	7.7	7.8	6.7	7.8
TSS (WEIGHT %)	0.0*	1.0	0.0*	0.3

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-DB-0

SAMPLE NUMBER	SS-192	SS-193	SS-194	SS-195	SS-196	SS-197	SS-198
TIME	18: 0	5:30	13:30	20:30	5:30	14:40	22: 0
DATE	8/ 5/77	8/10/77	8/10/77	8/10/77	8/11/77	8/11/77	8/11/77
COMPONENTS							
PHENOLS (PPM)	22.6	8.3	0.1	0.1	0.0+	0.0+	0.0+
COD (PPM)	454.0	235.0	125.0	73.3	0.0+	0.0+	0.0+
P-ALKALINITY (GR/GAL)	0.0	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0*	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	6.9	1690.0	2070.0	2140.0	0.0+	0.0+	0.0+
S (PPM)	29.5	84.5	24.0	17.6	0.0+	0.0+	0.0+
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	5.3	8.5	8.1	8.0	8.2	7.5	7.6
TSS (WEIGHT %)	0.0*	1.9	1.5	2.5	3.4	8.2	13.1

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-0

SAMPLE NUMBER	SS-199	SS-200	SS-201	SS-202	SS-203	SS-204	SS-205
TIME	6: 0	14: 0	22: 0	6: 0	14: 0	22: 0	15:30
DATE	8/12/77	8/12/77	8/12/77	8/13/77	8/13/77	8/13/77	8/15/77
COMPONENTS							
PHENOLS (PPM)	0.0+	0.3	1.0	0.1	2.1	0.0+	0.0+
COD (PPM)	0.0+	116.0	147.0	220.0	184.0	0.0+	0.0+
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
N AS NH3 (PPM)	0.0+	1230.0	1620.0	1020.0	1670.0	0.0+	0.0+
S (PPM)	0.0+	75.0	66.2	89.0	109.0	0.0+	0.0+
CHLORINE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
PH	7.8	8.0	8.3	8.0	8.5	8.0	8.5
TSS (WEIGHT %)	1.2	1.4	0.4	5.3	0.0*	1.7	10.2

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

WATER SAMPLES

RUN 1-DB-0

SAMPLE NUMBER	S5-206	S5-207	S5-208
TIME	23:30	7:30	17:30
DATE	8/15/77	8/16/77	8/16/77
COMPONENTS			

PHENOLS (PPM)	0.9	0.0	0.0
COD (PPM)	252.0	259.0	192.0
P-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+
M-ALKALINITY (GR/GAL)	0.0+	0.0+	0.0+
N AS NH3 (PPM)	918.0	1220.0	1480.0
S (PPM)	32.7	21.0	4.5
CHLORINE (PPM)	0.0+	0.0+	0.0+
DISSOLVED SOLIDS (PPM)	0.0+	0.0+	0.0+
THIOCYANATE (PPM)	0.0+	0.0+	0.0+
CYANIDE (PPM)	0.0+	0.0+	0.0+
PH	8.8	8.0	8.3
TSS (WEIGHT %)	7.6	7.5	5.5

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-A

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S5-124	S5-125
TIME	15:30	5: 0
DATE	2/23/77	2/24/77
PROXIMATE ANALYSIS		

VOLATILE MATTER	0.0+	0.0+
FIXED CARBON	0.0+	0.0+
ASH	0.0+	0.0+
TOTAL	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+
CARBON	0.0+	0.0+
NITROGEN	0.0+	0.0+
OXYGEN	0.0	0.0
SULFUR	0.0+	0.0+
ASH	0.0+	0.0+
TOTAL	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +
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+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-B

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S5-126	S5-127	S5-128	S5-129	S5-130	S5-131	S5-132
TIME	20: 0	7: 0	11: 0	15: 0	20: 0	0: 0	4:45
DATE	2/24/77	2/25/77	2/25/77	2/25/77	2/25/77	2/26/77	2/26/77

PROXIMATE ANALYSIS

VOLATILE MATTER	0.0+	0.0+	0.0+	13.3	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	67.6	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	19.2	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	100.0	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	1.9	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	72.7	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.8	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	5.1	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.4	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	19.2	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	100.0	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	11300.	0. +	0. +	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

55 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-08-B

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER 55-133

TIME 8:80

DATE 2/26/77

PROXIMATE ANALYSIS

VOLATILE MATTER	0.0+
FIXED CARBON	0.0+
ASH	0.0+
TOTAL	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+
CARBON	0.0+
NITROGEN	0.0+
OXYGEN	0.0
SULFUR	0.0+
ASH	0.0+
TOTAL	0.0

HEAT OF COMBUSTION (BTU/LB) 0. +

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-C

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S5-134	S5-135	S5-136	S5-137	S5-138
TIME	20: 0	0: 0	4: 0	8: 0	12: 0
DATE	2/27/77	2/28/77	2/28/77	2/28/77	2/28/77
PROXIMATE ANALYSIS					

VOLATILE MATTER	0.0+	0.0+	8.3	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	69.4	0.0+	0.0+
ASH	0.0+	0.0+	22.2	0.0+	0.0+
TOTAL	0.0	0.0	100.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	1.5	0.0+	0.0+
CARBON	0.0+	0.0+	71.2	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.6	0.0+	0.0+
OXYGEN	0.0	0.0	4.2	0.0	0.0
SULFUR	0.0+	0.0+	0.2	0.0+	0.0+
ASH	0.0+	0.0+	22.2	0.0+	0.0+
TOTAL	0.0	0.0	100.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	11000.	0. +	0. +
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+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-D

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S5-139	S5-140	S5-141	S5-142	S5-143	S5-144	S5-145
TIME	16: 0	20: 0	0: 0	4: 0	8: 0	12: 0	16:15
DATE	2/28/77	2/28/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	0.0+	0.0+	0.0+	12.8	0.0+	0.0+	8.9
FIXED CARBON	0.0+	0.0+	0.0+	67.2	0.0+	0.0+	68.0
ASH	0.0+	0.0+	0.0+	20.0	0.0+	0.0+	23.0
TOTAL	0.0	0.0	0.0	100.0	0.0	0.0	100.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	2.5	0.0+	0.0+	1.5
CARBON	0.0+	0.0+	0.0+	70.8	0.0+	0.0+	70.8
NITROGEN	0.0+	0.0+	0.0+	0.8	0.0+	0.0+	0.6
OXYGEN	0.0	0.0	0.0	5.3	0.0	0.0	3.7
SULFUR	0.0+	0.0+	0.0+	0.5	0.0+	0.0+	0.3
ASH	0.0+	0.0+	0.0+	20.0	0.0+	0.0+	23.0
TOTAL	0.0	0.0	0.0	100.0	0.0	0.0	100.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	11300.	0. +	0. +	10900.
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-E

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S5-146	S5-147	S5-148	S5-149
TIME	15:55	23: 0	7: 0	14:15
DATE	3/15/77	3/15/77	3/16/77	3/16/77
PROXIMATE ANALYSIS				

VOLATILE MATTER	0.0+	8.7	0.0+	0.0+
FIXED CARBON	0.0+	65.1	0.0+	0.0+
ASH	0.0+	26.2	0.0+	0.0+
TOTAL	0.0	100.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	1.7	0.0+	0.0+
CARBON	0.0+	67.7	0.0+	0.0+
NITROGEN	0.0+	0.6	0.0+	0.0+
OXYGEN	0.0	3.3	0.0	0.0
SULFUR	0.0+	0.5	0.0+	0.0+
ASH	0.0+	26.2	0.0+	0.0+
TOTAL	0.0	100.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB) 0. + 10400. 0. + 0. +

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-F

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER SS-150 SS-151

TIME 9: 0 17: 0

DATE 3/22/77 3/22/77

PROXIMATE ANALYSIS

VOLATILE MATTER	0.0+	8.3
FIXED CARBON	0.0+	68.9
ASH	0.0+	22.8
TOTAL	0.0	100.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	1.9
CARBON	0.0+	71.1
NITROGEN	0.0+	0.7
OXYGEN	0.0	3.1
SULFUR	0.0+	0.5
ASH	0.0+	22.8
TOTAL	0.0	100.0

HEAT OF COMBUSTION (BTU/LB) 0. + 11000.

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-H

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	SS-153	SS-154	SS-155	SS-156
TIME	5: 0	17:30	1:15	9: 0
DATE	4/ 1/77	4/ 1/77	4/ 2/77	4/ 2/77
PROXIMATE ANALYSIS				

VOLATILE MATTER	0.0+	0.0+	9.0	0.0+
FIXED CARBON	0.0+	0.0+	65.6	0.0+
ASH	0.0+	0.0+	25.4	0.0+
TOTAL	0.0	0.0	100.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	1.7	0.0+
CARBON	0.0+	0.0+	67.2	0.0+
NITROGEN	0.0+	0.0+	0.6	0.0+
OXYGEN	0.0	0.0	4.6	0.0
SULFUR	0.0+	0.0+	0.4	0.0+
ASH	0.0+	0.0+	25.4	0.0+
TOTAL	0.0	0.0	100.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	10500.	0. +
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+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

\$ASS SO DDF BO DDD SI CR
 \$REW SO
 \$EXE FRX, LO

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-I

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S5-157	S5-158
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TIME	17:30	0:55
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DATE	4/ 2/77	4/ 3/77
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PROXIMATE ANALYSIS

VOLATILE MATTER	10.2	9.1
FIXED CARBON	57.4	63.1
ASH	32.4	27.7
TOTAL	100.0	100.0

ULTIMATE ANALYSIS

HYDROGEN	1.9	1.6
CARBON	61.0	65.2
NITROGEN	0.6	0.6
OXYGEN	3.7	4.4
SULFUR	0.4	0.5
ASH	32.4	27.7
TOTAL	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	9620.	10000.
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-J

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S5-159	S5-160	S5-161	S5-162
TIME	17:30	1:30	14:30	11:30
DATE	4/ 3/77	4/ 4/77	4/ 4/77	4/ 5/77
PROXIMATE ANALYSIS				

VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +
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+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-K

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S5-163	S5-164
TIME	21:30	5:30
DATE	4/15/77	4/16/77
PROXIMATE ANALYSIS		

VOLATILE MATTER	0.0+	8.4
FIXED CARBON	0.0+	62.0
ASH	0.0+	29.6
TOTAL	0.0	100.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	1.5
CARBON	0.0+	64.1
NITROGEN	0.0+	0.6
OXYGEN	0.0	3.8
SULFUR	0.0+	0.4
ASH	0.0+	29.6
TOTAL	0.0	100.0

HEAT OF COMBUSTION (BTU/LB)	0. +	9790.
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+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-L

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S5-165	S5-166	S5-167	S5-168
TIME	14:0	15:30	23:30	7:30
DATE	4/27/77	4/27/77	4/27/77	4/28/77
PROXIMATE ANALYSIS				

VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +
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+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-M

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S5-169	S5-170	S5-171	S5-172	S5-173
TIME	13:30	14:30	22:30	6:30	14:30
DATE	5/16/77	5/16/77	5/16/77	5/17/77	5/17/77

PROXIMATE ANALYSIS

VOLATILE MATTER	0.0+	0.0+	0.0+	10.6	10.5
FIXED CARBON	0.0+	0.0+	0.0+	65.8	68.0
ASH	0.0+	0.0+	0.0+	23.6	21.5
TOTAL	0.0	0.0	0.0	100.0	100.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	2.2	2.1
CARBON	0.0+	0.0+	0.0+	69.2	68.5
NITROGEN	0.0+	0.0+	0.0+	0.8	0.7
OXYGEN	0.0	0.0	0.0	3.4	6.8
SULFUR	0.0+	0.0+	0.0+	0.8	0.4
ASH	0.0+	0.0+	0.0+	23.6	21.5
TOTAL	0.0	0.0	0.0	100.0	100.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	11200.	11000.
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+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-N

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S5-174	S5-175	S5-176	S5-177	S5-178	S5-179	S5-180
TIME	13:30	14:45	14: 0	14:30	22:30	14:45	22:15
DATE	5/20/77	5/20/77	5/21/77	5/21/77	5/21/77	5/22/77	5/22/77

PROXIMATE ANALYSIS

VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	0. +
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+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-N

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S5-181	S5-182	S5-183	S5-184	S5-185	S5-186	S5-187
TIME	23:30	10:30	11: 0	13: 0	21: 0	5:30	13:30
DATE	5/22/77	5/23/77	5/24/77	5/24/77	5/24/77	5/25/77	5/25/77
PROXIMATE ANALYSIS							

VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-N

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S5-188	S5-189	S5-190	S5-191
TIME	21:30	5:30	6:15	16:0
DATE	5/25/77	5/26/77	5/27/77	5/27/77

PROXIMATE ANALYSIS

VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-08-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	SS-192	SS-193	SS-194	SS-195	SS-196	SS-197	SS-198
TIME	18: 0	5:30	13:30	21:30	5:30	14: 0	22: 0
DATE	8/ 5/77	8/10/77	8/10/77	8/10/77	8/11/77	8/11/77	8/11/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	8.0
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	58.5
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	33.5
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	100.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	1.2
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	60.2
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.5
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	4.3
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.2
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	33.5
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	100.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	9220.
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	SS-199	SS-200	SS-201	SS-202	SS-203	SS-204	SS-205
TIME	6: 0	14: 0	22: 0	6: 0	14: 0	22: 0	15:30
DATE	8/12/77	8/12/77	8/12/77	8/13/77	8/13/77	8/13/77	8/15/77
PROXIMATE ANALYSIS							
VOLATILE MATTER	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +	0. +	0. +	0. +	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

CHEMICAL ANALYSIS

RUN 1-DB-0

BASIS: MOISTURE FREE WEIGHT PERCENT - ASTM D3180-74

SAMPLE NUMBER	S5-206	S5-207	S5-208
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TIME	23:30	7:30	17:30
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DATE	8/15/77	8/16/77	8/16/77
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PROXIMATE ANALYSIS

VOLATILE MATTER	0.0+	0.0+	0.0+
FIXED CARBON	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0

ULTIMATE ANALYSIS

HYDROGEN	0.0+	0.0+	0.0+
CARBON	0.0+	0.0+	0.0+
NITROGEN	0.0+	0.0+	0.0+
OXYGEN	0.0	0.0	0.0
SULFUR	0.0+	0.0+	0.0+
ASH	0.0+	0.0+	0.0+
TOTAL	0.0	0.0	0.0

HEAT OF COMBUSTION (BTU/LB)	0. +	0. +	0. +
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+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

S5 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-A

SAMPLE NUMBER	S5-124	S5-125
TIME	15:30	5: 0
DATE	2/23/77	2/24/77

U. S. SIEVE SIZE	CUMMULATIVE WEIGHT PERCENT	

+8 MESH	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+
-325 MESH (WEIGHT PERCENT)	0. 0+	0. 0+

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

55 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE PARTICLE SIZE DISTRIBUTION

RUN 1-DB-B

SAMPLE NUMBER	S5-126	S5-127	S5-128	S5-129	S5-130	S5-131	S5-132
TIME	20: 0	7: 0	11: 0	15: 0	20: 0	0: 0	4:45
DATE	2/24/77	2/25/77	2/25/77	2/25/77	2/25/77	2/26/77	2/26/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
-325 MESH(WEIGHT PERCENT)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+

+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

RUN 1-DB-B

SAMPLE NUMBER	S5-133
TIME	8: 0
DATE	2/26/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0. 0+
+20 MESH	0. 0+
+30 MESH	0. 0+
+50 MESH	0. 0+
+60 MESH	0. 0+
+100 MESH	0. 0+
+140 MESH	0. 0+
+200 MESH	0. 0+
+325 MESH	0. 0+
-325 MESH(WEIGHT PERCENT)	0. 0+

+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-C

SAMPLE NUMBER	SS-134	SS-135	SS-136	SS-137	SS-138
TIME	20: 0	0: 0	4: 0	8: 0	12: 0
DATE	2/27/77	2/28/77	2/28/77	2/28/77	2/28/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0. 0+	0. 0+	1. 6	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+	1. 7	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+	1. 7	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+	1. 9	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+	1. 9	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+	6. 7	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+	26. 3	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+	50. 8	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+	84. 4	0. 0+	0. 0+
-325 MESH (WEIGHT PERCENT)	0. 0+	0. 0+	15. 6	0. 0+	0. 0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

55 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-08-D

SAMPLE NUMBER	55-139	55-140	55-141	55-142	55-143	55-144	55-145
TIME	16: 0	2: 0	0: 0	4: 0	8: 0	12: 0	16:15
DATE	2/28/77	2/28/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
-325 MESH (WEIGHT PERCENT)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

55 - EFFLUENT FROM SCRUBBER SURGE TANK<FA-215>

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-E

SAMPLE NUMBER	S5-146	S5-147	S5-148	S5-149
TIME	15:55	23: 0	7: 0	14:15
DATE	3/15/77	3/15/77	3/16/77	3/16/77
U. S. SIEVE SIZE	CUMULATIVE WEIGHT PERCENT			
+8 MESH	0.0+	0.0	0.0+	0.0+
+20 MESH	0.0+	0.2	0.0+	0.0+
+30 MESH	0.0+	0.2	0.0+	0.0+
+50 MESH	0.0+	0.2	0.0+	0.0+
+60 MESH	0.0+	0.3	0.0+	0.0+
+100 MESH	0.0+	2.8	0.0+	0.0+
+140 MESH	0.0+	5.5	0.0+	0.0+
+200 MESH	0.0+	17.4	0.0+	0.0+
+325 MESH	0.0+	55.4	0.0+	0.0+
-325 MESH(WEIGHT PERCENT)	0.0+	44.6	0.0+	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-F

SAMPLE NUMBER	SS-150	SS-151
TIME	9: 0	17: 0
DATE	3/22/77	3/22/77

U. S. SIEVE SIZE		CUMMULATIVE WEIGHT PERCENT
-----		-----

+8 MESH	0. 0+	0. 0
+20 MESH	0. 0+	0. 0
+30 MESH	0. 0+	0. 0
+50 MESH	0. 0+	0. 0
+60 MESH	0. 0+	0. 1
+100 MESH	0. 0+	2. 1
+140 MESH	0. 0+	9. 6
+200 MESH	0. 0+	23. 4
+325 MESH	0. 0+	51. 0
-325 MESH (WEIGHT PERCENT)	0. 0+	49. 0

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

LS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-G

SAMPLE NUMBER S5-152

TIME 12:45

DATE 3/31/77

U. S. SIEVE SIZE

CUMULATIVE WEIGHT PERCENT

+8 MESH	0.0+
+20 MESH	0.0+
+30 MESH	0.0+
+50 MESH	0.0+
+60 MESH	0.0+
+100 MESH	0.0+
+140 MESH	0.0+
+200 MESH	0.0+
+325 MESH	0.0+
-325 MESH (WEIGHT PERCENT)	0.0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

55 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE PARTICLE SIZE DISTRIBUTION

RUN 1-DB-H

SAMPLE NUMBER	S5-153	S5-154	S5-155	S5-156
TIME	5: 0	17: 0	1:15	9: 0
DATE	4/ 1/77	4/ 1/77	4/ 2/77	4/ 2/77
U. S. SIEVE SIZE	CUMMULATIVE WEIGHT PERCENT			
+8 MESH	0.0+	0.0+	0.0	0.0+
+20 MESH	0.0+	0.0+	0.0	0.0+
+30 MESH	0.0+	0.0+	0.0	0.0+
+50 MESH	0.0+	0.0+	0.0	0.0+
+60 MESH	0.0+	0.0+	0.3	0.0+
+100 MESH	0.0+	0.0+	1.2	0.0+
+140 MESH	0.0+	0.0+	11.5	0.0+
+200 MESH	0.0+	0.0+	30.2	0.0+
+325 MESH	0.0+	0.0+	51.2	0.0+
-325 MESH (WEIGHT PERCENT)	0.0+	0.0+	48.8	0.0+

+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

55 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-I

SAMPLE NUMBER	55-157	55-158
TIME	17:30	0:55
DATE	4/ 2/77	4/ 3/77

U. S. SIEVE SIZE	CUMMULATIVE WEIGHT PERCENT	

+8 MESH	0.0+	0.0
+20 MESH	0.0+	0.0
+30 MESH	0.0+	0.0
+50 MESH	0.0+	0.0
+60 MESH	0.0+	0.2
+100 MESH	0.0+	1.7
+140 MESH	0.0+	8.9
+200 MESH	0.0+	16.5
+325 MESH	0.0+	45.4
-325 MESH (WEIGHT PERCENT)	0.0+	54.6

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

55 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-J

SAMPLE NUMBER	S5-159	S5-160	S5-161	S5-162
TIME	17:30	1:30	14:30	11:30
DATE	4/ 3/77	4/ 4/77	4/ 4/77	4/ 5/77
U. S. SIEVE SIZE	CUMMULATIVE WEIGHT PERCENT			
-----	-----			
+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+	0. 0+	0. 0+
-325 MESH (WEIGHT PERCENT)	0. 0+	0. 0+	0. 0+	0. 0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-K

SAMPLE NUMBER	SS-163	SS-164
TIME	21:30	5:30
DATE	4/15/77	4/16/77

U. S. SIEVE SIZE

CUMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0
+20 MESH	0.0+	0.0
+30 MESH	0.0+	0.1
+50 MESH	0.0+	0.2
+60 MESH	0.0+	0.5
+100 MESH	0.0+	2.4
+140 MESH	0.0+	9.9
+200 MESH	0.0+	19.3
+325 MESH	0.0+	53.3
-325 MESH (WEIGHT PERCENT)	0.0+	46.7

+ = NO ANALYSIS DONE
 * = TRACE
 ** = SUSPECT ANALYSIS

55 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-L

SAMPLE NUMBER	55-165	55-166	55-167	55-168
TIME	14: 0	15:30	23:30	7:30
DATE	4/27/77	4/27/77	4/27/77	4/28/77
U. S. SIEVE SIZE	CUMMULATIVE WEIGHT PERCENT			
-----	-----			
+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+	0. 0+	0. 0+
-325 MESH (WEIGHT PERCENT)	0. 0+	0. 0+	0. 0+	0. 0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

SS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-DB-M

SAMPLE NUMBER	SS-169	SS-170	SS-171	SS-172	SS-173
TIME	13:30	14:30	22:30	6:30	14:30
DATE	5/16/77	5/16/77	5/16/77	5/17/77	5/17/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT.

+8 MESH	0.0+	0.0+	0.0+	0.0	0.0
+20 MESH	0.0+	0.0+	0.0+	0.0	0.0
+30 MESH	0.0+	0.0+	0.0+	0.0	0.0
+50 MESH	0.0+	0.0+	0.0+	0.0	0.5
+60 MESH	0.0+	0.0+	0.0+	0.0	0.9
+100 MESH	0.0+	0.0+	0.0+	3.4	4.2
+140 MESH	0.0+	0.0+	0.0+	17.9	11.0
+200 MESH	0.0+	0.0+	0.0+	38.4	26.2
+325 MESH	0.0+	0.0+	0.0+	73.0	52.8
-325 MESH (WEIGHT PERCENT)	0.0+	0.0+	0.0+	27.1	47.2

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

JS - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE PARTICLE SIZE DISTRIBUTION

RUN 1-DB-N

SAMPLE NUMBER	S5-174	S5-175	S5-176	S5-177	S5-178	S5-179	S5-180
TIME	13:30	14:45	14: 0	14:30	22:30	14:45	22:15
DATE	5/20/77	5/20/77	5/21/77	5/21/77	5/21/77	5/22/77	5/22/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
-325 MESH(WEIGHT PERCENT)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-DB-N

SAMPLE NUMBER	S5-181	S5-182	S5-183	S5-184	S5-185	S5-186	S5-187
TIME	23:30	10:30	11: 0	13: 0	21: 0	5:30	13:30
DATE	5/22/77	5/23/77	5/24/77	5/24/77	5/24/77	5/25/77	5/25/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
-325 MESH(WEIGHT PERCENT)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

55 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE PARTICLE SIZE DISTRIBUTION

RUN 1-DB-N

SAMPLE NUMBER	55-188	55-189	55-190	55-191
TIME	21:30	5:30	6:15	16:0
DATE	5/25/77	5/26/77	5/27/77	5/27/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0.0+	0.0+	0.0+	0.0+
+20 MESH	0.0+	0.0+	0.0+	0.0+
+30 MESH	0.0+	0.0+	0.0+	0.0+
+50 MESH	0.0+	0.0+	0.0+	0.0+
+60 MESH	0.0+	0.0+	0.0+	0.0+
+100 MESH	0.0+	0.0+	0.0+	0.0+
+140 MESH	0.0+	0.0+	0.0+	0.0+
+200 MESH	0.0+	0.0+	0.0+	0.0+
+325 MESH	0.0+	0.0+	0.0+	0.0+
-325 MESH (WEIGHT PERCENT)	0.0+	0.0+	0.0+	0.0+

+ = NO ANALYSIS DONE
* = TRACE
** = SUSPECT ANALYSIS

55 - EFFLUENT FROM SCRUBBER SURGE TANK (FA-215)

SOLIDS FILTERED FROM SAMPLE

PARTICLE SIZE DISTRIBUTION

RUN 1-08-0

SAMPLE NUMBER	S5-192	S5-193	S5-194	S5-195	S5-196	S5-197	S5-198
TIME	18: 0	5:30	13:30	20:30	5:30	14: 0	22: 0
DATE	8/ 5/77	8/10/77	8/10/77	8/10/77	8/11/77	8/11/77	8/11/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0
+50 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0
+60 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0
+100 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	5. 9
+140 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	10. 0
+200 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	16. 1
+325 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	21. 4
-325 MESH(WEIGHT PERCENT)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	78. 6

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS

RUN 1-08-0

SAMPLE NUMBER	S5-199	S5-200	S5-201	S5-202	S5-203	S5-204	S5-205
TIME	6: 0	14: 0	22: 0	6: 0	14: 0	22: 0	15:30
DATE	8/12/77	8/12/77	8/12/77	8/13/77	8/13/77	8/13/77	8/15/77

U. S. SIEVE SIZE

CUMMULATIVE WEIGHT PERCENT

+8 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+20 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+30 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+50 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+60 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+100 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+140 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+200 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
+325 MESH	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+
-325 MESH(WEIGHT PERCENT)	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+	0. 0+

+ = NO ANALYSIS DONE

* = TRACE

** = SUSPECT ANALYSIS