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AREA 3, SRC-II COAL SLURRY PREHEATER STUDIES
Report for the Technical Data Analysis Program

September 1984

Work Performed Under Contract No. AC22-82PC50046

MASTER

The Pittsburg & Midway Coal Mining Co.
Denver, Colorado

Technical Information Center
Office of Scientific and Technical Information
United States Department of Energy

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**AREA 3, SRC-II COAL SLURRY
PREHEATER STUDIES**

**Report for the
TECHNICAL DATA ANALYSIS PROGRAM**

September 1984

**The Pittsburg & Midway Coal Mining Co.
1720 South Bellaire Street
Denver, CO 80222**

**Prepared For The
US Department of Energy
Division of Energy Technology
Coal Conversion Utilization**

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ABSTRACT

This report reviews the raw data gathered from the Preheater B test runs at Ft. Lewis, and also the Preheater B results presented in the Solvent Refined Coal (SRC) Process Final Report,⁽¹⁾ Volumes 1 and 2 of Slurry Preheater Design, SRC-II Process⁽²⁾ and the Ft. Lewis Slurry Preheater Data Analysis, 1½ Inch Coil⁽³⁾ by Gulf Science & Technology Corporation of Pittsburgh, Pennsylvania.

Attempts were made to correlate several variables not previously considered with slurry viscosity and thermal conductivity. Only partial success was realized. However, in the process of attempting to correlate these variables an understanding of why some variables could not be correlated was achieved.

An attempt was also made, using multiple linear regression, to correlate coal slurry viscosity and thermal conductivity with several independent variables among which were temperature, coal concentration, total solids, coal type, slurry residence time, shear rate, and unit size. The final correlations included some, but not all, of these independent variables.

This report is not a "stand alone" document and should be considered a supplement to work already done. It should be read in conjunction with the reports referenced above.

1.0 Introduction

When the SRC-II Project was terminated in mid-1981, time constraints prevented researchers at Gulf Science & Technology Corporation from making a thorough evaluation of all the raw data available from the Preheater B test runs at the Ft. Lewis, Washington, Solvent Refined Coal (SRC) Pilot Plant. Subsequently, The Pittsburg & Midway Coal Mining Co. signed a Contract (DE-AC22-82PC50046) with the Department of Energy to perform an in-depth review and evaluation of the experimental and engineering data generated under previous contracts DE-AC01-79ET10104 (operation of the Ft. Lewis Pilot Plant) and DE-AC05-78ORO3055 (SRC-II Demonstration Plant Project), and other SRC-related research contracts it (P&M) held with DOE.

Included in Contract DE-AC22-82PC50046 under Area No. 3, Preheater Studies was the task of reviewing previous evaluations of Preheater B performance and also the raw data generated during the Preheater B test runs to determine if additional, meaningful correlations could be determined. Also, attempts were to be made to correlate slurry viscosity and thermal conductivity with feed coal properties and to then extend these relationships to other coals. This report is an account of those efforts.

2.0 Summary

There may be correlations between blend tank viscosity and residence time, and viscosity level attained in the preheater coil. The results at Ft. Lewis are inconclusive, however, because blend tank residence time and temperature did not vary sufficiently to identify a trend. The blend tank was normally maintained at or below 325°F and residence time at about 20 minutes. Studies conducted at Ft. Lewis to determine the swelling properties of coal showed that none of three coals tested - - western Kentucky, Blacksville No. 2, and Powhatan No. 5 --swelled significantly below 325°F at residence times of up to three hours.

Thermal conductivity measurements made on coke samples from various runs taken from the coil interior surface showed maximum values of about 0.3 Btu/hr·ft²(°F/ft). However, calculated thermal conductivities for certain runs, and especially those for the 35 wt % coal feed runs, show values almost ten fold higher. Since it is unrealistic that the slurry mixture would have higher thermal conductivity values than the coke deposit, all calculated thermal conductivities above 0.3 Btu/hr·ft²(°F/ft) have been discarded in previous correlations. Apparently the program correlations used to calculate thermal conductivity break down above 0.3 Btu/hr·ft²(°F/ft). Further analysis is needed to understand why this occurs.

Coal slurry viscosity tests made by Exxon on Illinois No. 6 showed the same viscosity profile, and viscosity peak at about the same temperature, as Powhatan No. 6. Absolute viscosity values were much lower, however, since the EDS process did not incorporate slurry recycle, while SRC-II used slurry recycle. When the Ft. Lewis Pilot Plant was operated in the SRC-I mode (which does not incorporate slurry recycle) coal slurry viscosities were considerably less than the values experienced in the SRC-II mode.

Powhatan No. 6 coal slurry viscosity was correlated using multiple regression analysis with temperature, coal concentration, total solids, and coal type. The final regression models for viscosity for fine coal and coarse coal are as follows:

Fine coal

$$\begin{aligned}\text{Ln (VISC)} = & - 14.7851 + 0.04856 T - 0.00004341 T^2 \\ & + 0.03476 (\text{CC}) + 0.15478 (\text{TS}) + 0.143321 (\text{CT})\end{aligned}$$

Coarse coal

$$\text{Ln (VISC)} = - 7.457 + 0.04733 T - 0.00004084 T^2$$

Where T = Temperature, °F; Other Variables Defined on Page 12

Regression analysis indicated that for thermal conductivity all the variables considered except temperature were statistically insignificant and could be eliminated from the final formulation of the model without affecting the model accuracy. The final regression models for thermal conductivity for fine coal and coarse coal are as follows:

Fine coal

$$\text{Ln (Conductivity)} = - 2.94392 + 1.09974 T - 0.218894 T^2$$

Coarse coal

$$\text{Ln (Conductivity)} = - 3.04085 + 1.25819 T - 0.25586 T^2$$

Where T = Temperature, °F x 0.01 - 3.4

3.0 DISCUSSION

3.1 Effect of Blend Tank Viscosity on Maximum Viscosity in Preheater Coil

There may be a correlation between blend tank viscosity and maximum viscosity attained in the preheater coil. If a plot is made of blend tank viscosities versus maximum calculated coil viscosities, using coal concentration as a parameter, the available data from five appropriate runs at 30% coal concentration results in the middle line shown on Figure No. 1. If the relationship shown is correct, then a small increase in blend tank viscosity results in a large decrease in the maximum viscosity attained in the preheater coil. This would have a significant impact on pump selection, pump operating costs, etc. Also, if the relationship as indicated does exist, then it should be possible to increase coal concentration in the blend tank (with resultant increase in viscosity) in such a manner as to not increase maximum viscosity in the coil.

Lines representing 25 wt% and 35 wt% coal concentration have been sketched in parallel to the 30 wt% line. The 30 wt% line was plotted from more runs than the 25 wt% or 35 wt% lines, hence it was deemed more accurate.

The correlation between blend tank viscosity and maximum coil viscosity, using data from preheater B Test Runs, is tenuous at best. The main reason for doubting such a relationship is that in the temperature range at which the blend tank was held for the test runs (320-330°F) slurry viscosity exhibits very little change with temperature. This can be seen from Figures 2, 3, and 4 which show blend tank viscosity versus blend tank temperature with residence time as parameters for coal concentrations of 25 wt%, 30 wt%, and 35 wt%. These figures were cross plotted from figures in the Solvent Refined Coal (SRC) Process Final Report, (See "Rheological Behavior of SRC-II Coal Feed Slurry", pages 507-521) As can be seen blend tank viscosity does not show much variation with temperature until the temperature is above 360°F.

Studies made at Ft. Lewis to determine the swelling properties of coal showed that none of three coals tested - -Western Kentucky, Blacksville No. 2, and Powhatan No. 5 - -swelled significantly below 325°F at residence times of up to three hours. These results are depicted in Figure 5. Obviously then the temperature at which Powhatan No. 6 coal, the coal used in most of the Preheater B test runs, begins swelling is above the temperature that was normally maintained in the blend tank. This explains why the viscosity curves are flat in the temperature region at which the blend tank was maintained. Typically, the slurry blend tank operated at temperatures of 250 to 350°F. When operating on the high side of this range the plant experienced very severe operating problems. The strategy was to keep the slurry blend tank contents as hot as feasible to minimize the heat duty of the high pressure reactor slurry preheater. The limits on slurry temperature were dictated by viscosity growth due to coal swelling and solvent boil off and cavitation problems due to reduced net positive suction head available to the slurry recirculation pumps. As a consequence plant operators strongly resisted efforts to raise blend tank temperature above about 340°F. A good description of the problems encountered when operating at high blend tank temperatures is found in the Solvent Refined Coal (SRC) Final Report (Volume 2) under Section XIV-C, Coal Mixing Studies.

During the preheater B test program only three runs were made with the blend tank at or above 350°F. These were runs F4-2, R-26 and R-27.

To determine conclusively what is the relationship between blend tank viscosity and maximum coil viscosity several preheater runs, in which blend tank temperature is varied over the 340 - 380°F range, should have been made.

3.2 Effect of Blend Tank Residence Time on Viscosity in Preheater Coil

Before developing Figures 2, 3 and 4, unsuccessful attempts were made to correlate blend tank residence time with coil viscosity. An examination of Figures 2, 3, and 4 explains why these efforts failed. For those test runs on which blend tank residence time was measured the range was from 16.2 to 25

minutes. However, the vast majority of runs was between 18-22 minutes. Considering the small distance between the plotted lines a variation of two minutes on either side of a 20 minute line would hardly be discernable and certainly would have had minimal effect on slurry viscosity.

That the blend tank residence time span was too narrow to identify a trend is substantiated by an examination of Figure 6. Slurry viscosity versus shear rate for three distinctly different nominal residence times in the blend tank are shown. Residence time in the blend tank was varied by increasing or decreasing tank level. To increase residence time tank level was raised. To decrease residence time tank level was dropped. On Figure 6, residence time is plotted as inventory level (inches above bottom tangent). Roughly, the three levels indicate residence times of 30 minutes (20"), 51 minutes (40"), and 63 minutes (52"). Again, considering the small distance between the lines representing 30 minutes, and 51 minutes residence times, a variation of two minutes on either side of a 20 minute line would have hardly been noticeable.

Neither the time span nor the temperature range at which the tank was maintained during the test runs varied enough to positively identify a trend.

In summary blend tank residence time does have an effect, but the extent is not known, yet.

3.3 Effect of Coal Concentration on Feed Slurry Thermal Conductivity

Figure 7 is a plot of thermal conductivities for 25, 30, and 35 wt% coal feed slurries (at constant coal size and total solids) calculated by the computer program used to evaluate the data collected on the Preheater B test runs at Ft. Lewis. An examination of this figure shows no large difference between the thermal conductivities of 25 wt% and 30 wt% coal feed slurries. For 35 wt% coal feed slurry, however, the plotted data at certain temperatures show values almost tenfold higher than the thermal conductivities of 25 and 30 wt% coal feed slurries. Thermal conductivities of this magnitude ($\sim 3.0 \text{ Btu/hr}\cdot\text{ft}^2(^{\circ}\text{F}/\text{ft})$) are unrealistically high considering that on several runs coke samples taken from

the coil interior surface showed maximum thermal conductivity values of about $0.3 \text{ Btu/hr}\cdot\text{ft}^2(^{\circ}\text{F}/\text{ft})$. The slurry mixture certainly would not have a higher thermal conductivity than the coke deposit. Apparently the program correlations used to calculate thermal conductivity break down above $0.3 \text{ Btu/hr}\cdot\text{ft}^2(^{\circ}\text{F}/\text{ft})$ value. Accordingly, all calculated thermal conductivities of above $0.3 \text{ Btu/hr}\cdot\text{ft}^2(^{\circ}\text{F}/\text{ft})$ have been discarded.

A discussion of calculated thermal conductivities on pages 948/949 of the Solvent Refined Coal (SRC) Final Report touches lightly on this question of high thermal conductivities. However, an indepth review of the equations and correlations involved in calculating thermal conductivity should be undertaken to determine why the correlations break down, and the physical/chemical properties boundary limits within which the correlations are valid. An understanding of this portion of the heater design program is needed to allay doubts as to the programs usefulness in designing a commercial coal slurry heater.

3.4 Effects of Coals Other Than Powhatan No. 6 and Ireland Mine on Preheater Operations

The statement of work in the present contract, under Area 3. Preheater Studies, calls for P&M Coal Mining Company to, "...develop appropriate correlations to extend the available data to other coals....". A review of the Exxon EDS Process literature for relevant data was undertaken. Unfortunately, the preheater data available in the EDS annual reports was not in a form that could be compared directly with Preheater B data from Ft. Lewis. References to coal slurry viscosity testing were found in two EDS Reports. These were: (1) The Final Technical Progress Report, January 1, 1976 - June 30, 1977. Volume 2, and (2) The Annual Technical Progress Report, July 1, 1977 - June 30, 1978.

According to EDS Coal Liquefaction Process Development, Phase III B/IV, Annual Technical Progress Report, July 1, 1977 - June 30, 1978, a slurry viscometer capable of operating at 850°F and 2500 PSI was installed in line with the Coal Liquefaction Pilot Plant (CLPP) Preheater. Viscosities of Illinois #6 coal slurries exiting from the CLPP preheater were determined at temperatures

ranging from 500°F to 810°F. Measurements were made at residence times of 2 and 2.8 minutes, using 30 mesh minus, 45 wt% coal slurry feed. These tests covered the range of projected coal residence times in the ECLP preheater. Coal swelling was observed at 610°F. The peak viscosity at this temperature was 28 centipoise at a shear rate of 2125 sec⁻¹. The data are presented in Figure 8. Approximately the same swelling temperature was measured previously in a batch - heating system as described in the Final Technical Progress Report, January 1, 1976 - June 30, 1977. Volume 2. In that case the measurement was made for a residence time of about four hours. As can be seen in Figure 8 the peak viscosity occurred at about 610°F, not far from the 580/590°F temperature at which maximum apparent slurry viscosity (~ 800/900 cp) normally occurred on the Ft. Lewis Preheater B runs with Powhatan No. 6 Coal. The wide disparity in viscosities is inherent because the SRC-II Process includes recycle slurry while the EDS Process does not. When the Ft. Lewis Pilot Plant operated in the SRC-I mode (which does not include recycle slurry) maximum coal slurry viscosities were considerably less than the values experienced in the SRC-II mode.

Powhatan No. 6, Ireland Mine, and Illinois No. 6 are all bituminous coal and hence exhibit swelling tendencies. Typical viscosity -temperature relationships for a swelling (bituminous) and a non-swelling coal (sub-bituminous Wyodak) are both illustrated in Figure 8. As expected the viscosity of Wyodak coal feed slurry continuously decreased with increasing temperature. The significance of Figure 8 is that it shows bituminous coal in the Exxon process to exhibit a similar viscosity -temperature relationship as does Powhatan in the SRC-II Process, even though the magnitude of the viscosities is quite different and the viscosity increase with temperature appears to be more gradual in the SRC-II Process.

A more basic understanding of how inherent coal properties affect viscosity is needed before different coals can be correlated against each other.

3.5 Preheater Coil Pressure Drop

3.5.1 Coal Concentration Effect.

Figure 9 shows coil pressure drop as a function of coal concentration at constant slurry and constant gas flow rates through the preheater. With the exception of coal concentration in the feed slurry the three runs plotted, R-12, F7-2T2 and R-11 were all run at preheater conditions very similar to each other and comparison of these three runs should isolate the effect of coal concentration on coil pressure drop. As can be seen within the range of coal concentration studied --25 wt % to 35 wt% -- the trend with increasing coal concentration (at constant wt% solids) is a slight increase in coil pressure drop. Also shown on Figure 9 is the average coil pressure drop for seven runs that "reasonably approximate" run F7-2T2. At the 25 wt% and 35 wt% coal concentration levels no runs other than those plotted --R-11 and R-12--were deemed appropriate for comparison. More runs at 25 wt% and 30 wt% are needed to really get a true picture of what happens. The upward trend as exhibited by Figure 9 contradicts Figure XIV-B-32 on page 1018 of the Solvent Refined Coal (SRC) Process Final Report. This figure, Figure XIV-B-32, should be deleted from the final report since analysis of a large number of runs does not substantiate the severe peak at 30 wt% coal concentration exhibited by that figure. That Ft. Lewis suspected this plot was in error is evident from the text on page 941 of the final report.

3.5.2 Coal Size Effect

The effect of coal size on pressure drop through the preheater coil for Powhatan Coal is shown in Figure 10. The basis for this figure was runs R-13C and R-13F, both of which were made with partially insulated coils (high heat flux runs). The only difference between these two runs was feed coal grind size -- run R-13C had 39.4% through 200 mesh while R-13F had 80% through 200 mesh. For some unknown reason the skin temperature profile for run R-13F did not appear typical when compared to other runs. Regardless of this indication the pressure drop measurement across the coil should be accurate and the calculated flow regimes were those desired. Hence, it was

assumed the measured coil pressure drop was adequate for comparing with Run R-13C.

Figure 11 shows the effect of coal size on pressure drop through the preheater coil for Ireland Mine coal as Figure 10 does for Powhatan coal. Although the two runs plotted for 25 wt% coal concentration, R-35I and R-36I, span a much narrower range of coal size than the runs for Powhatan plotted on Figure 10, the trend exhibited in both figures is the same -- pressure drop increases as coal size decreases.

3.5.3 Gas Rate Effect

The Solvent Refined Coal (SRC) Process Final Report states that one of the major observations made in the preheater program was that in order to avoid flow instabilities associated with insufficient heat transfer and mixing, a certain minimum gas flow must be maintained in the preheater. This minimum gas flow requirement can be generalized in terms of a minimum gas volumetric holdup in the coil of 38%. The characteristics of unstable flow in the preheater have been described in previous reports. In brief, however, the flow regime transition from unstable flow to stable flow was observed at low gas rates, while having once passed through the transition region, higher gas rates generally increased pressure drop and heat transfer up to a point, and thereafter increased gas rates had little effect. These effects were modified slightly by coal slurry composition and coal size; however, higher slurry rates always increased pressure drop and heat transfer. Figure 12 illustrates how little effect increasing gas rate has on coil pressure drop, once the stable flow region has been entered. All runs plotted on Figure 12 had gas holdup volume in the preheater coil of greater than 38 Vol%, and hence were stable.

3.6 Effect of Gas Rate on Heat Transfer Coefficient

The effect of gas rate on slurry heat transfer coefficient is well illustrated in Figure 13. The maximum coefficient attained during each of the three runs, regardless of gas flow, was about 165-170 Btu/hr-ft²-°F at about 550F. Prior to reaching this maximum coefficient increased gas flow produced higher heat transfer coefficient.

3.7 Regression Model Correlation For Coal/Slurry Viscosity

3.7.1 Objective

The objective of this study was to correlate, if possible, coal slurry viscosity with several independent variables, namely temperature, coal concentration, total solids, slurry residence time, shear rate, type of coal, and heater coil size.

The coal slurry viscosity data available from the Ft. Lewis Preheater B experimental program was used in this analysis.

3.7.2 Method

The data set used in this analysis consisted of 282 measurements on fine coal (nominally 80% minus 200 mesh) and 53 measurements on coarse coal (nominally 80% minus 30 mesh) of slurry viscosity, temperature, coal concentration, coal type, coil size, slurry residence time, shear rate, and total solids. The total viscosity data thus consisted of seven independent variables and one dependent variable (viscosity). Coal type and coil size were treated as dummy variables with values of zero and one assigned to the two types of coal (Powhatan #6 and Ireland) and the two sizes of heater coils (2" and 1½") respectively.

Actual statistical correlation of the data was done using the Statistical Analysis System (SAS) program marketed by SAS Institute, Cary, North Carolina.

The first step in building the regression model was to prepare scatter diagrams of viscosity versus each of the independent variables. These scatter diagrams were then examined to discern the nature of the relationship between the dependent variable (VISC) and the various independent variables. Scatter diagrams for fine coal data are shown in Appendix B. In the following description of the methodology in statistical model building details are only given for fine coal. Exactly identical treatment methods were applied to coarse coal.

The variables along with the computer code used in the data analysis are as follows:

<u>Variable</u>	<u>Computer Code</u>	<u>Units</u>
Viscosity	VISC	Centipoise
Temperature	TEMP	°F
Shear Rate	SHEAR	Sec ⁻¹
Slurry Residence Time	SRTH	Minutes
Total Solids	TS	Wt %
Coal Type	CT	*
Coil Size	SIZE	*
Coal Concentration	CC	Wt %

Inference from scatter diagrams shown in Appendix B can be summarized as follows:

<u>Variable</u>	<u>Relationship</u>	<u>Type of Function</u>
TEMP	Non-Linear	Quadratic/Exponential
SHEAR	Unclear	--
SRTH	Non-Linear	Quadratic/Exponential
CC, TS, CT, SIZE	Unclear	

Viscosity is commonly represented as an exponential function of temperature and in the case of coal slurry, theoretical considerations suggest that exponential functionality in terms of slurry residence time also. Additional scatter diagrams are therefore plotted with Ln (VISC) as the dependent variable. These are also shown in the Appendix B. Comparing these scatter diagrams with those presented earlier, more discernable patterns appear to emerge when Ln (VISC) is the dependent variable. It was therefore decided to develop a regression model

*Dummy variables with values of zero and one assigned to the two types of coal and two sizes of heater coils respectively.

in the log domain. It is important to note that the functionality of viscosity in terms of temperature and slurry residence time remained nonlinear in the log domain also. A suitable expression to simulate the type of nonlinear relationship exhibited in the scatter diagrams is quadratic. The linearized regression model used therefore is as follows:

$$\text{Ln (VISC)} = a_1 + a_2 (\text{TEMP}) + a_3 (\text{TEMP})^2 + a_4 (\text{SRTH}) + a_5 (\text{SRTH})^2 + a_6 (\text{SHEAR}) + a_7 (\text{CC}) + a_8 (\text{TS}) + a_9 (\text{CT}) + a_{10} (\text{SIZE}) \quad (1)$$

In the type of Equation 1, a multiplicative model is used with exponential functions for all the variables and, in addition, quadratic terms in temperature and slurry residence time are incorporated to account for the observed nonlinearities with respect to these variables.

$$\text{VISC} = b_1 \cdot b_2^X \cdot b_3^Y \cdot b_4^{\text{SHEAR}} \cdot b_5^{\text{CC}} \cdot b_6^{\text{TS}} \cdot b_7^{\text{CT}} \cdot b_8^{\text{SIZE}}$$

$$\text{Where, } X = b_2' (\text{TEMP}) + b_2'' (\text{TEMP})^2$$

$$Y = b_3' (\text{SRTH}) + b_3'' (\text{SRTH})^2$$

$$\begin{aligned} \text{Ln (VISC)} &= \ln (b_1) + \left[b_2' (\text{TEMP}) + b_2'' (\text{TEMP})^2 \right] \ln (b_2) + \left[b_3' (\text{SRTH}) \right. \\ &\quad \left. + b_3'' (\text{SRTH})^2 \right] \ln b_3 + \ln (b_4) \cdot \text{SHEAR} + \ln (b_5) \cdot \text{CC} + \ln (b_6) \\ &\quad \text{TS} + \ln (b_7) \cdot \text{CT} + \ln (b_8) \cdot \text{SIZE} \end{aligned}$$

$$\begin{aligned}
\text{Thus, } a_1 &= \ln b_1 & ; & & a_4 &= b_3' \cdot \ln(b_3) & ; & & a_7 &= \ln(b_5) \\
a_2 &= b_2' \cdot \ln(b_2) & ; & & a_5 &= b_3'' \cdot \ln(b_3) & ; & & a_8 &= \ln(b_6) \\
a_3 &= b_2'' \cdot \ln(b_2) & ; & & a_6 &= \ln(b_4) & ; & & a_9 &= \ln(b_7) \\
a_{10} &= \ln(b_8)
\end{aligned}$$

A full regression model using all the variables, nine altogether including second order terms, is computed. The results are shown in Appendix C. The computed regression relationship is as follows:

$$\begin{aligned}
\ln(\text{VISC}) = & -13.0743 + 0.04556(\text{TEMP}) - 0.00003602(\text{TEMP})^2 - 1.1994 \\
& (\text{SRTH}) - 0.23744(\text{SRTH})^2 - 0.002721(\text{SHEAR}) + 0.02967(\text{CC}) \\
& + 0.13686(\text{TS}) + 0.10303(\text{CT}) - 0.11656(\text{SIZE})
\end{aligned} \quad (2)$$

In order to check the statistical significance of the regression model we check the following null hypothesis and alternative hypothesis:

$$H_0: \beta_1 = \beta_2 = \dots = 0$$

$$H_a: \beta_i \neq 0 \text{ for some } i$$

The following ANOVA table is constructed to test these hypothesis:

<u>Source of Variation</u>	<u>sum of squares</u>	<u>degree of freedom</u>	<u>mean square</u>	<u>variance ratio, F_c</u>
Regression (Model)	180.84	9	20.9	367.3
Unexplained (Error)	14.88	272	0.555	

These hypothesis are checked at the level of significance $\alpha = 0.01$. From an appropriate F-distribution table.

$$\text{at } \alpha = 0.01, F_{0.01, 9, 272} = 2.41$$

$$F_C > F_{0.01, 9, 272}$$

Therefore reject H_0 , i.e., relationship is significant.

Further, the sample correlation coefficient = 0.9599 indicating a high degree of correlation.

Considering now each variable individually, it is necessary to determine if any of them can be eliminated without affecting the overall relationship. The hypothesis to be tested are:

$$H_0: \beta_1 = 0 \quad \text{for an individual } i$$

$$H_a: \beta \neq 0$$

This is a two-tailed test with the critical region being the two tails of the t-distribution.

$$t_{.005}^{272} = \pm 2.576$$

A table is prepared listing the coefficient of each variable, the coefficient's standard deviation, a t-statistic for each variables' coefficient, and whether or not the null hypothesis is accepted or rejected.

Variable	Coefficient (b)	Standard Deviation (sb)	t statistic (b/sb)	Conclusion
TEMP	.04556	.001637	27.83	H _a
TEMP ²	.00003602	.000001424	-25.30	H _a
SRTH	-1.1994	.24293	-4.94	H _a
SRTH ²	-.2374	.11685	-2.03	H _o
SHEAR	-.002721	.000619	-4.40	H _a
CC	.02967	.005359	5.54	H _a
TS	.13686	.007387	18.53	H _a
CT	.10303	.05003	2.06	H _a
SIZE	-.116657	.11057	-1.05	H _o

Considered individually, the variables which are insignificant that might be removed are the quadratic SRTH term, and SIZE. A further reduction in variables can be made by examining the correlation matrix, shown in the Appendix C, for collinearity. It is apparent that TEMP and SRTH, as well as SHEAR and SIZE, may be collinear. It is therefore logical to remove three variables altogether, namely, SRTH, SRTH², and SIZE. This step should effectively reduce the collinearity problem in addition to simplifying the correlation.

At this juncture, it is worthwhile to examine on a preliminary basis the aptness of the linearized model, even though the model still needs to be reduced in order to make it simpler and to remove the collinear and superfluous variables. Residual analysis allows us to verify if the linearization process removed the nonlinearities effectively. Residual analysis also allows verification concerning any violations of the assumptions usually made in applying the least squares multiple regression techniques. In Appendix C, predicted viscosities and residual values are plotted against the dependent and the various independent variables. These plots show no systematic deviations from the regression line, indicating the adequacy of the linearized regression function in representing the data. Also, no strong tendency is noted for the spread of the residuals to vary to suspect that the assumption of constant variance may not be valid. The other

assumptions made in the least squares regression analysis concern the normality of residual (error) terms and the sum of the error terms, which should be zero. In this case, the sum of errors came out to be 1.450E-12 satisfying the assumption that the sum has to be zero.

In order to examine the normality of the error terms, the following distribution of residuals is constructed.

<u>Stand. Residual (upper class limit)</u>	<u>No. of Residuals</u>	<u>Cum. frequency</u>
-3.0	1	0.35
-2.0	7	2.84
-1.0	38	16.31
0	88	47.51
1.0	111	86.88
2.0	31	97.87
3.0	6	100.00

This distribution is plotted on normal probability paper as shown in Figure 14. As can be seen, the cumulative distribution plots nearly as a straight line indicating that the assumption of normality of errors is reasonable.

A reduced regression model is now computed with TEMP, TEMP², SHEAR, CC, TS and CT. The results are shown in Appendix D. A difference ANOVA Table (shown below) is constructed to test if the elimination of the group of variables adversely affected the correlation.

<u>Variation</u>	<u>Sum Of Squares</u>	<u>Degrees Of Freedom</u>	<u>Mean Square</u>	<u>Variance Ratio, Fc</u>
A. Regression (Full Model)	180.84	9	20.09	
Unexplained (Error)	14.88	272	0.055	
B. Regression (Reduced Model)	173.09	6	28.847	
Unexplained (Error)	22.63	275	0.082	
C. A-B	7.75	3	2.55	1.543
D. Unexplained (Full Model)	14.88	9	1.653	

The null hypothesis and the alternate hypothesis are checked at level of significance $\alpha = 0.05$. From an appropriate F-distribution table .

$$\text{at } \alpha = 0.05, F_{0.05, 3, 9} = 3.86.$$

$$F_c, \text{ or } 1.543 < F, \text{ or } 3.86.$$

Therefore accept $\beta_i = 0$, where $i = \text{SRTH, SRTH}^2, \text{SIZE}$.

We can therefore eliminate the three variables, namely, SRTH, SRTH^2 , and SIZE from the model without adversely affecting the relationship. The F-statistic for the reduced model is 350.5 indicating that the relationship is statistically significant. Further, the sample correlation coefficient with the reduced number of variables is 0.9390 indicating again strong correlation between the dependent and the independent variables.

The model is next rerun and individual coefficients for the independent variable recalculated. The variables are then examined individually to determine if any of them are statistically insignificant and can be removed without materially affecting the overall correlation. To do this a table is prepared listing the coefficient of each

variable, the coefficients standard deviation, a t-statistic for each variables' coefficient, and whether or not the null hypothesis is accepted or rejected. The hypothesis tested at level of significance $\alpha = 0.005$ are as follows:

$$H_o : \beta = 0$$

$$H_a : \beta \neq 0$$

For each individual variable

<u>Variable</u>	<u>Coefficient (b)</u>	<u>Standard Deviation (sb)</u>	<u>t-statistic (b/sb)</u>	<u>Conclusion</u>
TEMP	.04833	.001279	37.78	H_a
TEMP2	.00004314	.0000001118	-38.57	H_a
SHEAR	-.0004557	+.0002505	-1.82	H_o
CC	.034974	.006537	5.35	H_a
TS	.15246	.008580	17.77	H_a
CT	.09872	.04754	2.08	H_a

This analysis indicates that one variable, SHEAR, is insignificant and might be removed. In the previous step where three variables were eliminated, residual analysis could be performed to verify that such an omission of variables was justified. Residuals are plotted against these omitted variables. These plots, shown in the Appendix D, do not indicate any trends to suggest that any of the variables were important or that omission might not be appropriate. One of the variables omitted was a classification variable. Plots of residuals against this variable do not show any specific trend as the residuals were found to distribute evenly about the regression line whether the size was zero (1½ inch) or one (2 inch). Other residual plots also do not show any dramatic shifts in the way they are spread around the regression line upon omission of the variables.

A new regression model is now computed with TEMP, TEMP², CC, TS and CT. The results are shown in Appendix E. The new F-statistic is 416.45 indicating that the new reduced model is still statistically significant. Also, the sample correlation coefficient was 0.9385 indicating a strong correlation. Individual variables are checked once again to test their individual significance.

<u>Variable</u>	<u>Coefficient (b)</u>	<u>Standard Deviation (sb)</u>	<u>t-statistic (b/sb)</u>	<u>Conclusion</u>
TEMP	.04856	.001278	37.99	H _a
TEMP ²	-.00004341	.000001113	-39.01	H _a
CC	.034760	.006563	5.30	H _a
TS	.15478	.008519	18.17	H _a
CT	.14332	.040898	3.50	H _a

None of the variables are insignificant. However, the variable, CT, is the weakest, and perhaps can be eliminated without too much loss of accuracy of the model. The variable is however retained so that its potential importance is not ignored.

Appendix E also includes the residual plots. No systematic departures from the regression line are evident either with respect to dependent or independent variables, suggesting that the form of the regression equation used is apt and reasonable. Also, no serious heteroscedasticity is detectable. In summary, the basic assumptions used in applying the multiple regression techniques do not appear to have been violated.

Finally, the adjusted R-square for this model is 87.60 percent. The final model is therefore,

$$\begin{aligned} \ln(\text{VISC}) = & -14.78510 + 0.04856(\text{TEMP}) - 0.00004341(\text{TEMP})^2 \\ & + 0.03476(\text{CC}) + 0.15478(\text{TS}) + 0.14332(\text{CT}) \end{aligned} \quad (3)$$

In deriving the regression model, as shown in equation (2), nonlinear functional

relationships were assumed for all the variables, temperature, slurry residence time, shear rate, coal concentration, total solids, coal type and heater coil size.

A simpler alternate model was also tested.

$$\text{VISC} = d0 + d1(\text{TEMP}) + d2(\text{TEMP})^2 + d3(\text{CC}) + d4(\text{TS}) + d5(\text{CT}) \quad (4)$$

A regression model was computed and the results are shown in the Appendix F. The derived model is as follows:

$$\begin{aligned} \text{VISC} = & -5835.31 + 14.0321(\text{TEMP}) - 0.01257(\text{TEMP})^2 + 10.9155(\text{CC}) \\ & + 51.6893(\text{TS}) + 52.5345(\text{CT}) \end{aligned} \quad (5)$$

To test the statistical significance of the regression model as a whole, the following hypotheses were tested.

$$H_0: \beta_1 = \beta_2 = \dots = 0$$

for all i's

$$H_a: \beta_i \neq 0 \text{ for some } i$$

The following ANOVA table is constructed to test these hypotheses.

Source of variation	Sum of Squares	Degrees of Freedom	Mean Square	Ratio, F_c
Regression (Model)	15934680	5	3186936	149.8
Unexplained (Error)	5870854	276	21271	

These hypothesis are checked at the level of significance $\alpha = 0.01$. From an appropriate F-distribution table.

at $\alpha = 0.01$, $F_{0.01, 5, 276} = 3.02$

F_C , or 149.8 > F_1 or 3.02

Therefore reject H_0 , i.e., model is statistically significant

In order to check the significance of the individual variables, the following hypothesis were tested:

$$H_0: \beta_i = 0$$

for an individual i

$$H_a: \beta_i \neq 0$$

This is a two-tailed test with the critical region being the tails of the t-distribution.

$$t_{\frac{272}{0.005}} = \pm 2.576$$

A table is prepared listing the coefficient of each variable, the coefficients standard deviation, a t-statistic for each variable's coefficient, and whether or not the null hypothesis is accepted or rejected.

<u>Variable</u>	<u>Coefficient (b)</u>	<u>Standard Deviation (sb)</u>	<u>t-statistic (b/sb)</u>	<u>Conclusion</u>
TEMP	14.0321	0.6471	21.68	H_a
TEMP ²	-.01258	.0005634	-22.32	H_a
CC	10.9155	3.3226	3.29	H_a
TS	51.6893	4.3131	11.98	H_a
CT	52.5346	20.705	2.54	H_a

Thus H_0 , or $\beta_1 = 0$ is rejected meaning none of the individual variables are insignificant.

Finally the adjusted r-square for this model is 72.59 percent, which is somewhat lower than the adjusted r-square for the model previously considered. Out of these models, the one represented by the equation (5) is simpler, but does not provide as good a correlation as the model represented by the equation (3). Further, when the residuals are plotted as functions of the dependent variable, a systematic departure from the regression line became apparent, leading to questions on the aptness of the model for the viscosity data. Also, the model predicts negative values for viscosity in certain ranges of the independent variables, indicating once again that this model is inappropriate for the viscosity data considered. For these reasons, the model represented by the equation (3) was the final selected model.

Residual analysis was performed on this final model to verify that the model is appropriate and linear (linearized form) and that the various assumptions used in the regression analysis have not been violated. The predicted values and the residuals are plotted against the various independent and dependent variables. These plots are shown in the Appendix E. In general, no systematic pattern in deviations around the regression line is observable, indicating the appropriateness of the linearized model for the data analyzed. The plot of the residuals against the predicted values shows a slight decreasing trend. The assumption of constant variance is perhaps questionable. It is to be noted from the same plot that there is just a few outliers and thus the model provided a good fit for the data. One other assumption made in the analysis was related to the sum of errors, which should be zero. In this case, the sum of errors was $2.44E-12$ confirming the validity of this assumption.

An important assumption inherent in the regression analysis was that the errors are normally distributed. The assumption was checked by plotting the standardized residuals on normal probability paper. A straight line would confirm that the errors are normally distributed. The following frequency distribution table for standardized residuals is constructed based on computed residuals, as shown in the Appendix E.

<u>Stand. Residual (upper class limit)</u>	<u>No. of Residuals</u>	<u>Cum. frequency</u>
-3.0	1	0.35
-2.0	10	3.90
-1.01	32	15.25
0	96	49.29
1.0	111	88.65
2.0	31	99.65
3.0	1	100.00

The cumulative frequency is plotted on normal probability paper as shown in figure 15. As can be seen from the plot, a straight line can be assumed confirming the validity of the assumption on the normality of errors. Residual analysis is also helpful in verifying that none of the important independent variables were omitted. Residual plots shown in the Appendix E clearly demonstrate that the omission of the variables was justified. As there was no systematic deviations of errors with respect of any of the omitted variables, namely SIZE, SRTH, SHEAR and CT.

A similar analysis leads to the following correlation for coarse coal.

$$\ln (\text{VISC}) = - 7.45715 + 0.047334 (\text{TEMP}) - 0.000040842 (\text{TEMP})^2 \quad (6)$$

The F-statistic for this correlation was 85.34 indicating that the relationship is statistically significant to 99 percent level. Also the sample correlation coefficient is 0.875 confirming the strength of the correlation.

3.7.3 Conclusions

Two different correlations were needed to adequately represent the coal slurry viscosity, one for coarse coal and the other for fine coal. A possible reason for this may have been that the effect of coal size on coal slurry viscosity was not uniform over the entire range of the independent variables particularly the temperature, coal concentration, and shear rate. At low coal concentrations, high shear rates, and at temperatures beyond

the maximum viscosity, the effect of coal size was not significant. Since slurry residence time and temperature were found to be collinear similar statements can be made for both these variables. As a result, two different correlations were developed for coarse and fine coals. These correlations are:

Fine Coal

$$\begin{aligned} \ln(\text{VISC}) = & - 14.7851 + 0.04856(\text{TEMP}) - 0.00004341(\text{TEMP})^2 \\ & + 0.03476(\text{CC}) + 0.15478(\text{TS}) + 0.143321(\text{CT}) \end{aligned} \quad (7)$$

Coarse Coal

$$\ln(\text{VISC}) = - 7.4571 + 0.04733(\text{TEMP}) - 0.00004084(\text{TEMP})^2 \quad (8)$$

In the case of fine coal, only the coal concentration, the total solids and the coal type, besides the temperature, were found to be significant in correlating slurry viscosity. Further, the effect of coal type, i.e., between Powhatan and Ireland Mine coals was miniscule although statistically significant. A close examination of the final correlation further reveals that of all the variables, the temperature and the total solids have the most effect on slurry viscosity. Any of these conclusions, however, are only valid for the ranges of the individual variables considered in the experimental program. For example, even though shear rate does not appear in the final correlation, the range of shear rates is important in that outside the range considered in the experimental program at Ft. Lewis the effect of shear rates is expected to be significant.

In the case of coarse coal, the only independent variable found to be significant was temperature. In addition to the limitations stated earlier for the viscosity correlation for the fine coal, an additional factor in case of coarse coal is that the

amount of data available was not as large. The ranges of the variables covered in the experimental work were more limited. Coal type effect could not even be considered since there was no data on Ireland Mine coal. The range of total solids being extremely narrow with the bulk of the data in the 45.0-46.0 range did not allow meaningful detection of any variable effect. Situation was similar with respect to coal concentration with the bulk of the data about 30.0.

3.8 Thermal Conductivity of Coal Slurry

There are altogether 175 observations of thermal conductivity with two sizes of coal-coarse and fine, two types of coal-Ireland Mine and Powhattan, and various ranges of coal concentration and total solids. Also thermal conductivity data are available over a range of shear rates.

Coal slurry thermal conductivity was correlated from these base data as a function of the various independent variables. The data are shown in Table 1 of Appendix G. Multiple linear regression techniques were used in developing the correlation. The analysis indicated that all the variables considered except temperature were statistically insignificant and could be eliminated from the final formulation of the model without affecting the accuracy of the model. The final correlation is as follows:

Fine Coal:

$$\ln(\text{Cond}) = -2.94391 + 1.09974T - 0.218894T^2$$

Coarse coal:

$$\ln(\text{Cond}) = -3.04085 + 1.25819T - 0.25586T^2$$

Where T = Temperature, $^{\circ}\text{F} \times 0.01 - 3.4$

As can be seen both the models are nonlinear with quadratic terms in temperature. The two models could be combined into one, treating coal size, fine, or coarse, as a dummy variable. However, such an approach did not yield as strong a correlation (in terms of reduced correlation coefficient) as two separate correlations. The reason for this is that the magnitude of the effect of coal size depended on the temperature range, i.e., coarse coal resulted in higher conductivities only up to gellation temperatures and its effect is not discernable beyond this temperature range.

Residual analysis was also conducted to verify the aptness of the derived models in their linearized form. The residual plots and the predicted value plots are shown in Figures 1 to 8 of Appendix G. Residual analysis allows us to draw conclusions concerning any violations of the assumptions used in applying the least squares regression techniques. The residual plots indicate no systematic patterns in deviation from the regression line, confirming the adequacy of the linearized regression function in representing the data.

As the final correlations indicate, the effect of coal concentration, total solids, and coal type was found to be statistically insignificant in the analysis. This conclusion is of course only valid for the range of variables considered. In addition to a limited range of the variables experimented with in the program, the amount of the available data was much less compared to the amount of data for viscosity. This was due to faulty thermocouple readings in the first two-thirds of the the experimental program on the 2-inch coil. Additionally, conductivity data in the center sections of the coil with conductivities above $0.3 \text{ Btu/hr}\cdot\text{ft}^2(^{\circ}\text{F}/\text{ft})$ were discarded as outliers. Coke found in high heat flux experimental furnaces had measured thermal conductivities in the range of $0.25 \text{ Btu/hr}\cdot\text{ft}^2(^{\circ}\text{F}/\text{ft})$ in English units. It is therefore unlikely that any slurry has conductivities higher than this range of values. It appears that these higher calculated conductivities resulted from inaccurate tubeskin temperature data.

In conclusion, the available data permitted correlation of slurry thermal conductivity only in terms of temperature. The range of other variables was such that they could not be considered in the final correlation without effecting the strength of the overall correlation. Further, two different correlations for the two sizes of coals were needed to properly represent the data.

3.9 Brief Outline Of How To Use Preheater Design Procedure

As a starting point, a trial diameter, a trial design heat flux and a trial number of heater passes are chosen. Knowing the total slurry and gas to be heated and the total heat absorption requirement, total heat transfer area and then the heater coil length required per pass are calculated. Also, the flow rates of gas and slurry per pass are calculated.

The heater design is achieved by a step-wise procedure and for this purpose, the single pass length is divided into a number of segments of equal length. The starting point for the design calculation is the heater inlet i.e., the first segment. Knowing the heat absorbed in the first segment, the fluid temperature at the outlet of the segment is calculated. With the temperature increase through the segment known, volumetric fluid flows through the segment and the physical properties of the flowing fluids corresponding to the average temperature in the segment are obtained from the available data. The physical properties required for the subsequent calculations are the densities, viscosities and thermal conductivities of both gas and slurry phases and liquid surface tension as functions of temperature and other appropriate independent variables.

Using this information, the actual fluid velocities in the segment, the expected flow regime, gas hold up and heat transfer rates are computed. The next step is to compare the computed flow regimes, velocities and gas hold up values with the specified limits. If there is significant deviation between the calculated and the specified limiting values, a new diameter and possibly a revised number of heater passes may have to be adopted and the process repeated until the flow regime, gas holdup and liquid velocities are within the specified range.

The next step is to calculate the inside fluid film temperature using an appropriate heat transfer model. The calculated film temperature has to be within the prescribed limits and this limit is set by coking considerations. If the calculated film temperature exceeds the specified limit, a new heat flux value has to be assumed and the process repeated until the film temperature meets the specification. This process which is described for each segment is now repeated for each successive

incremental length until the desired heater outlet temperature is reached. In this process the length of the last segment may have to be somewhat less or more than the standard length.

As part of this calculation procedure, pressure drop in each segment is also calculated. The total heater coil length and the expected pressure drop are arrived at by adding up the contribution of the individual segments. Usually, there is also a maximum pressure drop specification. The calculated pressure drop is compared with the specification and if there is wide deviation between the two, the entire calculation procedure may have to be repeated with an appropriate change in either the number of heater passes or size of the coil.

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Fig. 1

BLEND TANK VISCOSITY VS. MAXIMUM APPARENT
SLURRY VISCOSITY IN PREHEATER COIL W/COAL
CONCENTRATION AS PARAMETER

Fig. 2

RHEOLOGICAL BEHAVIOR OF SRC-II COAL FEED SLURRY

POWHATAN NO. 6 COAL
SHEAR RATE = 186 Sec.^{-1}
COAL CONCENTRATION 25%
COAL FEED SIZE 80% MINUS 200 MESH

Fig. 3

RHEOLOGICAL BEHAVIOR OF SRC-II COAL FEED SLURRY

POWHATAN NO. 6 COAL
SHEAR RATE = 186 Sec.^{-1}
COAL CONCENTRATION 25%
COAL FEED SIZE 80% MINUS 200 MESH

Fig. 4.

RHEOLOGICAL BEHAVIOR OF SRC-II COAL FEED SLURRY

POWHATTAN COAL
SHEAR RATE = 186 Sec.^{-1}
COAL CONCENTRATION 35%
COAL FEED SIZE 80% MINUS 200 MESH

Fig. 5⁽¹⁾

**INCREASE IN COAL PARTICLE WEIGHT WITH SUBMERGENCE
TIME AT VARYING SOLUTION TEMPERATURES
SOLVENT MIXTURE: 10 % SRC, 90 % HEAVY DISTILLATE**

Fig. 6⁽¹⁾

VISCOSITY MEASUREMENTS OF SRC-II COAL* FEED SLURRY
FOR THE SLURRY BLEND TANK MIXING TESTS

* POWHATAN NO. 6

Effect of Coal Concentration on Thermal
Conductivity at Constant Grind Size
(80 Wt % Thru 200 Mesh) and Constant
Total Solids (43 Wt. %)

Fig. 7

Fig. 8⁽⁴⁾

FEED SLURRY VISCOSITY FOR SWELLING AND NON-SWELLING COAL

Fig. 9

PREHEATER COIL PRESSURE DROP AS
A FUNCTION OF COAL CONCENTRATION

Fig. 10

PREHEATER COIL PRESSURE DROP
AS A FUNCTION OF COAL SIZE

Fig. 11

PREHEATER COIL PRESSURE DROP AS A
FUNCTION OF COAL SIZE

Fig. 12

EFFECT OF GAS RATE ON PREHEATER COIL
PRESSURE DROP - POWHATAN NO. 6 COAL

Fig. 13

Heat Transfer Coefficient Vs Average
Coil Temperature With Gas to Preheater
As Parameter

STANDARDIZED RESIDUAL PLOT

(FULL REGRESSION MODEL)

STANDARDIZED RESIDUAL PLOT
(FINAL MODEL)

STANDARDIZED RESIDUAL

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APPENDIX A

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SLURRY VISCOSITY DATA ANALYSIS

15:16 FRIDAY, DECEMBER 23, 1983

1

QBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CC	TS	ST	SIZE
1	EHF	323	196	0	74	1	30.7	42.8	S	1
2	R13F	323	200	0	73	1	30.6	45.0	S	1
3	GHF	331	191	0	111	1	30.2	44.9	S	1
4	R13F	332	194	0	110	1	30.6	45.0	S	1
5	EHF	335	191	0	110	1	30.7	42.8	S	1
6	IMF	338	193	0	38	1	25.1	42.3	S	1
7	GHF	342	185	0	148	1	30.2	44.9	S	1
8	R10	348	199	0	108	1	30.4	43.0	S	1
9	R13F	350	191	0	181	1	30.6	45.0	S	1
10	EHF	354	187	0	182	1	30.7	42.8	S	1
11	R33I	358	323	0	56	0	29.9	39.1	S	0
12	R36I	360	353	0	88	0	24.9	41.7	S	0
13	GHF	361	183	0	220	1	30.2	44.9	S	1
14	R34I	367	327	0	38	0	25.0	39.0	S	0
15	R35I	369	376	0	49	0	25.2	38.7	S	0
16	R24	371	368	0	131	1	35.1	45.4	S	0
17	F7T1	373	213	0	57	1	29.4	41.3	S	1
18	R6	377	205	0	233	1	30.4	45.0	S	1
19	F7T5	379	184	0	38	1	24.3	36.0	S	1
20	R13F	379	187	0	122	1	30.6	45.0	S	1
21	R18	379	357	0	198	1	29.6	43.5	S	0
22	R23	380	370	0	107	1	34.9	42.0	S	0
23	EHF	387	187	0	215	1	30.7	42.8	S	1
24	HHF	387	188	0	254	1	35.2	42.1	S	1
25	GHF	389	191	0	325	1	30.2	44.9	S	1
26	R33I	394	316	0	129	0	29.9	39.1	S	0
27	R36I	395	349	0	138	0	24.9	41.7	S	0
28	AAHF	398	152	0	290	1	29.4	42.2	S	1
29	R37I	398	297	0	310	0	25.6	44.6	S	0
30	R34I	402	329	0	57	0	25.0	39.0	S	0
31	F7T1	403	203	0	232	1	29.4	41.3	S	1
32	R31I	403	282	0	381	0	30.4	46.1	S	0
33	R35I	403	377	0	81	0	25.2	38.7	S	0
34	R6	411	196	0	393	1	30.4	45.0	S	1
35	F7T5	413	183	0	76	1	24.8	36.0	S	1
36	R23	414	363	0	210	1	34.9	42.0	S	0
37	R13F	419	184	0	527	1	30.6	45.0	S	1
38	R22	422	393	0	59	1	24.8	38.7	S	0
39	R10	423	193	0	382	1	30.4	43.0	S	1
40	R12	425	182	0	390	1	25.3	42.0	S	1
41	GHF	428	174	0	853	1	30.2	44.9	S	1
42	HHF	429	179	0	535	1	35.2	42.1	S	1
43	R33I	430	314	0	260	0	29.9	39.1	S	0
44	R36I	430	352	0	170	0	24.9	41.7	S	0
45	F4	431	194	0	504	1	29.9	42.0	S	1
46	R37I	432	302	0	457	0	25.6	44.6	S	0
47	EHF	433	184	0	527	1	30.7	42.8	S	1
48	F10	434	267	0	538	1	30.4	42.0	S	1
49	F7T1	435	197	0	361	1	29.4	41.3	S	1
50	R34I	437	330	0	120	0	25.0	39.0	S	0
51	R35I	437	378	0	111	0	25.2	38.7	S	0
52	R31I	438	282	0	687	0	30.4	46.1	S	0
53	AAHF	440	154	0	368	1	29.4	42.2	S	1
54	R24	441	353	0	509	1	35.1	45.4	S	0
55	R6	445	193	0	514	1	30.4	45.0	S	1
56	F13	446	236	0	303	1	28.9	41.5	S	1

SLURRY VISCOSITY DATA ANALYSIS

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OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CC	TS	ST	SIZE
57	F7T5	446	176	0.00	224	1	24.8	36.0	S	1
58	F7T2	448	186	0.00	425	1	25.3	41.7	S	1
59	R23	448	354	0.00	442	1	34.9	42.0	S	0
60	R18	452	352	0.10	448	1	29.6	43.5	S	0
61	R22	455	381	0.10	161	1	24.8	38.7	S	0
62	R5	456	230	0.10	429	1	30.4	42.0	S	1
63	R36I	464	353	0.12	251	0	24.9	41.7	S	0
64	R33I	466	315	0.13	348	0	29.9	39.1	S	0
65	F10	467	265	0.12	565	1	30.4	42.0	S	1
66	F9	467	241	0.13	576	1	30.5	42.0	S	1
67	R12	467	185	0.10	487	1	25.3	42.0	S	1
68	R13F	467	183	0.10	758	1	30.6	45.0	S	1
69	R37I	467	308	0.13	450	0	25.6	44.6	S	0
70	R10	469	191	0.10	648	1	30.4	43.0	S	1
71	R11	471	185	0.10	586	1	35.5	43.0	S	1
72	R34I	471	327	0.12	165	0	25.0	39.0	S	0
73	R35I	471	379	0.11	172	0	25.2	38.7	S	0
74	R31I	472	285	0.14	791	0	30.4	46.1	S	0
75	GHF	476	169	0.19	1453	1	30.2	44.9	S	1
76	R24	476	349	0.12	628	1	35.1	45.4	S	0
77	R6	479	192	0.10	734	1	30.4	45.0	S	1
78	F13	480	227	0.14	539	1	28.9	41.5	S	1
79	F11	481	187	0.17	616	1	29.8	41.9	S	1
80	R23	482	350	0.12	624	1	34.9	42.0	S	0
81	AAHF	483	155	0.21	453	1	29.4	42.2	S	1
82	EHF	484	177	0.18	1101	1	30.7	42.8	S	1
83	R22	487	374	0.20	274	1	24.8	38.7	S	0
84	R18	488	345	0.20	631	1	29.6	43.5	S	0
85	R21	489	365	0.20	322	1	24.8	42.0	S	0
86	R5	490	224	0.20	697	1	30.4	42.0	S	1
87	R36I	498	353	0.23	315	0	24.9	41.7	S	0
88	R33I	502	317	0.26	380	0	29.9	39.1	S	0
89	R37I	502	314	0.26	495	0	35.6	44.6	S	0
90	F9	503	239	0.27	696	1	30.5	42.0	S	1
91	R32I	504	305	0.27	616	0	30.1	42.0	S	0
92	F3	505	166	0.38	653	1	31.2	42.6	S	1
93	R34I	505	326	0.25	218	0	25.0	39.0	S	0
94	R35I	505	378	0.22	247	0	25.2	38.7	S	0
95	R31I	506	288	0.29	856	0	30.4	46.1	S	0
96	R24	510	350	0.23	806	1	35.1	45.4	S	0
97	R12	511	188	0.30	547	1	25.3	42.0	S	1
98	F7T6	512	177	0.35	363	1	24.8	40.0	S	1
99	R6	513	193	0.30	882	1	30.4	45.0	S	1
100	F13	514	225	0.29	380	1	28.9	41.5	S	1
101	R23	516	352	0.23	701	1	34.9	42.0	S	0
102	R22	520	374	0.30	342	1	24.8	38.7	S	0
103	R13F	521	185	0.30	877	1	30.6	45.0	S	1
104	R21	521	357	0.30	562	1	24.8	42.0	S	0
105	R18	522	346	0.30	731	1	29.6	43.5	S	0
106	R5	524	224	0.40	660	1	30.4	42.0	S	1
107	AAHF	526	155	0.42	626	1	29.4	42.2	S	1
108	GHF	530	170	0.38	1003	1	30.2	44.9	S	1
109	F10	532	267	0.37	741	1	30.4	42.0	S	1
110	R36I	532	356	0.35	350	0	24.9	41.7	S	0
111	EHF	534	177	0.36	1147	1	30.7	42.8	S	1
112	R37I	536	319	0.39	505	0	25.6	44.6	S	0

SLURRY VISCOSITY DATA ANALYSIS

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OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CC	TS	ST	SIZE
113	F9	537	242	0.40	658	1	30.5	42.0	S	1
114	MMF	537	180	0.36	818	1	35.2	42.1	S	1
115	R331	538	322	0.38	429	0	29.9	39.1	S	0
116	R351	539	381	0.32	274	0	25.2	38.7	S	0
117	R321	540	309	0.40	679	0	30.1	42.0	S	0
118	R341	540	328	0.37	251	0	25.0	39.0	S	0
119	R311	541	291	0.43	993	0	30.4	46.1	S	0
120	F7T6	545	173	0.54	357	1	24.8	40.0	S	1
121	F7T5	546	171	0.58	321	1	24.8	36.0	S	1
122	R6	547	193	0.50	1053	1	30.4	45.0	S	1
123	F12	550	199	0.48	880	1	30.7	42.0	S	1
124	R23	550	356	0.35	789	1	34.9	42.0	S	0
125	R22	553	376	0.40	421	1	24.8	38.7	S	0
126	F7T2	554	181	0.54	644	1	29.3	41.7	S	1
127	R12	554	191	0.50	572	1	25.3	42.0	S	1
128	R18	556	353	0.40	691	1	29.6	43.5	S	0
129	R5	557	228	0.50	742	1	30.4	42.0	S	1
130	F10	564	274	0.46	736	1	30.4	42.0	S	1
131	R361	567	360	0.46	420	0	24.9	41.7	S	0
132	R371	570	326	0.52	516	0	25.6	44.6	S	0
133	R11	573	193	0.50	729	1	35.5	43.0	S	1
134	R331	574	327	0.51	441	0	29.9	39.1	S	0
135	R351	574	385	0.43	331	0	25.2	38.7	S	0
136	R311	575	294	0.56	1090	0	30.4	46.1	S	0
137	R341	575	332	0.50	294	0	25.0	39.0	S	0
138	R13F	576	189	0.50	971	1	30.6	45.0	S	1
139	R321	576	314	0.53	689	0	30.1	42.0	S	0
140	F7T5	579	183	0.75	211	1	24.8	36.0	S	1
141	GHF	580	176	0.57	1304	1	30.2	44.9	S	1
142	F13	581	228	0.57	592	1	28.9	41.5	S	1
143	EHF	583	184	0.54	994	1	30.7	42.8	S	1
144	F4	585	205	0.64	689	1	29.9	42.0	S	1
145	R21	586	365	0.50	490	1	24.8	42.0	S	0
146	R22	586	383	0.50	360	1	24.8	38.7	S	0
147	F7T2	589	192	0.71	468	1	29.3	41.7	S	1
148	R18	589	361	0.50	683	1	29.6	43.5	S	0
149	R5	591	233	0.70	648	1	30.4	42.0	S	1
150	F10	597	280	0.60	609	1	30.4	42.0	S	1
151	R12	598	198	0.50	463	1	25.3	42.0	S	1
152	R361	601	364	0.57	463	0	24.9	41.7	S	0
153	R371	605	332	0.64	526	0	25.6	44.6	S	0
154	R341	609	338	0.62	263	0	25.0	39.0	S	0
155	R351	609	389	0.53	357	0	25.2	38.7	S	0
156	F13L	610	213	0.78	635	1	29.7	41.5	S	1
157	R311	610	300	0.70	1006	0	30.4	46.1	S	0
158	R331	610	336	0.63	384	0	29.9	39.1	S	0
159	F7T5	612	193	0.92	139	1	24.8	36.0	S	1
160	F13	614	241	0.71	399	1	28.9	41.5	S	1
161	F11	615	197	0.96	611	1	29.8	41.9	S	1
162	F12	618	210	0.79	679	1	30.7	42.0	S	1
163	R21	619	379	0.60	428	1	24.8	42.0	S	0
164	R22	619	395	0.50	314	1	24.8	38.7	S	0
165	F7T1	621	211	0.99	369	1	29.4	41.3	S	1
166	R19	622	371	0.60	570	1	29.6	43.5	S	0
167	GHF	624	185	0.74	921	1	30.2	44.9	S	1
168	R13F	624	193	0.60	1038	1	30.6	45.0	S	1

SLURRY VISCOSITY DATA ANALYSIS

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OBS	RUNID	TEMP	SHEAR	SKTH	VISC	CT	CC	TS	ST	SIZE
169	F8	625	217	0.96	449	1	31.3	42.4	S	1
170	R5	625	240	0.30	555	1	30.4	42.0	S	1
171	EHF	630	192	0.71	814	1	30.7	42.8	S	1
172	MHF	632	195	0.70	592	1	35.2	42.1	S	1
173	R361	635	370	0.68	458	0	24.9	41.7	S	0
174	R371	640	341	0.76	454	0	25.6	44.6	S	0
175	R12	642	206	0.80	423	1	25.3	42.0	S	1
176	R351	643	400	0.64	279	0	25.2	38.7	S	0
177	F7T6	644	194	1.06	171	1	24.8	40.0	S	1
178	R341	644	350	0.73	191	0	25.0	39.0	S	0
179	R311	645	313	0.83	693	0	30.4	46.1	S	0
180	F7T5	646	200	1.08	137	1	24.8	36.0	S	1
181	R331	646	346	0.75	345	0	29.9	39.1	S	0
182	FL3	648	256	0.33	282	1	28.9	41.5	S	1
183	R10	651	208	0.30	606	1	30.4	43.0	S	1
184	FL2	652	220	0.94	495	1	30.7	42.0	S	1
185	F7T1	652	223	1.14	213	1	29.4	41.3	S	1
186	R21	652	391	0.70	340	1	24.8	42.0	S	0
187	R22	652	407	0.70	269	1	24.8	38.7	S	0
188	R23	652	393	0.67	472	1	34.9	42.0	S	0
189	AAHF	655	167	1.03	432	1	29.4	42.2	S	1
190	R18	655	382	0.80	549	1	29.6	43.5	S	0
191	F7T2	659	211	1.02	261	1	29.3	41.7	S	1
192	F8	659	232	1.09	254	1	31.3	42.4	S	1
193	R5	659	247	0.90	494	1	30.4	42.0	S	1
194	FL0	663	295	0.32	483	1	30.4	42.0	S	1
195	R13F	663	199	0.80	896	1	30.6	45.0	S	1
196	GHF	665	195	0.91	778	1	30.2	44.9	S	1
197	R351	670	379	0.79	406	0	24.9	41.7	S	0
198	EHF	674	202	0.87	608	1	30.7	42.8	S	1
199	R371	675	354	0.87	336	0	25.6	44.6	S	0
200	F7T6	678	201	1.22	135	1	24.8	40.0	S	1
201	R341	678	364	0.35	137	0	25.0	39.0	S	0
202	R351	678	418	0.73	145	0	25.2	38.7	S	0
203	F7T5	679	208	1.24	67	1	24.9	36.0	S	1
204	R311	680	332	0.95	370	0	30.4	46.1	S	0
205	FL3	681	263	0.95	195	1	28.9	41.5	S	1
206	R331	682	359	0.86	239	0	29.9	39.1	S	0
207	F7T5	683	214	1.39	67	1	24.8	36.0	S	1
208	R321	683	345	0.90	359	0	30.1	42.0	S	0
209	FL2	685	232	1.08	259	1	30.7	42.0	S	1
210	R12	685	216	0.90	288	1	25.3	42.0	S	1
211	R21	685	405	0.30	232	1	24.8	42.0	S	0
212	R22	686	420	0.80	225	1	24.8	38.7	S	0
213	R23	686	405	0.77	332	1	34.9	42.0	S	0
214	IMF	691	215	0.99	195	1	25.1	42.3	S	1
215	R5	692	256	1.10	318	1	30.4	42.0	S	1
216	F8	693	245	1.23	188	1	31.3	42.4	S	1
217	F7T2	694	221	1.17	193	1	29.3	41.7	S	1
218	R11	696	218	0.90	412	1	35.5	43.0	S	1
219	R13F	696	210	1.00	474	1	30.6	45.0	S	1
220	AAHF	699	180	1.21	214	1	29.4	42.2	S	1
221	GHF	705	204	1.06	606	1	30.2	44.9	S	1
222	R361	705	370	0.39	201	0	24.9	41.7	S	0
223	MHF	707	218	1.01	256	1	35.2	42.1	S	1
224	R371	710	374	0.38	174	0	25.6	44.6	S	0

SLURRY VISCOSITY DATA ANALYSIS

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OBS	RUNID	TEMP	SHEAR	SKTH	VISC	CT	CC	TS	ST	SIZE
225	R34I	713	378	0.95	102	0	25.0	39.0	S	0
225	R35I	713	440	0.83	100	0	25.2	38.7	S	0
227	F13	714	290	1.07	137	1	28.9	41.5	S	1
228	F7T6	714	210	1.37	99	1	24.8	40.0	S	1
229	R31I	715	354	1.07	244	0	30.4	46.1	S	0
230	EHF	716	215	1.02	378	1	30.7	42.8	S	1
231	F7T5	717	223	1.53	33	1	24.8	36.0	S	1
232	R21	718	421	0.90	198	1	24.8	42.0	S	0
233	R22	718	434	0.90	169	1	24.8	38.7	S	0
234	R32I	718	368	1.01	152	0	30.1	42.0	S	0
235	R33I	718	378	0.97	118	0	29.9	39.1	S	0
236	R24	719	413	0.88	402	1	35.1	45.4	S	0
237	R23	720	425	0.86	235	1	34.9	42.0	S	0
238	R5	725	268	1.20	202	1	30.4	42.0	S	1
239	F8	726	254	1.35	155	1	31.3	42.4	S	1
240	R12	728	227	1.10	252	1	25.3	42.0	S	1
241	R13F	729	225	1.10	343	1	30.6	45.0	S	1
242	F7T2	730	232	1.31	127	1	29.3	41.7	S	1
243	R11	732	228	1.10	250	1	35.5	43.0	S	1
244	IHF	735	225	1.13	159	1	25.1	42.3	S	1
245	R36I	739	421	0.99	122	0	24.9	41.7	S	0
246	GHF	740	215	1.21	439	1	30.2	44.9	S	1
247	AAHF	742	194	1.38	126	1	29.4	42.2	S	1
248	HHF	742	230	1.15	157	1	35.2	42.1	S	1
249	R34I	747	391	1.06	83	0	25.0	39.0	S	0
250	F13	748	289	1.18	135	1	28.9	41.5	S	1
251	R35I	748	454	0.92	99	0	25.2	38.7	S	0
252	R31I	749	372	1.18	171	0	30.4	46.1	S	0
253	F7T6	750	221	1.52	65	1	24.8	40.0	S	1
254	R21	751	441	1.00	129	1	24.8	42.0	S	0
255	R22	751	453	1.00	115	1	24.8	38.7	S	0
256	R24	753	432	0.97	255	1	35.1	45.4	S	0
257	R23	754	446	0.96	141	1	34.9	42.0	S	0
258	R33I	754	398	1.07	83	0	29.9	39.1	S	0
259	EHF	755	232	1.16	154	1	30.7	42.8	S	1
260	F8	760	263	1.48	122	1	31.3	42.4	S	1
261	F3	762	213	1.84	81	1	31.2	42.6	S	1
262	F7T2	765	244	1.44	93	1	29.3	41.7	S	1
263	R13F	767	236	1.20	306	1	30.6	45.0	S	1
264	R11	768	242	1.20	184	1	35.5	43.0	S	1
265	R12	771	241	1.20	123	1	25.3	42.0	S	1
266	GHF	773	229	1.35	247	1	30.2	44.9	S	1
267	IHF	773	236	1.27	125	1	25.1	42.3	S	1
268	R36I	773	443	1.08	60	0	24.9	41.7	S	0
269	HHF	774	244	1.29	93	1	35.2	42.1	S	1
270	F13	781	302	1.29	53	1	28.9	41.5	S	1
271	R34I	782	404	1.15	66	0	25.0	39.0	S	0
272	R21	783	467	1.10	51	1	24.8	42.0	S	0
273	R31I	783	389	1.28	101	0	30.4	46.1	S	0
274	R35I	783	468	1.00	83	0	25.2	38.7	S	0
275	R22	784	477	1.10	50	1	24.8	38.7	S	0
276	AAHF	785	206	1.53	83	1	29.4	42.2	S	1
277	R6	785	263	1.40	59	1	30.4	45.0	S	1
278	F12	787	282	1.44	54	1	30.7	42.0	S	1
279	R23	787	470	1.04	83	1	34.9	42.0	S	0
280	R24	787	496	1.06	37	1	35.1	45.4	S	0

SLURRY VISCOSITY DATA ANALYSIS

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URS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CC	TS	ST	SIZE
231	R33E	789	415	1.17	49	0	29.9	39.1	S	0
242	EHF	790	252	1.29	91	1	30.7	42.8	S	1

APPENDIX B

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SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF VISC*TEMP LEGEND: A = 1 OBS, B = 2 OBS, ETC.

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF VISC*CC LEGEND: A = 1 OBS, J = 2 OBS, ETC.

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SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF VISC*SRTH LEGEND: A = 1 OBS, B = 2 OBS, ETC.

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF VISC* SHEAR LEGEND: A = 1 OBS, D = 2 OBS, ETC.

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SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF VISC*CT LEGEND: A = 1 OBS, E = 2 OBS, ETC.

SLURRY VISCOSITY DATA ANALYSIS

15:16 FRIDAY, DECEMBER 23, 1983 13

PLOT OF VISC*SIZE LEGEND: A = 1 OBS, B = 2 OBS, ETC.

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SLURRY VISCOSITY DATA ANALYSIS

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VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAXIMUM
VISC	282	385.50354610	278.56734714	108712.0000000	33.00000000	1603.00000000
TEMP	282	578.08865248	129.39427435	163021.0000000	323.00000000	790.00000000
SRTM	282	0.57443252	0.45551488	161.9900000	0	1.84000000
SIZE	282	0.55319149	0.49804646	156.0000000	0	1.00000000
SHEAR	282	279.87214043	66.10630706	78924.0000000	152.00000000	496.00000000
CC	282	28.87056738	3.23052925	8141.5000000	24.80000000	35.50000000
TS	282	41.95886525	2.36092361	11837.4000000	36.00000000	46.10000000
CT	282	0.71935816	0.44986670	203.0000000	0	1.00000000

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / N = 282

	VISC	TEMP	SRTM	SIZE	SHEAR	CC	TS	CT
VISC	1.00000 0.0000	-0.18648 0.0017	-0.26215 0.0001	0.16515 0.0054	-0.32190 0.0001	0.31250 0.0001	0.45740 0.0001	0.15155 0.0108
TEMP	-0.18648 0.0017	1.00000 0.0000	0.95468 0.0001	-0.01943 0.7453	0.27227 0.0001	-0.02940 0.6230	-0.07508 0.2088	0.01369 0.8189
SRTM	-0.26215 0.0001	0.95468 0.0001	1.00000 0.0000	0.12860 0.0308	-0.10860 0.0696	-0.02560 0.6686	-0.07815 0.1907	0.08788 0.1410
SIZE	0.16515 0.0054	-0.01943 0.7453	0.12860 0.0308	1.00000 0.0000	-0.89887 0.0001	0.25257 0.0001	0.14199 0.0170	0.69413 0.0901
SHEAR	-0.32190 0.0001	0.27227 0.0001	0.10860 0.0696	-0.89887 0.0001	1.00000 0.0000	-0.23161 0.0001	-0.21743 0.0302	-0.51595 0.0001
CC	0.31250 0.0001	-0.02940 0.6230	-0.02560 0.6686	0.25257 0.0001	-0.23161 0.0001	1.00000 0.0000	0.51301 0.0301	0.35378 0.0001
TS	0.45740 0.0001	-0.07508 0.2088	-0.07815 0.1907	0.14199 0.0170	-0.21743 0.0002	0.51301 0.0001	1.00000 0.0000	0.15095 0.0111
CT	0.15155 0.0108	0.01369 0.8189	0.08788 0.1410	0.69413 0.0901	-0.51595 0.0001	0.35378 0.0001	0.15095 0.0111	1.00000 0.0000

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF LV*TEMP LEGEND: A = 1 OBS, B = 2 OBS, ETC.

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF LV*CC LEGEND: A = 1 OBS, S = 2 OBS, ETC.

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF LV*TS LEGEND: A = 1 OBS, P = 2 OBS, ETC.

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF LV*SRTH LEGEND: A = 1 OBS, B = 2 OBS, ETC.

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF LV*Shear LEGEND: A = 1 OBS, 9 = 2 OBS, ETC.

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF LV*CT LEGEND: A = 1 OBS. B = 2 OBS, ETC.

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LV	+	-
7.5	+	
7.0	+	
	A	S
		A
	C	B
6.5	B	
	F	D
		C
		E
6.0		I
	C	H
		G
		D
		C
5.5		E
	G	
		B
		P
		C
		E
5.0		B
	R	
		C
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		A
4.5		S
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APPENDIX C

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SLURRY VISCOSITY DATA ANALYSIS

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DEP. VARIABLE: LV

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	9	180.937	20.093023	367.265	0.0001
ERROR	272	14.881093	0.054710		
C TOTAL	281	195.718			
ROOT MSE		0.233901	R-SQUARE	0.9240	
DEP MEAN		5.656373	ADJ R-SQ	0.9215	
C.V.		4.135185			

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB > T	TYPE I SS	TYPE II SS	STANDARDIZED ESTIMATE	TOLERANCE
INTERCEP	1	-13.074327	0.669159	-19.538	0.0001	9022.466	20.885567	0.000000	.
TEMP	1	0.045564	0.001637357	27.828	0.0001	7.103263	42.365799	7.064324	0.004338
TEMP2	1	-0.000360249	0.00000142373	-25.303	0.0001	109.212	35.027787	-6.411467	0.004354
SRTH	1	-1.199398	0.242929	-4.937	0.0001	3.934664	1.333624	-0.654641	0.015900
SRTH2	1	-0.237437	0.116845	-2.032	0.0431	0.301297	0.225913	-0.172067	0.038987
CC	1	0.029672	0.005359461	5.536	0.0001	28.175228	1.676983	0.114859	0.649486
TS	1	0.136864	0.007367035	18.528	0.0001	25.766432	18.780466	0.387177	0.640111
CT	1	0.103032	0.050033	2.059	0.0404	2.277761	0.232005	0.055539	0.384306
SIZE	1	-0.116556	0.110566	-1.054	0.2927	3.008956	0.060799	-0.069557	0.054207
SHEAR	1	-0.00272148	0.0006190495	-4.396	0.0001	1.057364	1.057364	-0.280789	0.068523

OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	STD ERR RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
1	4.304	4.106	0.066485	0.197983	0.224253	0.893	*	0.007
2	4.290	4.393	0.067531	-0.102871	0.223941	-0.459		0.002
3	4.710	4.568	0.061524	0.141235	0.225665	0.626	*	0.003
4	4.700	4.607	0.060961	0.093115	0.225818	0.412		0.001
5	4.700	4.382	0.057921	0.318480	0.226616	1.405	**	0.013
6	3.638	4.206	0.060591	-0.568330	0.225917	-2.516	****	0.046
7	4.997	4.819	0.054262	0.178081	0.227520	0.783	*	0.003
8	4.682	4.651	0.049242	0.030970	0.228659	0.135		0.000
9	5.198	4.993	0.049559	0.205064	0.228591	0.897	*	0.004
10	5.204	4.767	0.045852	0.417014	0.229363	1.918	***	0.013
11	4.025	3.980	0.059626	0.045436	0.226174	0.201		0.000
12	4.477	4.145	0.053738	0.332185	0.227645	1.459	**	0.012
13	5.394	5.209	0.043586	0.184529	0.229805	0.803	*	0.002
14	3.638	3.985	0.050045	-0.347373	0.229485	-1.520	***	0.011
15	3.892	3.855	0.054304	0.037240	0.227510	0.164		0.000
16	4.875	5.229	0.061454	-0.352745	0.225684	-1.563	***	0.018
17	4.205	4.840	0.038230	-0.635768	0.230756	-2.755	****	0.021
18	5.451	5.472	0.039361	-0.021445	0.230566	-0.093		0.000
19	3.638	4.168	0.058650	-0.530761	0.226429	-2.344	****	0.037
20	5.775	5.564	0.036435	0.210490	0.231046	0.911	*	0.002
21	5.288	4.963	0.050593	0.305269	0.228364	1.337	**	0.009
22	4.673	4.918	0.059011	-0.244978	0.226594	-1.081	**	0.008
23	5.371	5.410	0.031779	-0.039038	0.231733	-0.168		0.000
24	5.537	5.445	0.043569	0.092659	0.229808	0.403		0.001

SLURRY VISCOSITY DATA ANALYSIS

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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	STD ERR RESIDUAL	STD ERR STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
25	5.784	5.734	0.034260	0.050025	0.231379	0.216	0.000
26	4.860	4.664	0.047741	0.195822	0.228978	0.255	0.003
27	4.927	4.799	0.041126	0.128447	0.230258	0.558	0.001
28	5.635	5.574	0.040504	0.060430	0.230368	0.262	0.000
29	5.737	5.409	0.046101	0.327583	0.229313	1.429	0.006
30	4.043	4.605	0.039553	-0.561581	0.230533	-2.436	0.017
31	5.447	5.396	0.031297	0.050912	0.231798	0.219	0.000
32	5.943	5.881	0.047763	0.061726	0.228973	0.270	0.000
33	4.394	4.455	0.046048	-0.060991	0.229324	-0.266	0.003
34	5.974	6.081	0.035058	-0.107151	0.231259	-0.463	0.000
35	4.331	4.750	0.057139	-0.419420	0.225815	-1.849	0.022
36	5.347	5.513	0.051073	-0.160384	0.228257	-0.729	0.003
37	6.267	6.245	0.035742	0.022344	0.231155	0.097	0.000
38	4.078	4.904	0.050319	-0.726541	0.228425	-3.181	0.049
39	5.945	6.002	0.033441	-0.056202	0.231499	-0.243	0.000
40	5.966	5.773	0.043437	0.192752	0.229833	0.839	0.003
41	6.749	6.392	0.039157	0.360789	0.230601	1.591	0.007
42	6.282	6.148	0.046424	0.134071	0.229248	0.585	0.001
43	5.561	5.241	0.047900	0.319600	0.228944	1.396	0.009
44	5.136	5.345	0.042246	-0.209352	0.230055	-0.910	0.003
45	6.223	5.966	0.036310	0.256989	0.231066	1.112	0.003
46	6.125	5.928	0.047771	0.190761	0.228971	0.859	0.003
47	6.267	5.155	0.037396	0.112292	0.230893	0.486	0.001
48	6.288	5.825	0.056470	0.462896	0.226982	2.030	0.026
49	5.889	5.904	0.038475	-0.015368	0.230715	-0.067	0.000
50	4.787	5.139	0.042631	-0.351275	0.229984	-1.527	0.008
51	4.710	4.973	0.048071	-0.263481	0.229908	-1.151	0.006
52	6.532	6.415	0.051497	0.116927	0.228162	0.512	0.001
53	5.908	6.215	0.048446	-0.306574	0.228829	-1.340	0.008
54	5.232	6.411	0.052482	-0.179115	0.227938	-0.781	0.003
55	6.420	6.590	0.044823	-0.169925	0.229567	-0.740	0.002
56	5.714	5.903	0.047517	-0.248995	0.229024	-1.087	0.005
57	5.412	5.252	0.066292	0.160040	0.224311	0.713	0.004
58	6.052	6.165	0.044422	-0.112669	0.229644	-0.491	0.001
59	6.091	6.031	0.053891	0.059979	0.227609	0.264	0.000
60	6.105	6.015	0.040872	0.089736	0.230303	0.390	0.000
61	5.081	5.175	0.046073	-0.094021	0.229319	-0.410	0.001
62	6.061	6.100	0.036191	-0.038918	0.231085	-0.168	0.000
63	5.525	5.649	0.037533	-0.123780	0.230871	-0.536	0.001
64	5.852	5.557	0.043045	0.295505	0.229907	1.285	0.006
65	6.337	5.116	0.051899	0.221296	0.228071	0.970	0.005
66	6.356	6.171	0.040202	0.184883	0.230421	0.802	0.002
67	6.188	6.207	0.042057	-0.018688	0.230089	-0.091	0.000
68	6.031	6.780	0.036784	-0.149568	0.230991	-0.648	0.001
69	6.109	6.213	0.041827	-0.103615	0.230131	-0.450	0.001
70	6.474	6.503	0.033973	-0.028514	0.231421	-0.124	0.000
71	6.373	6.694	0.044214	-0.320244	0.229685	-1.394	0.007
72	5.106	5.437	0.036853	-0.330642	0.230980	-1.431	0.005
73	5.147	5.272	0.044098	-0.124991	0.229707	-0.544	0.001
74	6.073	6.669	0.045158	0.004071	0.229501	0.018	0.000
75	7.288	6.783	0.031370	0.505261	0.231788	2.180	0.009
76	6.443	6.713	0.049007	-0.270070	0.228710	-1.181	0.006
77	6.599	6.883	0.041451	-0.289124	0.230199	-1.256	0.005
78	6.290	6.230	0.036451	0.060108	0.231044	0.260	0.000

SLURRY VISCOSITY DATA ANALYSIS

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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
79	6.423	6.393	0.029514	0.030576	0.232032	0.132		0.000
80	6.436	6.305	0.050136	0.131224	0.228465	0.574	*	0.002
81	6.116	6.479	0.035423	-0.363143	0.231204	-1.571	***	0.006
82	7.004	6.589	0.030423	0.414631	0.231915	1.788	***	0.006
83	5.613	5.440	0.044396	0.173613	0.229650	0.756	*	0.072
84	6.447	6.328	0.040252	0.119053	0.230412	0.517	*	0.001
85	5.775	5.936	0.045488	-0.161916	0.229436	-0.706	*	0.002
86	6.547	6.380	0.032851	0.166685	0.231583	0.720	*	0.001
87	5.753	5.879	0.035590	-0.126447	0.231178	-0.547	*	0.031
88	5.943	5.768	0.041779	0.171982	0.230140	0.747	*	0.092
89	6.205	6.402	0.040054	-0.196959	0.230447	-0.855	*	0.002
90	6.545	6.378	0.037226	0.167592	0.230920	0.726	*	0.071
91	6.423	6.209	0.035573	0.214166	0.231181	0.926	*	0.002
92	6.482	6.549	0.031330	-0.067328	0.231794	-0.290		0.070
93	5.384	5.626	0.034026	-0.241185	0.231413	-1.042	**	0.002
94	5.509	5.489	0.041078	0.021020	0.230266	0.091		0.000
95	6.752	6.917	0.043786	-0.064831	0.229767	-0.282		0.000
96	6.692	6.910	0.047966	-0.218195	0.229930	-0.953	*	0.004
97	6.304	6.394	0.034605	-0.090340	0.231327	-0.389		0.000
98	5.894	6.077	0.037288	-0.182431	0.230910	-0.790	*	0.002
99	6.782	6.960	0.031255	-0.177960	0.231804	-0.768	*	0.001
100	6.522	6.371	0.031166	0.150601	0.231816	0.650	*	0.001
101	6.553	6.465	0.048755	0.086733	0.228764	0.294		0.000
102	5.835	5.614	0.043943	0.220651	0.229737	0.960	*	0.003
103	6.777	7.054	0.032234	-0.277863	0.231670	-1.199	**	0.003
104	6.332	5.120	0.045264	0.211363	0.229480	0.921	*	0.003
105	6.594	6.506	0.040202	0.088625	0.230421	0.385		0.000
106	6.492	6.419	0.032290	0.073343	0.231662	0.317		0.000
107	6.439	6.592	0.035251	-0.152622	0.231230	-0.660	*	0.091
108	7.380	7.030	0.032142	0.349551	0.231682	1.509	***	0.004
109	6.608	6.404	0.049968	0.204490	0.228502	0.895	*	0.094
110	5.886	5.999	0.035383	-0.111869	0.231210	-0.484		0.001
111	7.045	6.795	0.029810	0.250018	0.231994	1.078	**	0.002
112	6.227	6.490	0.040539	-0.263160	0.230362	-1.142	**	0.004
113	6.489	6.468	0.037956	0.020891	0.230800	0.091		0.000
114	6.707	6.845	0.042503	-0.138523	0.230008	-0.602	*	0.001
115	6.061	5.884	0.041859	0.177519	0.230125	0.771	*	0.002
116	5.613	5.618	0.040185	-0.004738	0.230424	-0.021		0.000
117	6.521	6.309	0.036239	0.212697	0.231077	0.920	*	0.032
118	5.525	5.736	0.033925	-0.210308	0.231428	-0.909	*	0.092
119	6.901	6.892	0.045264	0.009048	0.229480	0.039		0.000
120	5.878	6.067	0.040319	-0.189014	0.230400	-0.820	*	0.002
121	5.771	5.472	0.056214	0.299059	0.227046	1.317	**	0.011
122	6.964	6.933	0.033180	0.031026	0.231536	0.134		0.000
123	6.780	6.562	0.027736	0.218058	0.232251	0.939	*	0.001
124	6.671	6.557	0.048159	0.113453	0.228890	0.496		0.071
125	6.043	5.700	0.043881	0.342482	0.229749	1.491	**	0.008
126	6.468	6.465	0.030157	0.002776	0.231949	0.012		0.000
127	6.349	6.419	0.034426	-0.068793	0.231354	-0.297		0.006
128	6.538	6.579	0.039858	-0.040817	0.230490	-0.177		0.000
129	6.609	6.485	0.032862	0.124163	0.231582	0.536	*	0.001
130	6.601	6.425	0.051863	0.175332	0.228079	0.773	*	0.073
131	6.040	6.043	0.035195	-0.002713	0.231238	-0.012		0.003
132	6.246	6.491	0.041633	-0.235013	0.230166	-1.021	**	0.003

SLURRY VISCOSITY DATA ANALYSIS

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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
133	6.592	6.946	0.040474	-0.354645	0.230373	-1.539	0.007
134	6.089	5.885	0.042517	0.203965	0.230005	0.987	0.003
135	5.802	5.647	0.039231	0.155283	0.230538	0.673	0.001
136	6.994	6.879	0.046788	0.114660	0.229174	0.500	0.001
137	5.649	5.731	0.034372	-0.081980	0.231362	-0.354	0.000
138	6.899	7.098	0.032404	-0.199338	0.231646	-0.861	0.001
139	6.535	6.303	0.037188	0.232598	0.230926	1.007	0.003
140	5.352	5.348	0.054599	0.003540	0.227440	0.016	0.000
141	7.173	7.022	0.033298	0.151382	0.231519	0.654	0.001
142	6.540	6.380	0.030488	0.159467	0.231986	0.688	0.001
143	6.902	6.782	0.030178	0.119390	0.231946	0.515	0.000
144	6.535	6.451	0.028707	0.084258	0.232133	0.363	0.000
145	6.194	6.190	0.045135	0.004443	0.229505	0.019	0.000
146	5.886	5.689	0.043646	0.196781	0.229793	0.856	0.003
147	6.148	6.334	0.031328	-0.185717	0.231794	-0.801	0.001
148	6.526	6.553	0.039432	-0.031791	0.230554	-0.138	0.000
149	6.474	6.313	0.037685	0.156137	0.230846	0.676	0.001
150	6.412	5.357	0.052178	0.054571	0.228007	0.239	0.000
151	6.139	6.432	0.035522	-0.293866	0.231168	-1.271	0.004
152	6.138	5.992	0.034446	0.145878	0.231351	0.631	0.001
153	6.265	6.401	0.041697	-0.135714	0.230155	-0.590	0.001
154	5.572	5.639	0.034623	-0.065578	0.231325	-0.283	0.000
155	5.878	5.596	0.038043	0.281404	0.230787	1.219	0.004
156	6.454	6.203	0.030955	0.251052	0.231844	1.083	0.002
157	6.914	6.754	0.047634	0.159998	0.229060	0.699	0.002
158	5.951	5.789	0.042246	0.161699	0.230055	0.703	0.002
159	4.934	5.139	0.053252	-0.203037	0.227759	-0.891	0.004
160	5.999	6.217	0.032897	-0.228272	0.231577	-0.986	0.002
161	6.415	6.184	0.033450	0.231205	0.231497	0.999	0.002
162	6.521	6.304	0.029935	0.216900	0.231978	0.935	0.001
163	6.059	6.077	0.044376	-0.017751	0.229653	-0.077	0.000
164	5.749	5.582	0.043210	0.167715	0.229876	0.730	0.002
165	5.911	5.845	0.043168	0.065797	0.229883	0.286	0.000
166	6.346	6.449	0.038773	-0.103304	0.230666	-0.448	0.001
167	6.825	6.834	0.032664	-0.008705	0.231610	-0.038	0.000
168	6.945	7.053	0.036569	-0.108078	0.231025	-0.469	0.001
169	6.107	6.089	0.042302	0.018845	0.230044	0.082	0.000
170	6.319	6.203	0.034979	0.116069	0.231271	0.502	0.001
171	6.702	6.594	0.030367	0.108062	0.231922	0.466	0.000
172	6.384	6.639	0.043239	-0.255490	0.229870	-1.111	0.004
173	6.127	5.846	0.033598	0.280677	0.231475	1.213	0.003
174	6.118	6.218	0.041225	-0.099550	0.230240	-0.432	0.001
175	6.047	6.143	0.034081	-0.095369	0.231405	-0.412	0.000
176	5.631	5.420	0.038582	0.211652	0.230693	0.917	0.002
177	5.142	5.459	0.041832	-0.316974	0.230130	-1.377	0.006
178	5.252	5.453	0.033940	-0.200463	0.231426	-0.866	0.002
179	6.541	6.528	0.046523	0.013484	0.229228	0.059	0.000
180	4.920	4.859	0.052168	0.061097	0.228010	0.268	0.000
181	5.844	5.590	0.041742	0.253674	0.230147	1.102	0.004
182	5.642	5.992	0.034206	-0.350105	0.231388	-1.513	0.005
183	6.407	6.416	0.026942	-0.009463	0.232345	-0.041	0.000
184	6.205	6.029	0.029032	0.175967	0.232093	0.758	0.001
185	5.361	5.547	0.046054	-0.186101	0.229323	-0.912	0.003
186	5.829	5.885	0.044061	-0.057072	0.229714	-0.248	0.000

SLURRY VISCOSITY DATA ANALYSIS

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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
187	5.595	5.391	0.043062	0.203890	0.229903	0.987	*	0.003
188	6.157	6.226	0.046457	-0.059027	0.229242	-0.301		0.000
189	6.068	6.007	0.038460	0.061404	0.230718	0.266		0.000
190	6.308	6.098	0.040616	0.209982	0.230348	0.912	*	0.003
191	5.565	5.826	0.029433	-0.261126	0.232042	-1.125	**	0.002
192	5.537	5.805	0.042364	-0.267283	0.230033	-1.162	**	0.005
193	6.203	6.000	0.031415	0.202530	0.231782	0.874	*	0.001
194	6.180	5.990	0.050026	0.190264	0.228489	0.833	*	0.003
195	6.798	6.699	0.033726	0.098718	0.231457	0.427		0.000
196	6.657	6.503	0.031330	0.153324	0.231794	0.661	*	0.001
197	6.006	5.601	0.033277	0.405691	0.231522	1.752	***	0.006
198	6.410	6.253	0.030278	0.157583	0.231933	0.679	*	0.001
199	5.817	5.944	0.040584	-0.127332	0.230354	-0.553	*	0.001
200	4.905	5.091	0.043739	-0.195708	0.229776	-0.908	*	0.002
201	4.920	5.156	0.033576	-0.235626	0.231479	-1.013	**	0.002
202	4.977	5.152	0.041758	-0.185734	0.230144	-0.807	*	0.002
203	4.295	4.485	0.053456	-0.280791	0.227711	-1.233	**	0.008
204	5.914	6.205	0.044694	-0.291764	0.229592	-1.271	**	0.006
205	5.273	5.688	0.034104	-0.415367	0.231402	-1.795	***	0.007
206	5.476	5.299	0.041447	0.177944	0.230200	0.773	*	0.002
207	4.205	4.182	0.066766	0.023126	0.224170	0.103		0.000
208	5.883	5.671	0.035414	0.212162	0.231205	0.918	*	0.002
209	5.553	5.675	0.028514	-0.122056	0.232157	-0.526	*	0.000
210	5.663	5.859	0.036693	-0.195882	0.231006	-0.844	*	0.002
211	5.642	5.607	0.044462	0.035400	0.229637	0.154		0.000
212	5.416	5.110	0.043801	0.305894	0.229764	1.331	**	0.006
213	5.805	5.950	0.046678	-0.144402	0.229197	-0.630	*	0.002
214	5.273	5.724	0.035097	-0.451316	0.231255	-1.952	***	0.009
215	5.762	5.538	0.034228	0.223892	0.231384	0.968	*	0.002
216	5.236	5.417	0.044648	-0.180933	0.229601	-0.788	*	0.002
217	5.253	5.429	0.029744	-0.166602	0.232003	-0.718	*	0.001
218	6.021	6.247	0.042118	-0.225845	0.230078	-0.982	*	0.003
219	6.161	6.232	0.030373	-0.070714	0.231921	-0.305		0.000
220	5.366	5.519	0.038131	-0.152621	0.230773	-0.661	*	0.001
221	6.407	6.077	0.031595	0.329662	0.231758	1.422	**	0.004
222	5.303	5.326	0.034800	-0.023050	0.231298	-0.100		0.000
223	5.545	5.878	0.041263	-0.333019	0.230233	-1.446	**	0.007
224	5.159	5.558	0.041594	-0.399127	0.230173	-1.734	***	0.010
225	4.625	4.795	0.035822	-0.170710	0.231142	-0.739	*	0.001
226	4.605	4.785	0.047236	-0.181301	0.229082	-0.791	*	0.003
227	4.920	5.299	0.034715	-0.379440	0.231311	-1.640	***	0.006
228	4.595	4.629	0.049483	-0.034228	0.228607	-0.150		0.000
229	5.497	5.780	0.044494	-0.282556	0.229630	-1.230	**	0.006
230	5.935	5.781	0.032107	0.154366	0.231687	0.666	*	0.001
231	3.497	3.726	0.075950	-0.229965	0.221227	-1.039	**	0.013
232	5.288	5.238	0.046413	0.049924	0.229250	0.218		0.000
233	5.130	4.751	0.045960	0.378587	0.229342	1.651	***	0.011
234	5.024	5.255	0.035061	-0.231113	0.231259	-0.999	*	0.002
235	4.771	4.892	0.042367	-0.121034	0.230032	-0.526	*	0.001
236	5.996	6.057	0.047390	-0.060864	0.229049	-0.266		0.000
237	5.460	5.579	0.048622	-0.119774	0.228792	-0.524	*	0.001
238	5.308	5.150	0.034167	0.158276	0.231393	0.684	*	0.001
239	5.043	4.992	0.047126	0.051320	0.229105	0.224		0.000
240	5.529	5.294	0.037609	0.264977	0.230858	1.144	**	0.003

SLURRY VISCOSITY DATA ANALYSIS

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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
241	5.838	5.831	0.032585	0.006904	0.231632	0.030		0.000
242	4.844	4.943	0.034380	-0.098326	0.231361	-0.425		0.000
243	5.521	5.613	0.040968	-0.151661	0.230286	-0.659	*	0.001
244	5.069	5.203	0.040296	-0.134263	0.230404	-0.583	*	0.021
245	4.804	4.803	0.041963	5.5E-04	0.230107	0.002		0.000
246	6.084	5.559	0.035084	0.525206	0.231255	2.271	****	0.012
247	4.836	4.899	0.045534	-0.062799	0.229427	-0.274		0.000
248	5.056	5.374	0.043236	-0.317302	0.229874	-1.340	**	0.007
249	4.419	4.337	0.041002	0.082080	0.230240	0.356		0.030
250	4.905	4.843	0.036566	0.062609	0.231026	0.271		0.000
251	4.595	4.356	0.052921	0.239497	0.227836	1.051	**	0.006
252	5.142	5.296	0.046936	-0.154363	0.229148	-0.674	*	0.002
253	4.174	4.058	0.062111	0.116180	0.225504	0.515	*	0.032
254	4.860	4.776	0.050802	0.083730	0.228318	0.367		0.021
255	4.745	4.292	0.050639	0.453160	0.223354	1.984	***	0.019
256	5.541	5.604	0.051428	-0.063055	0.228178	-0.276		0.000
257	4.949	5.103	0.053088	-0.154035	0.227797	-0.676	*	0.002
258	4.419	4.408	0.047099	0.011869	0.229110	0.081		0.000
259	5.037	5.204	0.037392	-0.167199	0.230893	-0.724	*	0.021
260	4.804	4.453	0.055591	0.350642	0.227202	1.543	***	0.014
261	4.394	3.880	0.124351	0.514691	0.198121	2.598	*****	0.266
262	4.533	4.379	0.044944	0.153825	0.229543	0.570	*	0.002
263	5.724	5.310	0.041896	0.413770	0.230134	1.798	***	0.011
264	5.215	5.155	0.047671	0.059518	0.228992	0.260		0.000
265	4.812	4.689	0.050021	0.123204	0.228490	0.539	*	0.001
266	5.509	4.973	0.043520	0.536295	0.229817	2.334	****	0.020
267	4.828	4.593	0.049159	0.235729	0.228677	1.031	**	0.005
268	4.094	4.289	0.050853	-0.194266	0.228307	-0.851	*	0.034
269	4.533	4.915	0.048360	-0.282316	0.228847	-1.234	**	0.007
270	3.970	4.297	0.044191	-0.326442	0.229699	-1.421	**	0.037
271	4.190	3.796	0.051142	0.394059	0.228242	1.727	***	0.015
272	3.932	4.225	0.058125	-0.293343	0.226564	-1.255	**	0.011
273	4.615	4.744	0.052824	-0.128991	0.227859	-0.566	*	0.032
274	4.419	3.849	0.062666	0.569409	0.225350	2.527	*****	0.049
275	3.912	3.735	0.058450	0.176639	0.226481	0.760	*	0.004
276	4.419	4.177	0.061435	0.242162	0.225689	1.073	**	0.009
277	4.078	4.688	0.047609	-0.603271	0.229005	-2.634	*****	0.030
278	3.939	4.130	0.048283	-0.141341	0.228864	-0.618	*	0.002
279	4.477	4.575	0.061406	-0.097827	0.225697	-0.433		0.001
280	4.419	4.942	0.066017	-0.522878	0.224392	-2.330	****	0.047
281	3.892	3.830	0.056045	0.061836	0.227088	0.272		0.000
282	4.511	4.565	0.046219	-0.053999	0.229290	-0.236		0.000

SUM OF RESIDUALS -1.44595E-12
 SUM OF SQUARED RESIDUALS 14.98109

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF LV*TEMP
PLOT OF PREDI*TEMP
LEGEND: A = 1 OBS, B = 2 OBS, ETC.
SYMBOL USED IS *

NOTE: 22 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS

15:16 FRIDAY, DECEMBER 23, 1983 30

PLOT OF LV*SRTH LEGEND: A = 1 OBS, S = 2 OBS, ETC.
PLOT OF PREDI*SRTH SY*60L USED IS *

NOTE: 45 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF LV*CC
PLOT OF PRED1*CC

LEGEND: A = 1 OBS, B = 2 OBS, ETC.
SYMBOL USED IS *

NOTE: 65 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF LV*TS LEGEND: A = 1 OBS, B = 2 OBS, ETC.
PLOT OF PRED*TS SYMBOL USED IS *

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF LV*SHEAR
PLOT OF PREDI*SHEARLEGEND: A = 1 OBS, B = 2 OBS, ETC.
SYMBOL USED IS *

SLURRY VISCOSITY DATA ANALYSIS

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OPS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	VISPI	RESID
1	EHF	323	196	0	74	1	1	30.7	42.8	S	1	4.30467	104329	0	4.10608	0.19798	60.708	69.894
2	R13F	323	200	0	73	1	1	30.6	45.0	S	1	4.29046	104329	0	4.39333	-0.10287	80.909	68.607
3	GHF	331	191	0	111	1	1	30.2	44.9	S	1	4.70953	109561	0	4.56829	0.14124	96.380	106.432
4	R13F	332	194	0	110	1	1	30.6	45.0	S	1	4.70048	110224	0	4.60737	0.09312	100.220	105.393
5	EHF	335	191	0	110	1	1	30.7	42.8	S	1	4.70048	112225	0	4.38200	0.31848	79.998	105.618
6	EHF	338	193	0	38	1	1	25.1	42.3	S	1	3.63759	114244	0	4.20592	-0.50833	67.092	33.794
7	GHF	342	185	0	148	1	1	30.2	44.9	S	1	4.99721	116964	0	4.81913	0.17808	123.857	143.181
8	R10	348	199	0	109	1	1	30.4	43.0	S	1	4.66213	121104	0	4.65116	0.03097	104.707	103.349
9	R13F	350	191	0	191	1	1	30.6	45.0	S	1	5.19950	122500	0	4.99343	0.20506	147.442	176.007
10	EHF	354	187	0	182	1	1	30.7	42.8	S	1	5.20401	125316	0	4.78699	0.41701	119.940	177.213
11	R331	358	323	0	56	0	1	29.9	39.1	S	0	4.02535	128164	0	3.97992	0.04544	53.513	52.020
12	R361	360	353	0	83	0	1	24.9	41.7	S	0	4.47734	129600	0	4.14515	0.33218	63.127	83.855
13	GHF	361	183	0	220	1	1	30.2	44.9	S	1	5.39363	130321	0	5.20910	0.18453	182.929	214.791
14	R341	367	327	0	39	0	1	25.0	39.0	S	0	3.63759	134689	0	3.98496	-0.34737	53.783	34.015
15	R351	369	376	0	49	0	1	25.2	38.7	S	0	3.89182	136161	0	3.85458	0.03724	47.209	45.145
16	R24	371	368	0	131	1	1	35.1	45.4	S	0	4.97520	137641	0	5.22794	-0.35274	186.409	125.772
17	F7T1	373	213	0	67	1	1	29.4	41.3	S	1	4.20469	139129	0	4.84046	-0.63577	126.528	62.160
18	R6	377	205	0	233	1	1	30.4	45.0	S	1	5.45104	142129	0	5.47248	-0.02144	238.051	227.528
19	F7T5	379	184	0	38	1	1	24.8	36.0	S	1	3.63759	143641	0	4.16835	-0.53076	64.609	33.832
20	R13F	379	187	0	322	1	1	30.6	45.0	S	1	5.77455	143641	0	5.56406	0.21049	260.890	316.436
21	R18	379	357	0	198	1	1	29.6	43.5	S	0	5.28827	143641	0	4.98300	0.30527	145.911	193.017
22	P23	383	370	0	107	1	1	34.9	42.0	S	0	4.67283	144400	0	4.91781	-0.24498	136.702	102.082
23	EHF	387	187	0	215	1	1	30.7	42.8	S	1	5.37064	149769	0	5.40968	-0.03904	223.559	209.590
24	HHF	387	188	0	254	1	1	35.2	42.1	S	1	5.53733	149769	0	5.44468	0.09265	231.522	248.555
25	GHF	389	181	0	325	1	1	30.2	44.9	S	1	5.78383	151321	0	5.73380	0.05002	309.142	319.266
26	R331	394	316	0	129	0	1	29.9	39.1	S	0	4.85981	155236	0	4.66399	0.19582	106.058	124.336
27	R361	395	349	0	138	0	1	24.9	41.7	S	0	4.92725	156025	0	4.79881	0.12845	121.366	133.201
28	A4HF	398	152	0	280	1	1	29.4	42.2	S	1	5.63479	158404	0	5.57436	0.06043	263.581	274.426
29	R371	398	297	0	310	0	1	25.6	44.6	S	0	5.73657	158404	0	5.40899	0.32758	223.406	304.591
30	R341	402	329	0	57	0	1	25.0	39.0	S	0	4.04305	161604	0	4.60463	-0.56158	99.946	52.395
31	F7T1	403	203	0	232	1	1	29.4	41.3	S	1	5.44674	162409	0	5.39592	0.05081	220.506	226.604
32	R311	403	282	0	381	0	1	30.4	46.1	S	0	5.94280	162409	0	5.88107	0.06173	358.194	375.119
33	P351	403	377	0	91	0	1	25.2	38.7	S	0	4.39445	162409	0	4.45544	-0.06099	96.094	76.545
34	R6	411	196	0	393	1	1	30.4	45.0	S	1	5.97381	168921	0	5.08096	-0.10715	437.449	386.919
35	F7T5	413	183	0	76	1	1	24.8	36.0	S	1	4.33073	170569	0	4.75015	-0.41942	115.602	71.250
36	R23	414	363	0	210	1	1	34.9	42.0	S	0	5.34711	171396	0	5.51349	-0.16638	248.016	204.487
37	R13F	419	184	0	527	1	1	30.6	45.0	S	1	6.26720	175561	0	6.24486	0.02234	515.355	520.755
38	R22	422	393	0	59	1	1	24.8	38.7	S	0	4.07754	178084	0	4.80408	-0.72654	122.007	54.196
39	P10	423	193	0	392	1	1	30.4	43.0	S	1	5.94542	178929	0	6.09162	-0.05620	404.084	375.998
40	P12	425	182	0	370	1	1	25.3	42.0	S	1	5.96515	180625	0	5.77339	0.19275	321.628	384.227
41	GHF	428	174	0	853	1	1	30.2	44.9	S	1	6.74876	183184	0	6.38197	0.36679	591.092	846.618
42	HHF	429	179	0	535	1	1	35.2	42.1	S	1	6.28227	194041	0	6.14820	0.13407	467.872	528.852
43	R331	430	314	0	250	0	1	29.9	39.1	S	0	5.56068	184900	0	5.24108	0.31960	188.874	254.759
44	P361	430	352	0	170	0	1	24.9	41.7	S	0	5.13580	184900	0	5.34515	-0.20935	209.589	164.655
45	F4	431	194	0	504	1	1	29.9	42.0	S	1	6.22258	185761	0	5.96559	0.25699	389.782	499.034
46	R371	432	302	0	457	0	1	25.6	44.6	S	0	6.12469	186624	0	5.92792	0.19676	375.374	451.072
47	EHF	433	184	0	527	1	1	30.7	42.8	S	1	6.26720	187489	0	6.15491	0.11229	471.024	520.845
48	F10	434	267	0	538	1	1	30.4	42.0	S	1	6.28786	188356	0	5.82496	0.46290	338.648	532.175
49	F7T1	435	197	0	361	1	1	29.4	41.3	S	1	5.88889	189225	0	5.90425	-0.01537	366.591	355.096
50	P341	437	330	0	120	0	1	25.0	39.0	S	0	4.78749	190969	0	5.13877	-0.35128	170.505	114.861
51	P351	437	378	0	111	0	1	25.2	38.7	S	0	4.70953	190969	0	4.97301	-0.26348	144.461	106.027
52	P311	433	282	0	697	0	1	30.4	46.1	S	0	6.53233	191844	0	6.41541	0.11693	611.190	680.585
53	A4HF	440	154	0	268	1	1	29.4	42.2	S	1	5.90808	193600	0	6.21466	-0.30657	500.024	361.785
54	R24	441	353	0	539	1	1	35.1	45.4	S	0	6.23245	194481	0	6.41056	-0.17812	608.236	502.589
55	R6	445	193	0	614	1	1	30.4	45.0	S	1	6.41999	198025	0	6.58982	-0.15982	727.650	607.410
56	F13	446	236	0	303	1	1	28.9	41.5	S	1	5.71373	198916	0	5.76273	-0.24900	388.659	297.037

SLURRY VISCOSITY DATA ANALYSIS

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OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	VISP1	RESID
57	F7T5	446	176	0.00	224	1	1	24.8	36.0	S	1	5.41165	199916	0.0000	5.25161	0.16004	193.87	218.75
58	F7T2	448	186	0.00	425	1	1	29.3	41.7	S	1	6.05209	200704	0.0000	6.16476	-0.11267	475.69	418.84
59	R23	448	354	0.00	442	1	1	34.9	42.0	S	0	6.09131	200704	0.0000	6.03133	0.05998	416.27	435.97
60	R18	452	352	0.10	449	1	1	29.6	43.5	S	0	6.10479	204304	0.0100	6.01506	0.08974	409.55	441.98
61	R22	455	391	0.10	161	1	1	24.8	38.7	S	0	5.08140	207025	0.0100	5.17543	-0.09402	176.87	155.82
62	R5	456	230	0.10	429	1	1	30.4	42.0	S	1	6.06146	207936	0.0100	6.10038	-0.03892	446.03	422.90
63	R36I	464	353	0.12	251	0	1	24.9	41.7	S	0	5.52545	215296	0.0144	5.64923	-0.12378	284.07	245.35
64	R33I	466	315	0.13	349	0	1	29.9	39.1	S	0	5.85220	217156	0.0165	5.55670	0.29551	258.97	342.44
65	F10	467	265	0.12	565	1	1	30.4	42.0	S	1	6.33683	218089	0.0144	6.11553	0.22130	452.84	558.88
66	F9	467	241	0.13	576	1	1	30.5	42.0	S	1	6.35611	218089	0.0169	6.17123	0.18488	473.77	565.83
67	R12	467	195	0.10	487	1	1	25.3	42.0	S	1	6.18826	218089	0.0100	6.20695	-0.01869	496.19	480.79
68	R13F	467	193	0.10	758	1	1	30.6	45.0	S	1	6.63068	218089	0.0100	6.78025	-0.14957	880.29	751.22
69	R37I	467	308	0.13	450	0	1	25.6	44.6	S	0	6.10925	213089	0.0165	6.21286	-0.10362	499.13	443.79
70	R10	469	191	0.10	648	1	1	30.4	43.0	S	1	6.47389	219961	0.0100	6.50251	-0.02861	666.81	641.50
71	R11	471	185	0.10	586	1	1	35.5	43.0	S	1	6.37332	221841	0.0100	6.69356	-0.32024	907.19	579.31
72	R34I	471	327	0.12	165	0	1	25.0	39.0	S	0	5.10595	221841	0.0144	5.43659	-0.33064	229.66	159.56
73	R35I	471	379	0.11	172	0	1	25.2	38.7	S	0	5.14749	221841	0.0121	5.27249	-0.12499	196.90	166.73
74	R31I	472	285	0.14	791	0	1	30.4	46.1	S	0	6.67330	222784	0.0196	6.66923	0.00407	787.79	784.33
75	GHF	476	169	0.19	1463	1	1	30.2	44.9	S	1	7.28824	226576	0.0351	6.79298	0.50526	882.70	1456.22
76	R24	476	349	0.12	628	1	1	35.1	45.4	S	0	6.44254	226576	0.0144	6.71261	-0.27007	922.72	621.29
77	R6	479	192	0.10	734	1	1	30.4	45.0	S	1	6.59851	229441	0.0100	6.88763	-0.28912	980.08	727.11
78	F13	480	227	0.14	539	1	1	28.9	41.5	S	1	6.28972	230400	0.0196	6.22961	0.06011	507.56	532.77
79	F11	491	187	0.17	616	1	1	29.3	41.9	S	1	6.42325	231351	0.0285	6.39267	0.03058	597.45	609.61
80	R23	482	350	0.12	524	1	1	34.9	42.0	S	0	6.43615	232324	0.0144	6.30493	0.13122	547.26	617.70
81	AAHF	483	155	0.21	453	1	1	29.4	42.2	S	1	6.11589	233299	0.0441	6.47904	-0.36314	651.34	445.52
82	EHF	484	177	0.18	1101	1	1	30.7	42.9	S	1	7.00397	234256	0.0324	6.58934	0.41463	727.30	1094.41
83	R22	487	374	0.20	274	1	1	24.8	38.7	S	0	5.81313	237169	0.0400	5.43951	0.17361	230.33	268.56
84	R18	488	345	0.20	631	1	1	29.6	43.5	S	0	6.44731	238144	0.0400	6.32925	0.11905	560.18	624.67
85	R21	499	355	0.20	322	1	1	24.8	42.0	S	0	5.77455	239121	0.0400	5.93647	-0.16192	378.60	316.06
86	R5	490	224	0.20	697	1	1	30.4	42.0	S	1	6.54679	240100	0.0400	6.38010	0.16669	589.99	690.62
87	R36I	498	353	0.23	315	0	1	24.9	41.7	S	0	5.75257	249004	0.0529	5.87902	-0.12645	357.46	309.12
88	R33I	502	317	0.26	380	0	1	29.9	39.1	S	0	5.96017	252004	0.0676	5.76819	0.17198	319.96	374.23
89	R37I	502	314	0.26	495	0	1	25.6	44.6	S	0	6.20456	252004	0.0676	6.40152	-0.19596	602.76	488.60
90	F9	503	239	0.27	696	1	1	30.5	42.0	S	1	6.54535	253009	0.0729	6.37776	0.16759	588.61	689.62
91	R32I	504	305	0.27	616	0	1	30.1	42.0	S	0	6.42325	254616	0.0729	6.20908	0.21417	497.24	609.79
92	F3	505	166	0.38	653	1	1	31.2	42.6	S	1	6.48158	255025	0.1444	6.54891	-0.06733	698.48	646.45
93	R34I	505	326	0.25	218	0	1	25.0	39.0	S	0	5.38450	255025	0.0625	5.62568	-0.24118	277.46	212.37
94	R35I	505	378	0.27	247	0	1	25.2	38.7	S	0	5.50939	255025	0.0484	5.48837	0.02102	241.86	241.51
95	R31I	506	288	0.29	856	0	1	30.4	46.1	S	0	6.75227	256036	0.0841	6.81710	-0.06483	913.33	949.18
96	R24	510	350	0.23	806	1	1	35.1	45.4	S	0	6.69208	260100	0.0529	6.91028	-0.21919	1002.53	799.09
97	R12	511	188	0.30	547	1	1	25.3	42.0	S	1	6.30445	261121	0.0900	6.39449	-0.09004	598.54	540.61
98	F7T6	512	177	0.35	363	1	1	24.8	40.0	S	1	5.89440	262144	0.1225	6.07688	-0.18248	435.67	356.92
99	R6	513	193	0.30	982	1	1	30.4	45.0	S	1	6.78219	263169	0.0900	6.96015	-0.17796	1053.79	875.04
100	F13	514	225	0.29	680	1	1	28.9	41.5	S	1	6.52209	264196	0.0841	6.37149	0.15060	584.93	673.63
101	R23	516	352	0.23	701	1	1	34.9	42.0	S	0	6.55251	265256	0.0529	6.48518	0.06733	655.35	694.51
102	R22	520	374	0.30	342	1	1	24.8	38.7	S	0	5.83481	273000	0.0900	5.61416	0.22065	274.28	336.39
103	R13F	521	185	0.30	877	1	1	30.6	45.0	S	1	6.77651	271441	0.0900	7.05437	-0.27786	1157.91	869.95
104	R21	521	357	0.30	562	1	1	24.8	42.0	S	0	6.33150	271441	0.0900	6.12014	0.21136	454.93	555.88
105	R18	522	346	0.30	731	1	1	29.6	43.5	S	0	6.59441	272484	0.0900	6.50579	0.08862	669.00	724.49
106	R5	524	224	0.40	660	1	1	30.4	42.0	S	1	6.49224	274576	0.1600	6.41890	0.07334	513.33	653.58
107	AAHF	526	155	0.42	626	1	1	29.4	42.2	S	1	6.43935	276676	0.1764	6.59197	-0.15262	729.22	619.41
108	GHF	530	170	0.38	1503	1	1	30.2	44.9	S	1	7.17963	280903	0.1444	7.03008	0.34955	1130.12	1595.97
109	F10	532	267	0.37	741	1	1	30.4	42.0	S	1	6.60800	283024	0.1369	6.40351	0.20449	603.96	734.60
110	R36I	532	356	0.35	360	0	1	24.9	41.7	S	0	5.89610	283024	0.1225	5.99797	-0.11187	402.61	354.00
111	EHF	534	177	0.36	1147	1	1	30.7	42.8	S	1	7.04491	285156	0.1296	6.79489	0.25002	493.27	1140.21
112	R37I	536	319	0.39	506	0	1	25.6	44.6	S	0	6.22654	287296	0.1521	6.48970	-0.26316	658.32	499.51

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OBS	RUNID	TEMP	SHEAR	SPIN	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SPIN2	PRED1	RESID1	VISPI	RESID
113	F9	537	242	0.40	658	1	1	30.5	42.0	S	1	6.48920	288369	0.1600	6.46831	0.02089	644.40	651.53
114	HHF	537	180	0.36	818	1	1	35.2	42.1	S	1	6.70686	288369	0.1296	6.84539	-0.13852	939.54	811.15
115	R331	538	322	0.38	429	0	1	29.9	39.1	S	0	6.06146	289444	0.1444	5.88394	0.17752	359.22	423.12
116	R351	539	381	0.32	274	0	1	25.2	38.7	S	0	5.61313	290521	0.1024	5.61787	-0.00474	275.30	268.38
117	R321	540	309	0.40	679	0	1	30.1	42.0	S	0	6.52062	291600	0.1600	6.30792	0.21270	548.90	672.69
118	R341	540	328	0.37	251	0	1	25.0	39.0	S	0	5.52545	291600	0.1369	5.73576	-0.21031	309.75	245.26
119	R311	541	291	0.42	993	0	1	30.4	46.1	S	0	6.90073	292681	0.1849	6.89168	0.00905	984.06	996.11
120	F7T6	545	173	0.54	357	1	1	24.8	40.0	S	1	5.87774	297025	0.2916	6.06675	-0.18901	431.28	350.93
121	F7T5	546	171	0.58	321	1	1	24.8	36.0	S	1	5.77144	298116	0.3364	5.47238	0.29906	238.03	315.53
122	R6	547	193	0.50	1058	1	1	30.4	45.0	S	1	6.96414	299209	0.2500	6.93311	0.03103	1025.68	1051.07
123	F12	550	199	0.48	880	1	1	30.7	42.0	S	1	6.77992	302500	0.2304	6.56186	0.21806	707.59	873.44
124	R23	550	356	0.35	789	1	1	34.9	42.0	S	0	6.67077	302500	0.1225	6.55731	0.11345	704.38	782.44
125	K22	553	376	0.40	421	1	1	24.8	38.7	S	0	6.04263	305809	0.1600	5.70015	0.34248	298.91	415.30
126	F7T2	554	181	0.54	644	1	1	29.3	41.7	S	1	6.46770	305916	0.2916	6.46492	0.00278	642.22	637.54
127	R12	554	191	0.50	572	1	1	25.3	42.0	S	1	6.34914	305916	0.2500	6.41793	-0.06879	612.73	565.58
128	R18	556	353	0.40	691	1	1	29.6	43.5	S	0	6.53814	309136	0.1600	6.57996	-0.04082	719.79	694.42
129	R5	557	228	0.50	742	1	1	30.4	42.0	S	1	6.60935	310249	0.2500	6.48519	0.12416	655.36	735.51
130	F10	564	274	0.48	735	1	1	30.4	42.0	S	1	6.60123	318096	0.2304	6.42490	0.17633	617.02	729.58
131	R361	567	360	0.46	420	0	1	24.9	41.7	S	0	6.34025	321439	0.2116	6.04303	-0.00277	421.17	413.96
132	R371	570	326	0.52	516	0	1	25.6	44.6	S	0	6.24611	324900	0.2704	6.48112	-0.23501	652.70	509.52
133	K11	573	193	0.50	729	1	1	35.5	43.0	S	1	6.59167	328329	0.2500	6.94632	-0.35465	1039.32	722.05
134	R331	574	327	0.51	441	0	1	29.9	39.1	S	0	6.09904	329476	0.2601	5.88508	0.20397	359.63	435.11
135	K351	574	385	0.43	331	0	1	25.2	38.7	S	0	5.80212	329476	0.1849	5.64684	0.15528	283.39	325.35
136	R311	575	294	0.56	1050	0	1	30.4	46.1	S	0	6.99393	330625	0.3136	6.87927	0.11466	971.92	1083.12
137	R341	575	332	0.50	294	0	1	25.0	39.0	S	0	5.64897	330625	0.2500	5.73095	-0.08198	308.26	278.27
138	R131	576	189	0.50	991	1	1	30.6	45.0	S	1	6.89871	331776	0.2500	7.09805	-0.19934	1209.61	993.90
139	R321	576	314	0.53	689	0	1	30.1	42.0	S	0	6.53524	331776	0.2809	6.30264	0.23260	546.01	682.70
140	F7T5	579	183	0.75	211	1	1	24.8	36.0	S	1	5.35186	335241	0.5625	5.34832	0.00354	210.25	205.65
141	GMF	580	176	0.57	1304	1	1	30.2	44.9	S	1	7.17319	335400	0.3249	7.02181	0.15138	1120.81	1296.98
142	F13	581	228	0.57	692	1	1	28.9	41.5	S	1	6.53959	337561	0.3249	6.38012	0.15947	590.00	685.62
143	EHF	583	184	0.54	994	1	1	30.7	42.8	S	1	6.90174	339899	0.2916	6.78235	0.11939	882.14	987.22
144	F4	585	205	0.64	689	1	1	29.9	42.0	S	1	6.53524	342225	0.4096	6.45098	0.08426	633.32	682.55
145	R21	586	365	0.50	490	1	1	24.8	42.0	S	0	6.19441	343396	0.2500	6.18996	0.00444	487.83	483.81
146	R22	586	343	0.50	360	1	1	24.8	38.7	S	0	5.88610	343396	0.2500	5.68932	0.19678	295.69	354.31
147	F7T2	589	192	0.71	468	1	1	29.3	41.7	S	1	6.14847	346921	0.5041	6.33419	-0.18572	563.51	461.67
148	R18	589	341	0.50	683	1	1	29.6	43.5	S	0	6.52649	346921	0.2500	6.55928	-0.03178	705.05	675.44
149	R5	591	233	0.70	648	1	1	30.4	42.0	S	1	6.47389	349281	0.4900	6.31775	0.15614	554.33	641.68
150	F10	597	280	0.60	609	1	1	30.4	42.0	S	1	6.41182	356409	0.3603	6.35725	0.05457	576.65	602.64
151	R12	598	198	0.60	463	1	1	25.3	42.0	S	1	6.13773	357604	0.3600	6.43159	-0.29387	621.16	456.57
152	R361	601	364	0.57	463	0	1	24.9	41.7	S	0	6.13773	361201	0.3249	5.99185	0.14588	400.15	457.01
153	R371	605	332	0.64	526	0	1	25.6	44.6	S	0	6.26530	366025	0.4096	6.40102	-0.13571	602.46	519.60
154	R341	609	338	0.62	263	0	1	25.0	39.0	S	0	5.57215	370881	0.3844	5.63773	-0.06558	280.82	257.36
155	R351	609	389	0.53	357	0	1	25.2	38.7	S	0	5.87774	370881	0.2809	5.59633	0.28140	269.44	351.40
156	F131	610	213	0.78	635	1	1	29.7	41.5	S	1	6.45362	372100	0.6084	6.20257	0.25105	494.02	628.80
157	R311	610	300	0.70	1036	0	1	30.4	46.1	S	0	6.91374	372100	0.4900	6.75374	0.16000	857.26	999.25
158	R331	610	336	0.63	344	0	1	29.9	39.1	S	0	5.95064	372100	0.3969	5.78894	0.16170	326.67	378.21
159	F7T5	612	193	0.92	139	1	1	24.8	36.0	S	1	4.93447	374544	0.8464	5.13751	-0.20304	170.29	133.86
160	F13	614	241	0.71	399	1	1	28.9	41.5	S	1	5.98896	376996	0.5041	6.21723	-0.22927	501.31	392.78
161	F11	615	197	0.86	611	1	1	29.8	41.9	S	1	6.41510	379225	0.7396	6.18389	0.23120	484.88	604.82
162	F12	618	210	0.79	679	1	1	30.7	42.0	S	1	6.52062	381924	0.6241	6.30372	0.21690	546.60	672.70
163	R21	619	379	0.60	428	1	1	24.8	42.0	S	0	6.05912	383161	0.3600	6.07687	-0.01775	435.67	421.62
164	K22	619	395	0.60	314	1	1	24.8	38.7	S	0	5.74939	383161	0.3600	5.58168	0.16772	265.52	308.42
165	F7T1	621	211	0.99	369	1	1	25.4	41.3	S	1	5.91040	385641	0.9801	5.84500	0.06580	345.50	363.16
166	R18	622	371	0.60	570	1	1	25.6	43.5	S	0	6.34564	386884	0.3600	6.44994	-0.10330	632.03	563.55
167	GMF	624	186	0.74	921	1	1	30.2	44.9	S	1	6.82546	389376	0.5476	6.83417	-0.00871	929.05	914.17
168	R13F	624	193	0.60	1038	1	1	30.6	45.0	S	1	6.94505	389376	0.3600	7.05313	-0.10908	1156.47	1030.95

SLURRY VISCOSITY DATA ANALYSIS

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OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	VISP1	RESID
169	FR	625	217	0.96	449	1	1	31.3	42.4	S	1	6.10772	390625	0.9216	6.08818	0.01885	440.618	442.912
170	R5	625	240	0.80	555	1	1	30.4	42.0	S	1	6.31397	390625	0.6400	6.20290	0.11607	494.179	546.797
171	EHF	630	192	0.71	614	1	1	30.7	42.8	S	1	6.70196	396900	0.5041	6.59390	0.10806	730.623	807.406
172	MHF	632	195	0.70	592	1	1	35.2	42.1	S	1	6.39351	399424	0.4900	6.63900	-0.25549	764.328	585.361
173	R36I	635	370	0.68	458	0	1	24.9	41.7	S	0	6.12687	403225	0.4624	5.84619	0.28068	345.915	452.154
174	R37I	640	341	0.76	454	0	1	25.6	44.6	S	0	6.11810	409600	0.5776	6.21765	-0.09955	501.522	447.782
175	R12	642	206	0.80	423	1	1	25.3	42.0	S	1	6.04737	412164	0.6400	6.14274	-0.09537	465.327	416.857
176	R35I	643	400	0.64	279	0	1	25.2	38.7	S	0	5.63121	413449	0.4096	5.41956	0.21165	225.780	273.580
177	F7T6	644	194	1.06	171	1	1	24.8	40.0	S	1	5.14166	414736	1.1236	5.45864	-0.31697	234.777	165.541
178	R34I	644	350	0.73	191	0	1	25.0	39.0	S	0	5.25227	414736	0.5329	5.45274	-0.20046	233.396	185.547
179	R31I	645	313	0.83	673	0	1	30.4	46.1	S	0	6.54103	416025	0.6889	6.52755	0.01348	683.719	686.472
180	F7T5	646	200	1.08	137	1	1	24.8	36.0	S	1	4.91998	417316	1.1664	4.85888	0.06110	128.880	132.141
181	R33I	646	346	0.75	345	0	1	29.9	39.1	S	0	5.84354	417316	0.5625	5.58987	0.25367	267.701	339.410
182	F13	648	256	0.83	282	1	1	28.9	41.5	S	1	5.64191	419904	0.6889	5.99201	-0.35011	400.219	276.008
183	R10	651	208	0.80	606	1	1	30.4	43.0	S	1	6.40688	423801	0.6400	6.41634	-0.00946	611.762	599.584
184	F12	652	220	0.94	495	1	1	30.7	42.0	S	1	6.20456	425104	0.8836	6.02859	0.17597	415.129	488.971
185	F7T1	652	223	1.14	213	1	1	29.4	41.3	S	1	5.36129	425104	1.2996	5.54739	-0.18610	256.568	207.453
186	R21	652	391	0.70	340	1	1	24.8	42.0	S	0	5.82895	425104	0.4900	5.98602	-0.05707	359.969	334.114
187	R22	652	407	0.70	269	1	1	24.8	38.7	S	0	5.59471	425104	0.4900	5.39082	0.20389	219.394	263.609
189	R23	652	393	0.67	472	1	1	34.9	42.0	S	0	6.15698	425104	0.4489	6.22601	-0.06903	505.732	465.774
189	AAHF	655	167	1.03	432	1	1	29.4	42.2	S	1	6.06843	429025	1.0609	6.00702	0.06140	406.271	425.993
190	R18	655	382	0.90	544	1	1	29.6	43.5	S	0	6.30810	429025	0.6400	6.09812	0.20998	445.019	542.902
191	F7T2	659	211	1.02	261	1	1	29.3	41.7	S	1	5.56452	434281	1.0404	5.82565	-0.26113	338.880	255.174
192	F8	659	232	1.09	254	1	1	31.3	42.4	S	1	5.53733	434281	1.1881	5.80462	-0.26728	331.828	248.195
193	R5	659	247	0.90	494	1	1	30.4	42.0	S	1	6.20254	434281	0.8100	6.00001	0.20253	403.431	498.000
194	F10	663	295	0.82	493	1	1	30.4	42.0	S	1	6.18002	439569	0.6724	5.98975	0.19026	399.316	477.010
195	R13F	663	199	0.80	896	1	1	30.6	45.0	S	1	6.79794	439569	0.6400	6.69922	0.09872	811.774	889.301
196	GHF	665	195	0.91	778	1	1	30.2	44.9	S	1	6.65673	442225	0.8281	6.50340	0.15332	667.409	771.497
197	R36I	670	379	0.79	406	0	1	24.9	41.7	S	0	6.00635	449900	0.6241	5.60066	0.40569	270.605	400.399
198	EHF	674	202	0.87	608	1	1	30.7	42.8	S	1	6.41017	454276	0.7569	6.25259	0.15758	519.357	601.747
199	R37I	675	354	0.87	336	0	1	25.6	44.6	S	0	5.81711	455625	0.7369	5.94444	-0.12733	391.627	330.056
200	F7T6	678	201	1.22	135	1	1	24.8	40.0	S	1	4.90527	459684	1.4884	5.09098	-0.18571	162.550	129.909
201	R34I	678	364	0.85	137	0	1	25.0	39.0	S	0	4.91998	459684	0.7225	5.15561	-0.23563	173.401	131.844
202	R35I	678	418	0.73	145	0	1	25.2	38.7	S	0	4.97673	459684	0.5329	5.16247	-0.18573	174.595	139.938
203	F7T5	679	208	1.24	67	1	1	24.8	36.0	S	1	4.20469	461041	1.5376	4.48548	-0.28079	88.720	62.515
204	R31I	680	332	0.95	370	0	1	30.4	46.1	S	0	5.91350	462400	0.9025	6.20527	-0.29176	495.351	363.795
205	F13	681	268	0.95	195	1	1	28.9	41.5	S	1	5.27300	463761	0.9025	5.68837	-0.41537	295.411	189.312
206	R33I	682	359	0.86	239	0	1	29.9	39.1	S	0	5.47646	465124	0.7396	5.29852	0.17794	200.041	233.701
207	F7T5	683	214	1.39	67	1	1	24.8	36.0	S	1	4.20469	466489	1.9321	4.18157	0.02313	65.468	62.818
208	R32I	683	345	0.90	359	0	1	30.1	42.0	S	0	5.88332	466489	0.9100	5.67116	0.21216	290.371	353.329
209	F12	685	232	1.08	258	1	1	30.7	42.0	S	1	5.55296	469225	1.1664	5.67502	-0.12206	291.493	252.325
210	R12	685	216	0.90	288	1	1	25.3	42.0	S	1	5.66296	469225	0.8100	5.85884	-0.19588	350.318	282.141
211	R21	685	405	0.80	282	1	1	24.8	42.0	S	0	5.64191	469225	0.6400	5.60651	0.03540	272.192	276.393
212	R22	686	420	0.80	225	1	1	24.8	38.7	S	0	5.41610	470596	0.6400	5.11021	0.30589	165.705	219.890
213	R23	686	405	0.77	332	1	1	34.9	42.0	S	0	5.80513	470596	0.5929	5.94954	-0.14440	383.576	326.050
214	IMF	691	215	0.99	195	1	1	25.1	42.3	S	1	5.27300	477481	0.9801	5.72432	-0.45132	306.223	189.276
215	R5	692	256	1.10	318	1	1	30.4	42.0	S	1	5.76205	479864	1.2100	5.53816	0.22389	254.210	312.462
216	F8	693	245	1.23	198	1	1	31.3	42.4	S	1	5.23644	480249	1.5129	5.41737	-0.18093	225.287	182.583
217	F7T2	694	221	1.17	193	1	1	29.3	41.7	S	1	5.26269	481636	1.3689	5.42929	-0.16660	227.998	187.571
218	R11	696	218	0.90	412	1	1	35.5	43.0	S	1	6.02102	484416	0.8100	6.24687	-0.22584	516.393	405.753
219	R13F	695	210	1.00	474	1	1	30.6	45.0	S	1	6.16121	484416	1.0000	6.23192	-0.07071	508.732	467.768
220	AAHF	699	190	1.21	214	1	1	29.4	42.2	S	1	5.36596	488601	1.4641	5.51860	-0.15262	249.285	209.481
221	GHF	705	204	1.06	606	1	1	30.2	44.9	S	1	6.40698	497025	1.1236	6.07722	0.32966	435.815	599.923
222	R36I	705	370	0.89	201	0	1	24.9	41.7	S	0	5.30310	497025	0.7921	5.32636	-0.02305	205.697	195.674
223	MHF	707	218	1.01	256	1	1	35.2	42.1	S	1	5.54518	499849	1.0201	5.97820	-0.33302	357.165	250.122
224	R37I	710	374	0.98	174	0	1	25.6	44.6	S	0	5.15906	501100	0.9604	5.55818	-0.39913	259.351	169.442

SLURRY VISCOSITY DATA ANALYSIS

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OBS	RUNID	TEMP	SMFAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	VIS01	RESID
225	R34I	713	378	0.95	102	0	1	25.0	39.0	S	0	4.62497	508365	0.9025	4.79568	-0.17071	120.987	97.204
226	R35I	713	440	0.83	100	0	1	25.2	38.7	S	0	4.60517	508369	0.6885	4.78647	-0.18130	119.878	95.214
227	F13	714	280	1.07	137	1	1	28.9	41.5	S	1	4.91998	509796	1.1445	5.29942	-0.37944	200.221	131.701
228	F716	714	210	1.37	99	1	1	24.8	40.0	S	1	4.59512	509796	1.8765	4.62935	-0.03423	102.447	94.371
229	R31I	715	354	1.07	244	0	1	30.4	46.1	S	0	5.49717	511225	1.1445	5.77972	-0.28256	323.670	238.220
230	EMF	716	215	1.02	378	1	1	30.7	42.8	S	1	5.93489	512656	1.0404	5.78053	0.15437	323.930	372.219
231	F715	717	223	1.53	33	1	1	24.8	36.0	S	1	3.49651	514089	2.3409	3.72647	-0.22996	41.532	29.274
232	R21	718	421	0.90	198	1	1	24.8	42.0	S	0	5.28827	515524	0.8100	5.23834	0.04992	188.358	192.762
233	R22	718	434	0.90	169	1	1	24.8	38.7	S	0	5.12990	515524	0.8100	4.75131	0.37859	115.736	164.249
234	R32I	718	359	1.01	152	0	1	30.1	42.0	S	0	5.02388	515524	1.0201	5.25499	-0.23111	191.520	146.745
235	R33I	718	378	0.97	118	0	1	29.9	39.1	S	0	4.77068	515524	0.9409	4.89172	-0.12103	133.182	113.108
236	K24	719	413	0.88	492	1	1	35.1	45.4	S	0	5.99645	516961	0.7744	6.05732	-0.06086	427.227	395.943
237	R23	720	425	0.86	235	1	1	34.9	42.0	S	0	5.45959	518400	0.7394	5.57936	-0.11977	264.902	229.421
238	K5	725	268	1.20	202	1	1	30.4	42.0	S	1	5.30827	525625	1.4400	5.14999	0.15828	172.430	196.850
239	F8	726	254	1.35	155	1	1	31.3	42.4	S	1	5.04343	527076	1.8225	4.99211	0.05132	147.246	150.008
240	R12	728	227	1.10	252	1	1	25.3	42.0	S	1	5.52943	529984	1.2100	5.26445	0.26498	193.340	246.736
241	R13F	729	235	1.10	343	1	1	30.6	45.0	S	1	5.83773	531441	1.2100	5.93083	0.00590	340.640	337.169
242	F712	730	232	1.31	127	1	1	29.3	41.7	S	1	4.84419	532900	1.7161	4.94251	-0.09833	140.122	122.057
243	R11	732	228	1.10	250	1	1	35.5	43.0	S	1	5.52146	535824	1.2100	5.67312	-0.15166	290.941	244.327
244	IMF	735	225	1.13	159	1	1	25.1	42.3	S	1	5.06890	540225	1.2769	5.20317	-0.13426	181.847	153.797
245	R35I	739	421	0.99	122	0	1	24.9	41.7	S	0	4.80402	546121	0.9801	4.80347	0.00055	121.933	117.197
246	GMF	740	215	1.21	439	1	1	30.2	44.9	S	1	6.08450	547600	1.4641	5.55929	0.52521	259.639	433.441
247	AAHF	742	194	1.38	126	1	1	29.4	42.2	S	1	4.83628	550564	1.9044	4.89908	-0.06280	134.166	121.101
248	MMF	742	230	1.15	157	1	1	35.2	42.1	S	1	5.05625	550564	1.3225	5.37355	-0.31730	215.626	151.626
249	R34I	747	191	1.06	93	0	1	25.0	39.0	S	0	4.41894	558009	1.1236	4.33676	0.08209	76.459	78.663
250	F13	748	299	1.18	135	1	1	28.9	41.5	S	1	4.90527	559504	1.3924	4.84267	0.06261	126.807	130.157
251	R35I	748	454	0.92	99	0	1	25.2	38.7	S	0	4.59512	559504	0.8464	4.35562	0.23950	77.915	94.644
252	R31I	749	372	1.18	171	0	1	30.4	46.1	S	0	5.14166	561091	1.3924	5.29603	-0.15436	199.542	165.704
253	F716	750	221	1.52	65	1	1	24.8	40.0	S	1	4.17439	562500	2.3104	4.05821	0.11618	57.870	60.942
254	R21	751	441	1.00	129	1	1	24.8	42.0	S	0	4.85981	564001	1.0000	4.77608	0.08373	118.639	124.224
255	R22	751	453	1.00	115	1	1	24.8	38.7	S	0	4.74493	564001	1.0000	4.29177	0.45316	73.096	110.708
256	K24	753	432	0.97	255	1	1	35.1	45.4	S	0	5.54126	567099	0.9409	5.60432	-0.06105	271.597	249.396
257	R23	754	446	0.96	141	1	1	34.9	42.0	S	0	4.94876	569516	0.9216	5.10280	-0.15404	164.421	135.897
258	R33I	754	398	1.07	83	0	1	29.9	39.1	S	0	4.41884	568516	1.1449	4.40017	0.01867	81.465	79.609
259	EMF	755	232	1.16	154	1	1	30.7	42.8	S	1	5.03695	570025	1.3456	5.20415	-0.16720	182.026	148.796
260	F8	760	263	1.48	122	1	1	31.3	42.4	S	1	4.80402	577600	2.1904	4.45338	0.35064	85.917	117.547
261	F3	762	213	1.84	31	1	1	31.2	42.6	S	1	4.39445	580644	3.3856	3.87976	0.51469	48.413	77.120
262	F712	765	244	1.44	93	1	1	29.3	41.7	S	1	4.53260	585225	2.0736	4.37877	0.15382	79.740	88.621
263	R13F	767	236	1.20	306	1	1	30.6	45.0	S	1	5.72359	588289	1.4400	5.30982	0.41377	202.313	300.690
264	R11	768	242	1.20	134	1	1	35.5	43.0	S	1	5.21494	589824	1.4400	5.15542	0.05952	173.368	179.845
265	R12	771	241	1.20	123	1	1	25.3	42.0	S	1	4.81218	594441	1.4400	4.68898	0.12320	109.742	118.311
266	GMF	773	229	1.35	247	1	1	30.2	44.9	S	1	5.50939	597529	1.8225	4.97309	0.53630	144.473	242.027
267	IMF	773	236	1.27	125	1	1	25.1	42.3	S	1	4.82831	597529	1.6129	4.59258	0.23573	98.749	120.407
268	R35I	773	443	1.08	60	0	1	24.9	41.7	S	0	4.09434	597529	1.1664	4.28861	-0.19427	72.865	55.711
269	MMF	774	244	1.28	93	1	1	35.2	42.1	S	1	4.53260	599076	1.6384	4.81492	-0.28232	123.336	88.185
270	F13	781	302	1.29	53	1	1	28.9	41.5	S	1	3.97029	609961	1.6641	4.29673	-0.32644	73.459	48.703
271	R34I	782	434	1.16	56	0	1	25.0	39.0	S	0	4.18965	611524	1.3456	3.79559	0.39407	44.504	62.204
272	R21	783	467	1.10	51	1	1	24.9	42.0	S	0	3.93183	613089	1.2100	4.22517	-0.29334	68.386	66.775
273	R31I	783	389	1.28	101	0	1	30.4	46.1	S	0	4.61512	613089	1.6384	4.74411	-0.12899	114.906	96.256
274	R35I	783	458	1.00	83	0	1	25.2	38.7	S	0	4.41834	613089	1.0000	3.84943	0.56941	46.966	79.151
275	K22	784	477	1.10	50	1	1	24.9	38.7	S	0	3.91202	614656	1.2100	3.73541	0.17661	41.905	46.265
276	AAHF	785	206	1.53	93	1	1	29.4	42.2	S	1	4.41884	616225	2.3409	4.17668	0.24216	65.149	78.823
277	R6	785	263	1.40	59	1	1	30.4	45.0	S	1	4.07754	616225	1.9600	4.68081	-0.60327	107.857	54.319
279	F12	787	242	1.44	54	1	1	30.7	42.0	S	1	3.98878	619369	2.0736	4.13033	-0.14134	62.198	49.870
279	K23	787	470	1.04	88	1	1	34.9	42.0	S	0	4.47734	619369	1.0816	4.57516	-0.09783	97.044	83.425
290	R24	787	496	1.06	93	1	1	35.1	45.4	S	0	4.41884	619369	1.1236	4.94172	-0.52288	140.011	78.058

SLURRY VISCOSITY DATA ANALYSIS

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OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	VISP1	RESID
281	R331	789	415	1.17	49	0	1	29.9	39.1	S	0	3.89182	622521	1.3689	3.92998	0.061836	46.0518	45.1700
282	EMF	790	252	1.29	91	1	1	30.7	42.8	S	1	4.51086	624100	1.6641	4.56486	-0.053999	96.0490	86.4351

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PLOT OF RESID/PREDI SYMBOL USED IS *

NOTE: 15 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF RESID1*TEMP SYMBOL USED IS *

NOTE: 18 OBS HIDDEN

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PLOT OF RESIDUALS SYMBOL USED IS *

NOTE: 84 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF RESIDUALS SYMBOL USED IS *

NOTE: 94 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF RESID*SRTH SYMBOL USED IS *

NOTE: 44 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF RESIDUALS* SHEAR SYMBOL USED IS *

NOTE: 17 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
 PLOT OF RESIDUALS SYMBOL USED IS *

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NOTE: 220 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS

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PLOT OF RESIDUALS SIZE SYMBOL USED IS *

NOTE: 217 HRS HIDDEN

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APPENDIX D

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SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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DEP VARIABLE: LV

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	6	173.085	28.847423	350.496	0.0001
ERROR	275	22.633763	0.082305		
C TOTAL	281	195.718			
ROOT MSE		0.286888	R-SQUARE	0.8844	
DEP MEAN		5.656373	ADJ R-SQ	0.8818	
C.V.		5.071938			

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	PROB > T	TYPE I SS	TYPE II SS	STANDARDIZED ESTIMATE	TOLERANCE
INTERCEP	1	-14.496586	0.517066	-28.036	0.0001	9022.466	64.693890	0.000000	.
TEMP	1	0.048330	0.001279255	37.780	0.0001	7.103263	117.473	7.493187	0.010690
TEMP2	1	-0.000431384	0.00000111845	-38.570	0.0001	109.212	122.439	-7.677482	0.010613
CC	1	0.034974	0.006536903	5.350	0.0001	28.443125	2.355991	0.135381	0.656790
TS	1	0.152455	0.008579762	17.769	0.0001	27.034366	25.987010	0.431281	0.713844
CT	1	0.098722	0.047538	2.077	0.0388	1.019172	0.354952	0.053215	0.640428
SHEAR	1	-0.000455748	0.0002505286	-1.819	0.0700	0.272370	0.272370	-0.047022	0.629402

OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	STD ERR RESIDUAL	STUDENT RESIDUAL	COOK'S D
1	4.304	4.221	0.063223	0.082572	0.279835	0.001
2	4.290	4.552	0.064637	-0.261114	0.279511	0.007
3	4.710	4.687	0.061314	0.022153	0.280259	0.000
4	4.700	4.735	0.060647	-0.034494	0.280404	0.000
5	4.700	4.463	0.057680	0.237373	0.281030	0.004
6	3.638	4.248	0.064736	-0.610420	0.279489	0.037
7	4.997	4.902	0.056796	0.094927	0.281210	0.001
8	4.682	4.725	0.051527	-0.042589	0.282223	0.000
9	5.198	5.077	0.053306	0.121788	0.281892	0.001
10	5.204	4.818	0.049724	0.385537	0.282546	0.009
11	4.025	4.136	0.064725	-0.110813	0.279491	0.001
12	4.477	4.379	0.056747	0.098619	0.281219	0.001
13	5.394	5.245	0.049739	0.148266	0.282543	0.001
14	3.638	4.101	0.056379	-0.463627	0.281293	0.016
15	3.892	4.073	0.057049	-0.181479	0.281158	0.002
16	4.875	5.576	0.063964	-0.700976	0.279666	0.047
17	4.205	4.855	0.043244	-0.650173	0.283610	0.017
18	5.451	5.521	0.044233	-0.070434	0.283457	0.000
19	3.638	3.995	0.066459	-0.356942	0.279084	0.013
20	5.775	5.568	0.043945	0.206446	0.283502	0.002
21	5.288	5.227	0.052869	0.061295	0.281974	0.000
22	4.673	5.193	0.062975	-0.520486	0.279891	0.025
23	5.371	5.358	0.038557	0.012151	0.284285	0.000
24	5.537	5.409	0.053128	0.128637	0.281925	0.001
25	5.784	5.694	0.041779	0.090226	0.283829	0.000
26	4.860	4.711	0.055982	0.148430	0.281373	0.002

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
27	4.927	4.932	0.046941	-.004895	0.283021	-0.017		0.000
28	5.635	5.397	0.039205	0.238163	0.284196	0.838	*	0.002
29	5.737	5.465	0.053245	0.271761	0.281903	0.964	*	0.005
30	4.043	4.631	0.047273	-.587720	0.282966	-2.071	***	0.017
31	5.447	5.305	0.035139	0.141684	0.284728	0.498		0.001
32	5.943	5.937	0.052961	0.005715	0.281957	0.020		0.000
33	4.394	4.584	0.048734	-.199308	0.282718	-0.670	*	0.002
34	5.974	6.013	0.037144	-.039211	0.284473	-0.138		0.000
35	4.331	4.477	0.060396	-.145731	0.280458	-0.520	*	0.002
36	5.347	5.675	0.057451	-.328044	0.281076	-1.167	**	0.008
37	6.267	6.126	0.036348	0.141517	0.284576	0.491		0.001
38	4.078	4.903	0.057884	-.825730	0.280988	-2.939	*****	0.052
39	5.945	5.858	0.030541	0.087715	0.285258	0.301		0.000
40	5.966	5.555	0.041512	0.410754	0.283869	1.441	**	0.006
41	6.749	6.207	0.036066	0.541630	0.284612	1.903	***	0.008
42	6.282	5.964	0.048410	0.318059	0.282774	1.125	**	0.005
43	5.561	5.173	0.051211	0.388176	0.282280	1.375	**	0.009
44	5.136	5.377	0.041502	-.240901	0.283870	-0.849	*	0.002
45	6.223	5.779	0.029759	0.443352	0.285340	1.554	***	0.004
46	6.125	5.888	0.049303	0.236306	0.282620	0.836	*	0.003
47	6.267	5.956	0.030252	0.311359	0.285288	1.091	**	0.002
48	6.288	5.796	0.030268	0.491372	0.285281	1.722	***	0.005
49	5.889	5.698	0.030285	0.191339	0.285285	0.671	*	0.001
50	4.787	5.055	0.042147	-.267605	0.283775	-0.943	*	0.003
51	4.710	4.994	0.044026	-.284949	0.283489	-1.005	**	0.003
52	6.532	6.359	0.050151	0.173488	0.282470	0.614	*	0.002
53	5.908	5.907	0.032889	8.2E-04	0.284996	0.003		0.000
54	6.232	6.514	0.054596	-.281655	0.281645	-1.000	**	0.005
55	6.420	6.402	0.034237	0.017896	0.284838	0.063		0.000
56	5.714	5.806	0.027615	-.092609	0.285556	-0.324		0.000
57	5.412	4.852	0.057892	0.559855	0.280986	1.992	***	0.024
58	6.052	5.893	0.029232	0.158952	0.285395	0.557	*	0.000
59	6.091	6.058	0.054265	0.033147	0.281709	0.118		0.000
60	6.105	6.140	0.043421	-.035622	0.283583	-0.126		0.000
61	5.081	5.255	0.053540	-.173744	0.281848	-0.616	*	0.002
62	6.061	6.032	0.027154	0.029504	0.285600	0.103		0.000
63	5.525	5.708	0.039378	-.182767	0.284172	-0.643	*	0.001
64	5.852	5.520	0.049401	0.331754	0.282602	1.174	**	0.006
65	6.337	6.110	0.028332	0.227181	0.285485	0.796	*	0.001
66	6.356	6.124	0.027215	0.232027	0.285594	0.812	*	0.001
67	6.188	5.968	0.038892	0.220527	0.284239	0.776	*	0.002
68	6.631	6.611	0.034271	0.019308	0.284833	0.068		0.000
69	6.109	6.220	0.048081	-.110585	0.282830	-0.391		0.001
70	6.474	6.312	0.028004	0.162161	0.285518	0.568	*	0.000
71	6.373	6.508	0.045757	-.135071	0.283215	-0.477		0.001
72	5.106	5.368	0.040217	-.261960	0.284055	-0.922	*	0.002
73	5.147	5.305	0.042058	-.157970	0.283788	-0.551	*	0.001
74	6.673	6.666	0.049769	0.007311	0.282538	0.026		0.000
75	7.288	6.657	0.035365	0.630871	0.284700	2.216	****	0.011
76	6.443	6.823	0.053804	-.380399	0.281797	-1.350	**	0.009
77	6.599	6.691	0.034249	-.092020	0.284836	-0.323		0.000
78	6.290	6.095	0.026591	0.194231	0.285653	0.680	*	0.001
79	6.423	6.213	0.028498	0.210200	0.285469	0.736	*	0.001

SLURRY VISCOSITY DATA ANALYSIS
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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
80	6.436	6.339	0.053365	0.096990	0.281881	0.344		0.001
81	6.116	6.273	0.032001	-0.156974	0.285097	-0.551	*	0.001
82	7.004	6.406	0.029734	0.597580	0.285343	2.094	****	0.007
83	5.613	5.505	0.051422	0.108602	0.282242	0.385		0.001
84	6.447	6.424	0.041721	0.023634	0.283838	0.083		0.000
85	5.775	6.024	0.052458	-0.249630	0.282051	-0.885	*	0.004
86	6.547	6.290	0.027130	0.256391	0.285602	0.898	*	0.001
87	5.753	5.940	0.039078	-0.187887	0.284214	-0.661	*	0.001
88	5.940	5.756	0.049244	0.184052	0.282630	0.651	*	0.002
89	6.205	6.446	0.048384	-0.241042	0.282778	-0.852	*	0.003
90	6.545	6.358	0.027631	0.186881	0.285554	0.654	*	0.001
91	6.423	6.221	0.040758	0.202680	0.283978	0.714	*	0.001
92	6.482	6.517	0.032660	-0.035809	0.285023	-0.126		0.000
93	5.384	5.580	0.039962	-0.195572	0.284091	-0.688	*	0.001
94	5.509	5.518	0.041502	-0.008238	0.283870	-0.029		0.000
95	6.752	6.873	0.050506	-0.121122	0.282407	-0.429		0.001
96	6.692	7.020	0.054383	-0.327438	0.281686	-1.162	**	0.007
97	6.304	6.237	0.039120	0.067903	0.284208	0.239		0.000
98	5.894	5.923	0.040820	-0.028958	0.283969	-0.102		0.000
99	6.782	6.878	0.035426	-0.096119	0.284692	-0.338		0.000
100	6.522	6.282	0.027327	0.240392	0.285583	0.842	*	0.001
101	6.553	6.518	0.053792	0.034821	0.281800	0.124		0.000
102	5.835	5.666	0.050915	0.168936	0.282334	0.598	*	0.002
103	6.777	6.919	0.035986	-0.142242	0.284622	-0.500		0.001
104	6.332	6.180	0.050990	0.151356	0.282320	0.536	*	0.001
105	6.594	6.585	0.042051	0.009360	0.283789	0.033		0.000
106	6.492	6.446	0.028151	0.045874	0.285503	0.161		0.000
107	6.439	6.479	0.033557	-0.040048	0.284918	-0.141		0.000
108	7.380	6.923	0.037339	0.456360	0.284447	1.604	***	0.006
109	6.608	6.449	0.029316	0.159027	0.285386	0.557	*	0.000
110	5.886	6.072	0.039502	-0.185492	0.284155	-0.653	*	0.001
111	7.045	6.627	0.031692	0.417770	0.285132	1.465	**	0.004
112	6.227	6.564	0.049046	-0.337555	0.282664	-1.194	**	0.006
113	6.489	6.475	0.028557	0.014267	0.285463	0.050		0.000
114	6.707	5.683	0.049067	0.024044	0.282661	0.085		0.000
115	6.061	5.879	0.049492	0.182848	0.282587	0.647	*	0.002
116	5.613	5.628	0.041586	-0.015101	0.283858	-0.053		0.000
117	6.521	6.337	0.041432	0.183320	0.283880	0.646	*	0.001
118	5.525	5.693	0.040200	-0.167456	0.284057	-0.590	*	0.001
119	6.901	6.983	0.051418	-0.082028	0.282242	-0.291		0.000
120	5.878	6.015	0.041906	-0.137619	0.283811	-0.485		0.001
121	5.771	5.408	0.057511	0.363729	0.281064	1.294	**	0.010
122	6.964	6.967	0.036622	-0.002679	0.284541	-0.009		0.000
123	6.780	6.520	0.030738	0.259694	0.285236	0.910	*	0.001
124	6.671	6.596	0.054198	0.075200	0.281722	0.267		0.000
125	6.043	5.732	0.050581	0.310277	0.282394	1.099	**	0.006
126	6.468	6.437	0.031489	0.031148	0.285154	0.109		0.000
127	6.349	6.338	0.039859	0.011306	0.284105	0.040		0.000
128	6.538	6.644	0.043006	-0.105826	0.283646	-0.373		0.000
129	6.609	6.501	0.028781	0.108802	0.285440	0.381		0.000
130	6.601	6.479	0.029890	0.121846	0.285328	0.427		0.000
131	6.040	6.102	0.039733	-0.061740	0.284123	-0.217		0.000
132	6.246	6.582	0.049431	-0.335928	0.282597	-1.188	**	0.006

SLURRY VISCOSITY DATA ANALYSIS
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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S 0
133	6.592	6.841	0.047719	-0.248981	0.282891	-0.880	*	0.003
134	6.089	5.839	0.049535	0.199761	0.282579	0.707	*	0.002
135	5.802	5.637	0.041452	0.164628	0.283877	0.580	*	0.001
136	6.994	6.988	0.051907	0.006174	0.282153	0.022		0.000
137	5.649	5.699	0.040208	-0.050176	0.284056	-0.177		0.000
138	6.899	6.972	0.037237	-0.073991	0.284461	-0.259		0.000
139	6.535	6.342	0.041685	0.193478	0.283843	0.682	*	0.001
140	5.352	5.396	0.056585	-0.043753	0.281252	-0.156		0.000
141	7.173	6.943	0.038158	0.230350	0.284309	0.810	*	0.002
142	6.540	6.354	0.028202	0.186010	0.285498	0.652	*	0.001
143	6.902	6.631	0.032137	0.270730	0.285082	0.950	*	0.002
144	6.535	6.467	0.029530	0.067860	0.285364	0.238		0.000
145	6.194	6.214	0.050857	-0.019503	0.282344	-0.069		0.000
146	5.886	5.703	0.050513	0.183500	0.282436	0.650	*	0.002
147	6.148	6.397	0.030746	-0.248858	0.285236	-0.872	*	0.001
148	5.526	6.605	0.043311	-0.078721	0.283630	-0.278		0.000
149	6.474	6.458	0.028544	0.016189	0.285454	0.057		0.000
150	6.412	6.419	0.029430	-0.006951	0.285374	-0.024		0.000
151	6.138	6.275	0.039673	-0.136825	0.264131	-0.482		0.001
152	6.138	6.030	0.039416	0.107457	0.284167	0.378		0.000
153	6.265	5.457	0.049317	-0.231373	0.282617	-0.819	*	0.003
154	5.572	5.603	0.039776	-0.030893	0.284117	-0.109		0.000
155	5.878	5.541	0.040837	0.336674	0.283966	1.186	**	0.004
156	6.454	6.300	0.029129	0.153628	0.285405	0.538	*	0.000
157	6.914	6.887	0.051773	0.026338	0.282177	0.093		0.000
158	5.951	5.786	0.049023	0.164321	0.282668	0.581	*	0.001
159	4.934	5.290	0.055741	-0.355992	0.281420	-1.265	**	0.009
160	5.989	6.241	0.027106	-0.252408	0.285604	-0.884	*	0.001
161	6.415	6.349	0.030147	0.065903	0.285299	0.231		0.000
162	6.521	6.375	0.029932	0.145209	0.285322	0.509	*	0.000
163	6.059	6.087	0.051457	-0.027837	0.282235	-0.099		0.000
164	5.749	5.577	0.050709	0.172776	0.282371	0.612	*	0.002
165	5.911	6.207	0.029262	-0.296618	0.285391	-1.039	**	0.002
166	6.346	6.472	0.043178	-0.125963	0.283620	-0.444		0.001
167	6.825	6.779	0.037311	0.045967	0.284451	0.162		0.000
168	6.945	6.805	0.036838	0.139513	0.284513	0.490		0.001
169	6.107	6.417	0.030060	-0.310126	0.285309	-1.087	**	0.002
170	6.319	6.314	0.027418	0.004760	0.285575	0.017		0.000
171	6.702	6.439	0.031118	0.262465	0.285195	0.920	*	0.001
172	6.384	6.477	0.048435	-0.093065	0.282770	-0.329		0.000
173	6.127	5.851	0.038809	0.268971	0.284251	0.946	*	0.002
174	6.118	6.304	0.048903	-0.186260	0.282689	-0.659	*	0.002
175	6.047	6.044	0.038903	0.003569	0.284238	0.013		0.000
176	5.631	5.343	0.040373	0.288268	0.284033	1.015	**	0.003
177	5.142	5.713	0.040474	-0.570899	0.284018	-2.010	***	0.012
178	5.252	5.397	0.039069	-0.145010	0.284215	-0.510	*	0.001
179	6.541	6.678	0.051126	-0.137131	0.282295	-0.486		0.001
180	4.920	5.085	0.055294	-0.165390	0.281509	-0.588	*	0.002
181	5.844	5.571	0.048344	0.272457	0.282785	0.963	*	0.004
182	5.642	6.027	0.025637	-0.384855	0.285740	-1.347	**	0.002
183	6.407	6.307	0.029073	0.100220	0.285411	0.351		0.000
184	6.205	6.151	0.028535	0.053209	0.285465	0.186		0.000
185	5.361	5.998	0.027754	-0.636505	0.285542	-2.229	***	0.007

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	STD ERR RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
186	5.829	5.867	0.051500	-0.038123	0.282227	-0.135		0.000
187	5.595	5.357	0.050726	0.238036	0.282368	0.843	*	0.003
188	6.157	6.219	0.054898	-0.062417	0.281586	-0.222		0.000
189	6.068	6.136	0.034261	-0.067946	0.284835	-0.239		0.000
190	6.308	6.244	0.042847	0.064526	0.283670	0.227		0.000
191	5.565	6.003	0.028303	-0.438657	0.285488	-1.537	***	0.003
192	5.537	6.170	0.028404	-0.632939	0.285478	-2.217	****	0.007
193	6.203	6.071	0.0226179	0.131557	0.285691	0.460		0.000
194	6.180	6.014	0.027004	0.165711	0.285614	0.580	*	0.000
195	6.798	6.522	0.036129	0.275524	0.284604	0.968	*	0.002
196	6.657	6.477	0.036429	0.179638	0.284566	0.631	*	0.001
197	6.006	5.575	0.038634	0.431363	0.284275	1.517	***	0.006
198	6.410	6.086	0.030187	0.323838	0.285295	1.135	**	0.002
199	5.817	6.005	0.048857	-0.187417	0.282697	-0.663	+	0.002
200	4.905	5.414	0.040639	-0.508323	0.283995	-1.790	***	0.009
201	4.920	5.095	0.039102	-0.175148	0.284211	-0.616	+	0.001
202	4.977	5.032	0.040911	-0.055044	0.283956	-0.194		0.000
203	4.205	4.790	0.055417	-0.585687	0.281485	-2.081	****	0.024
204	5.914	6.360	0.050759	-0.446996	0.282362	-1.583	***	0.012
205	5.273	5.724	0.025165	-0.451254	0.285782	-1.579	***	0.003
206	5.476	5.243	0.048243	0.233791	0.282802	0.827	*	0.003
207	4.205	4.746	0.055026	-0.541253	0.281561	-1.922	***	0.020
208	5.883	5.688	0.040333	0.195709	0.284038	0.689	+	0.001
209	5.553	5.837	0.027976	-0.284492	0.285520	-0.996	*	0.001
210	5.663	5.656	0.038992	0.007077	0.284226	0.025		0.000
211	5.642	5.552	0.052265	0.089647	0.282087	0.318		0.000
212	5.416	5.032	0.051352	0.384591	0.282254	1.363	**	0.009
213	5.805	5.895	0.054813	-0.089550	0.281603	-0.319		0.001
214	5.273	5.629	0.041166	-0.355909	0.283919	-1.254	**	0.005
215	5.762	5.739	0.026294	0.023533	0.285680	0.082		0.000
216	5.236	5.825	0.028258	-0.588131	0.285493	-2.060	****	0.006
217	5.263	5.647	0.028658	-0.384651	0.285453	-1.348	**	0.003
218	6.021	6.040	0.046092	-0.019451	0.283161	-0.069		0.000
219	6.161	6.178	0.036223	-0.016450	0.284592	-0.058		0.000
220	5.366	5.687	0.034694	-0.320966	0.284782	-1.127	**	0.003
221	6.407	6.042	0.037421	0.364688	0.284437	1.282	**	0.004
222	5.303	5.195	0.039972	0.108708	0.284090	0.383		0.000
223	5.545	5.759	0.047869	-0.213467	0.282866	-0.755	*	0.002
224	5.159	5.596	0.050353	-0.436765	0.282434	-1.546	***	0.011
225	4.625	4.680	0.041305	-0.055124	0.283899	-0.194		0.000
226	4.605	4.613	0.043722	-0.007928	0.283537	-0.028		0.000
227	4.920	5.328	0.027477	-0.407808	0.285569	-1.428	**	0.003
228	4.595	4.988	0.042850	-0.392495	0.283670	-1.384	**	0.006
229	5.497	5.936	0.051954	-0.438612	0.282144	-1.555	***	0.012
230	5.935	5.592	0.032219	0.343053	0.285073	1.203	**	0.003
231	3.497	4.332	0.056949	-0.835159	0.281179	-2.970	****	0.052
232	5.288	5.143	0.054683	0.145683	0.281628	0.517	*	0.001
233	5.130	4.634	0.053617	0.496340	0.281833	1.761	***	0.016
234	5.024	5.253	0.042128	-0.229499	0.283778	-0.809	*	0.002
235	4.771	4.800	0.049967	-0.029024	0.282503	-0.103		0.000
236	5.996	6.011	0.056900	-0.014698	0.281189	-0.052		0.000
237	5.466	5.467	0.057200	-0.007008	0.281128	-0.025		0.000
238	5.308	5.311	0.029600	-0.002468	0.285357	-0.009		0.000

SLURRY VISCOSITY DATA ANALYSIS
FINE CUAL

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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
239	5.043	5.395	0.031505	-0.351886	0.285153	-1.234	**	0.003
240	5.529	5.108	0.042640	0.421427	0.283701	1.485	**	0.007
241	5.838	5.737	0.038655	0.100612	0.284272	0.354		0.000
242	4.844	5.171	0.032796	-0.326565	0.265007	-1.146	**	0.002
243	5.521	5.558	0.048478	-0.036667	0.282762	-0.130		0.000
244	5.069	5.044	0.045623	0.024721	0.283237	0.087		0.000
245	4.804	4.697	0.045418	0.107379	0.283270	0.379		0.001
246	6.084	5.547	0.041505	0.537505	0.283870	1.893	***	0.011
247	4.836	5.086	0.040103	-0.249473	0.284071	-0.878	*	0.002
248	5.056	5.257	0.051022	-0.200707	0.282314	-0.711	*	0.002
249	4.419	4.176	0.046839	0.242348	0.283038	0.858	*	0.003
250	4.905	4.823	0.034284	0.082700	0.284832	0.290		0.000
251	4.595	4.092	0.049266	0.502743	0.282626	1.779	***	0.014
252	5.142	5.424	0.055895	-0.281867	0.281390	-1.002	**	0.006
253	4.174	4.449	0.048594	-0.274519	0.282742	-0.971	*	0.004
254	4.860	4.637	0.060040	0.222682	0.280535	0.794	*	0.004
255	4.745	4.129	0.059053	0.616372	0.280744	2.195	****	0.030
256	5.541	5.487	0.061271	0.054552	0.280268	0.195		0.000
257	4.949	4.938	0.062092	0.010451	0.280088	0.037		0.000
258	4.419	4.244	0.055118	0.174367	0.281543	0.619	*	0.002
259	5.037	4.994	0.039211	0.042807	0.284195	0.151		0.000
260	4.804	4.855	0.039331	-0.050874	0.284179	-0.179		0.000
261	4.394	4.870	0.043966	-0.475574	0.283499	-1.678	***	0.010
262	4.533	4.600	0.041570	-0.067007	0.283860	-0.236		0.000
263	5.724	5.116	0.046723	0.607282	0.283057	2.145	****	0.018
264	5.215	4.962	0.054584	0.252791	0.281647	0.898	*	0.004
265	4.812	4.399	0.052065	0.412956	0.282124	1.464	**	0.010
266	5.509	4.982	0.049167	0.527750	0.282643	1.867	***	0.015
267	4.828	4.404	0.054356	0.424617	0.281691	1.507	***	0.012
268	4.094	4.112	0.054142	-0.017823	0.281733	-0.063		0.000
269	4.533	4.704	0.057199	-0.171794	0.281128	-0.611	*	0.002
270	3.970	4.235	0.045173	-0.264605	0.283309	-0.934	*	0.003
271	4.190	3.553	0.056713	0.636598	0.281226	2.264	****	0.030
272	3.932	4.054	0.059050	-0.122429	0.279454	-0.440		0.002
273	4.615	4.812	0.063484	-0.196881	0.279776	-0.704	*	0.004
274	4.419	3.466	0.058851	0.952875	0.280787	3.394	*****	0.072
275	3.912	3.527	0.068261	0.384695	0.278648	1.381	**	0.016
276	4.419	4.325	0.052697	0.092887	0.282006	0.329		0.001
277	4.678	4.762	0.051584	-0.084287	0.282212	-0.425	****	0.028
278	3.999	4.267	0.048000	-0.278341	0.282844	-0.984	*	0.004
279	4.477	4.329	0.070411	0.148801	0.278113	0.535	*	0.003
280	4.419	4.842	0.075880	-0.423187	0.276671	-1.530	***	0.025
281	3.892	3.599	0.064317	0.293243	0.279585	1.049	**	0.008
282	4.511	4.344	0.050358	0.166997	0.282434	0.591	*	0.002

SUM OF RESIDUALS -2.25020E-12
SUM OF SQUARED RESIDUALS 22.63376

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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PLOT OF LV*TEMP PLOT OF PREDI*TEMP
LEGEND: A = 1 OBS, B = 2 OBS, ETC.
SYMBOL USED IS *

NOTE: 13 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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PLOT OF LV*SRTH LEGEND: A = 1 OBS, B = 2 OBS, ETC.
PLOT OF PRED1*SRTH SYMBOL USED IS *

NOTE: 50 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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PLOT OF LV*CC
PLOT OF PREDI*CC

LEGEND: A = 1 OBS, B = 2 OBS, ETC.
SYMBOL USED IS *

NOTE: 59 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

15:23 FRIDAY, DECEMBER 23, 1983 38

PLOT OF LV*TS LEGEND: A = 1 OBS, B = 2 OBS, ETC.
PLOT OF PREDI*TS SYMBOL USED IS *

NOTE: 78 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

15:23 FRIDAY, DECEMBER 23, 1983 39

PLOT OF LV*SHEAR
PLOT OF PREDI*SHEAR

LEGEND: A = 1 OBS, B = 2 OBS, ETC.
SYMBOL USED IS *

NOTE: 20 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	VISP1	RESID
1	EHF	323	196	0	74	1	1	30.7	42.8	S	1	4.30407	104329	0	4.22149	0.08257	68.135	69.779
2	R13F	323	200	0	73	1	1	30.6	45.0	S	1	4.29046	104329	0	4.55157	-0.26111	94.781	68.448
3	GHF	331	191	0	111	1	1	30.2	44.9	S	1	4.70953	109561	0	4.68738	0.02215	108.568	106.313
4	R13F	332	194	0	110	1	1	30.6	45.0	S	1	4.70048	110224	0	4.73497	-0.03449	113.861	105.265
5	EHF	335	191	0	110	1	1	30.7	42.8	S	1	4.70048	112225	0	4.46311	0.23737	86.757	105.537
6	IHF	338	193	0	38	1	1	25.1	42.3	S	1	3.63759	114244	0	4.24801	-0.61042	69.966	33.752
7	GHF	342	185	0	148	1	1	30.2	44.9	S	1	4.99721	116944	0	4.90239	0.09483	134.610	143.098
8	R10	348	199	0	108	1	1	30.4	43.0	S	1	4.68213	121104	0	4.72472	-0.04259	112.699	103.275
9	R13F	350	191	0	181	1	1	30.6	45.0	S	1	5.19550	122500	0	5.07671	0.12179	160.246	175.923
10	EHF	354	187	0	182	1	1	30.7	42.8	S	1	5.20401	125316	0	4.81847	0.38554	123.776	177.182
11	R33I	358	323	0	56	0	1	29.9	39.1	S	0	4.02535	128164	0	4.13617	-0.11081	62.562	51.864
12	R36I	360	353	0	88	0	1	24.9	41.7	S	0	4.47734	129600	0	4.37872	0.09862	79.736	83.621
13	GHF	361	183	0	220	1	1	30.2	44.9	S	1	5.39363	130321	0	5.24535	0.14827	189.684	214.755
14	R34I	367	327	0	38	0	1	25.0	39.0	S	0	3.63759	134689	0	4.10121	-0.46363	60.414	33.899
15	R35I	369	376	0	49	0	1	25.2	38.7	S	0	3.89182	136161	0	4.07333	-0.18148	58.750	44.927
16	R24	371	368	0	131	1	1	35.1	45.4	S	0	4.87520	137641	0	5.57617	-0.70098	264.059	125.424
17	F7T1	373	213	0	67	1	1	29.4	41.3	S	1	4.20469	139129	0	4.85487	-0.65017	128.363	62.145
18	R6	377	205	0	233	1	1	30.4	45.0	S	1	5.45104	142129	0	5.52147	-0.07043	250.003	227.479
19	F7T5	379	184	0	38	1	1	24.8	36.0	S	1	3.63759	143641	0	3.99453	-0.35694	54.300	34.005
20	R13F	379	187	0	322	1	1	30.6	45.0	S	1	5.77455	143641	0	5.56811	0.20645	261.937	316.432
21	R18	379	357	0	198	1	1	25.6	43.5	S	0	5.28827	143641	0	5.22697	0.06130	186.228	192.773
22	R23	380	370	0	107	1	1	34.9	42.0	S	0	4.67283	144400	0	5.19331	-0.52049	180.064	101.807
23	EHF	387	187	0	215	1	1	30.7	42.8	S	1	5.37064	149769	0	5.35849	0.01215	212.403	209.642
24	MHF	387	138	0	254	1	1	35.2	42.1	S	1	5.53733	149769	0	5.40870	0.12864	223.340	248.591
25	GHF	389	181	0	325	1	1	30.2	44.9	S	1	5.78383	151321	0	5.69360	0.09023	296.960	319.306
26	R33I	394	316	0	129	0	1	29.9	39.1	S	0	4.85981	155236	0	4.71138	0.14843	111.206	124.289
27	R36I	395	349	0	138	0	1	24.9	41.7	S	0	4.92725	156025	0	4.93215	-0.00489	138.677	133.068
28	AAHF	398	152	0	280	1	1	29.4	42.2	S	1	5.63479	158404	0	5.39663	0.23816	220.661	274.603
29	R37I	398	297	0	310	0	1	25.6	44.6	S	0	5.73657	158404	0	5.46481	0.27176	236.231	304.535
30	R34I	402	329	0	57	0	1	25.0	39.0	S	0	4.04305	161604	0	4.63077	-0.58772	102.593	52.369
31	F7T1	403	203	0	232	1	1	29.4	41.3	S	1	5.44674	162409	0	5.30505	0.14168	201.352	226.695
32	R31I	403	282	0	381	0	1	30.4	46.1	S	0	5.94280	162409	0	5.93708	0.00571	378.829	375.063
33	R35I	403	377	0	81	0	1	25.2	38.7	S	0	4.39445	162409	0	4.58376	-0.18931	97.881	76.416
34	R6	411	196	0	393	1	1	30.4	45.0	S	1	5.97381	168921	0	6.01302	-0.03921	408.716	386.987
35	F7T5	413	183	0	76	1	1	24.8	36.0	S	1	4.33073	170569	0	4.47656	-0.14583	87.932	71.523
36	R23	414	363	0	210	1	1	34.9	42.0	S	0	5.34711	171396	0	5.67515	-0.32804	291.532	204.325
37	R13F	419	184	0	527	1	1	30.6	45.0	S	1	6.26720	175561	0	6.12568	0.14152	457.457	520.874
38	R22	422	393	0	59	1	1	24.8	38.7	S	0	4.07754	178084	0	4.90327	-0.82573	134.729	54.097
39	R10	423	193	0	382	1	1	30.4	43.0	S	1	5.94542	178929	0	5.85771	0.08771	349.920	376.142
40	R12	425	182	0	390	1	1	25.3	42.0	S	1	5.96615	180625	0	5.55539	0.41075	258.629	384.445
41	GHF	428	174	0	853	1	1	30.2	44.9	S	1	6.74876	183184	0	6.20713	0.54163	496.274	846.793
42	MHF	429	179	0	535	1	1	35.2	42.1	S	1	6.28227	184041	0	5.96421	0.31806	389.244	529.036
43	R33I	430	314	0	260	0	1	29.9	39.1	S	0	5.56068	184900	0	5.17251	0.38818	176.356	254.827
44	R36I	430	352	0	170	0	1	24.9	41.7	S	0	5.13580	184900	0	5.37670	-0.24090	216.307	164.623
45	F4	431	194	0	504	1	1	29.9	42.0	S	1	6.22258	185761	0	5.77922	0.44335	323.508	498.221
46	R37I	432	302	0	457	0	1	25.6	44.6	S	0	6.12468	186624	0	5.88838	0.23631	360.819	451.112
47	EHF	433	184	0	527	1	1	30.7	42.8	S	1	6.26720	187489	0	5.95584	0.31136	386.002	521.044
48	F10	434	267	0	538	1	1	30.4	42.0	S	1	6.28786	188356	0	5.79649	0.49137	329.141	532.204
49	F7T1	435	197	0	361	1	1	29.4	41.3	S	1	5.88888	189225	0	5.59754	0.19134	298.133	355.302
50	R36I	437	330	0	120	0	1	25.0	39.0	S	0	4.78749	190969	0	5.95510	-0.26760	156.820	114.945
51	R35I	437	378	0	111	0	1	25.2	38.7	S	0	4.70953	190969	0	4.99448	-0.28495	147.596	106.006
52	R31I	438	282	0	687	0	1	30.4	46.1	S	0	6.53233	191844	0	5.35885	0.17349	577.579	680.641
53	AAHF	440	154	0	368	1	1	29.4	42.2	S	1	5.90808	193600	0	5.90726	0.00082	367.699	362.093
54	R24	441	353	0	509	1	1	35.1	45.4	S	0	6.23245	194481	0	6.51410	-0.28165	674.588	502.486
55	R6	445	193	0	614	1	1	30.4	45.0	S	1	6.41999	198025	0	6.40210	0.01790	603.109	607.598

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	VISP1	RESID
56	F13	446	236	0.00	303	1	1	28.9	41.5	S	1	5.71373	198916	0.0000	5.80634	-0.09261	332.40	297.19
57	F7T5	446	176	0.00	224	1	1	24.8	36.0	S	1	5.41165	198916	0.0000	4.85179	0.55986	127.97	219.15
58	F7T2	448	186	0.00	425	1	1	29.3	41.7	S	1	6.05209	200704	0.0000	5.89314	0.15895	362.54	419.11
59	R23	448	354	0.00	442	1	1	34.9	42.0	S	0	6.09131	200704	0.0000	6.05816	0.03315	427.59	435.94
60	R18	452	352	0.10	448	1	1	29.6	43.5	S	0	6.10479	204304	0.0100	6.14041	-0.03562	464.25	441.86
61	R22	455	381	0.10	161	1	1	24.8	38.7	S	0	5.08140	207025	0.0100	5.25515	-0.17374	191.55	155.74
62	R5	456	230	0.10	429	1	1	30.4	42.0	S	1	6.06146	207936	0.0100	6.03195	0.02950	416.53	422.97
63	R36I	464	353	0.12	251	0	1	24.9	41.7	S	0	5.52545	215296	0.0144	5.70822	-0.18277	301.33	245.29
64	R33I	466	315	0.13	348	0	1	29.9	39.1	S	0	5.85220	217156	0.0169	5.52045	0.33175	249.75	342.48
65	F10	467	265	0.12	565	1	1	30.4	42.0	S	1	6.33683	218089	0.0144	6.10964	0.22718	450.18	558.89
66	F9	467	241	0.13	576	1	1	30.5	42.0	S	1	6.35611	218089	0.0169	6.12408	0.23203	456.72	569.88
67	R12	467	185	0.10	487	1	1	25.3	42.0	S	1	6.18826	218089	0.0100	5.96774	0.22053	390.62	481.03
68	R13F	467	183	0.10	758	1	1	30.6	45.0	S	1	6.63068	218089	0.0100	6.61138	0.01931	743.51	751.39
69	R37I	467	308	0.13	450	0	1	25.6	44.6	S	0	6.10925	218089	0.0169	6.21983	-0.11059	502.62	443.78
70	R10	469	191	0.10	648	1	1	30.4	43.0	S	1	6.47389	219961	0.0100	6.31173	0.16216	551.00	641.69
71	R11	471	185	0.10	586	1	1	35.5	43.0	S	1	6.37332	221841	0.0100	6.50839	-0.13507	670.75	579.49
72	R34I	471	327	0.12	165	0	1	25.0	39.0	S	0	5.10595	221841	0.0144	5.36791	-0.26196	214.41	159.63
73	R35I	471	379	0.11	172	0	1	25.2	38.7	S	0	5.14749	221841	0.0121	5.30546	-0.15797	201.43	166.69
74	R31I	472	285	0.14	791	0	1	30.4	46.1	S	0	6.67330	222784	0.0196	6.66599	0.00731	785.24	784.33
75	GMF	476	169	0.19	1463	1	1	30.2	44.9	S	1	7.28824	226576	0.0361	6.65737	0.63087	778.50	1456.34
76	R24	476	349	0.12	628	1	1	35.1	45.4	S	0	6.44254	226576	0.0144	6.82294	-0.38040	918.68	621.18
77	R6	479	192	0.10	734	1	1	30.4	45.0	S	1	6.59851	229441	0.0100	6.69053	-0.09202	804.75	727.31
78	F13	480	227	0.14	539	1	1	28.9	41.5	S	1	6.28972	230400	0.0196	6.09548	0.19423	443.85	532.90
79	F11	491	187	0.17	616	1	1	29.8	41.9	S	1	6.42325	231361	0.0289	6.21305	0.21020	499.22	609.79
80	R23	482	350	0.12	624	1	1	34.9	42.0	S	0	6.43615	232324	0.0144	6.33916	0.09699	566.32	617.66
81	AAHF	483	155	0.21	453	1	1	29.4	42.2	S	1	6.11589	233289	0.0441	6.27287	-0.15697	529.99	446.73
82	EHF	484	177	0.18	1101	1	1	30.7	42.8	S	1	7.00397	234256	0.0324	6.40639	0.59758	605.71	1094.59
83	R22	487	374	0.20	274	1	1	24.8	38.7	S	0	5.61313	237169	0.0400	5.50453	0.10860	245.80	268.50
84	R18	488	345	0.20	631	1	1	29.6	43.5	S	0	6.44731	238144	0.0400	6.42367	0.02363	616.26	624.58
85	R21	489	365	0.20	322	1	1	24.8	42.0	S	0	5.77455	239121	0.0400	6.02418	-0.24963	413.30	315.98
86	R5	490	224	0.20	697	1	1	30.4	42.0	S	1	6.54679	240100	0.0400	6.29039	0.25639	539.37	690.71
87	R36I	498	353	0.23	315	0	1	24.9	41.7	S	0	5.75257	248004	0.0529	5.94046	-0.18789	380.11	309.06
88	R33I	502	317	0.26	380	0	1	29.9	39.1	S	0	5.94017	252004	0.0676	5.75612	0.18405	316.12	374.24
89	R37I	502	314	0.26	495	0	1	25.6	44.6	S	0	6.20456	252004	0.0676	6.44560	-0.24104	629.92	488.55
90	F9	503	239	0.27	696	1	1	30.5	42.0	S	1	6.54535	253009	0.0729	6.35847	0.18688	577.36	689.64
91	R32I	504	305	0.27	616	0	1	30.1	42.0	S	0	6.42325	254016	0.0729	6.22057	0.20268	502.99	609.78
92	F3	505	166	0.38	653	1	1	31.2	42.6	S	1	6.48158	255025	0.1444	6.51739	-0.03581	676.81	646.48
93	R34I	505	326	0.25	218	0	1	25.0	39.0	S	0	5.38450	255025	0.0625	5.58007	-0.19557	265.09	212.42
94	R35I	505	378	0.22	247	0	1	25.2	38.7	S	0	5.50939	255025	0.0484	5.51763	-0.00824	249.04	241.48
95	R31I	506	288	0.29	856	0	1	30.4	46.1	S	0	6.75227	256036	0.0841	6.87339	-0.12112	966.22	849.13
96	R24	510	350	0.23	806	1	1	35.1	45.4	S	0	6.69208	260100	0.0529	7.01952	-0.32744	1118.25	798.98
97	R12	511	188	0.30	547	1	1	25.3	42.0	S	1	6.30445	261121	0.0900	6.23655	0.06790	511.09	540.76
98	F7T6	512	177	0.35	363	1	1	24.8	40.0	S	1	5.89440	262144	0.1225	5.92336	-0.02896	373.67	357.08
99	R6	513	193	0.30	882	1	1	30.4	45.0	S	1	6.78219	263169	0.0900	6.87831	-0.09612	970.99	875.12
100	F13	514	225	0.29	680	1	1	28.9	41.5	S	1	6.52209	264196	0.0841	6.28170	0.24039	534.70	673.72
101	R23	516	352	0.23	701	1	1	34.9	42.0	S	0	6.55251	266256	0.0529	6.51769	0.03482	677.01	694.48
102	R22	520	374	0.30	342	1	1	24.8	38.7	S	0	5.83481	270400	0.0900	5.66587	0.16894	288.84	336.33
103	R13F	521	185	0.30	877	1	1	30.6	45.0	S	1	6.77651	271441	0.0900	6.91875	-0.14224	1011.05	870.08
104	R21	521	357	0.30	562	1	1	24.8	42.0	S	0	6.33150	271441	0.0900	6.18015	0.15136	483.06	555.82
105	R18	522	346	0.30	731	1	1	29.6	43.5	S	0	6.59441	272484	0.0900	6.58505	0.00936	724.19	724.41
106	R5	524	224	0.40	660	1	1	30.4	42.0	S	1	6.49224	274576	0.1600	6.44637	0.04587	630.41	653.55
107	AAHF	526	155	0.42	626	1	1	29.4	42.2	S	1	6.43935	276676	0.1764	6.47940	-0.04005	651.58	619.52
108	GMF	530	170	0.38	1603	1	1	30.2	44.9	S	1	7.37963	280900	0.1444	6.92327	0.45636	1015.64	1596.08
109	F10	532	267	0.37	741	1	1	30.4	42.0	S	1	6.60800	283024	0.1369	6.44997	0.15903	632.05	734.55
110	R36I	532	356	0.35	360	0	1	24.9	41.7	S	0	5.88610	283024	0.1225	6.07160	-0.18549	433.37	353.93

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OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	VISPI	RESID
111	EMF	534	177	0.36	1147	1	1	30.7	42.8	S	1	7.04491	285156	0.1296	6.62714	0.41777	755.32	1140.37
112	R371	536	319	0.39	506	0	1	25.6	44.6	S	0	6.22654	287296	0.1521	6.56409	-0.33755	709.17	499.44
113	F9	537	242	0.40	658	1	1	30.5	42.0	S	1	6.48920	288369	0.1600	6.47494	0.01427	648.68	651.53
114	HMF	537	180	0.36	818	1	1	35.2	42.1	S	1	6.70686	288369	0.1296	6.68282	0.02404	798.57	811.32
115	R331	538	322	0.38	429	0	1	29.9	39.1	S	0	6.06146	289444	0.1444	5.87861	0.18285	357.31	423.12
116	R351	539	381	0.32	274	0	1	25.2	38.7	S	0	5.61313	290521	0.1024	5.62823	-0.01510	278.17	268.37
117	R321	540	309	0.40	679	0	1	30.1	42.0	S	0	6.52062	291600	0.1600	6.33730	0.18332	565.27	672.66
118	R341	540	328	0.37	251	0	1	25.0	39.0	S	0	5.52545	291600	0.1369	5.69291	-0.16746	296.76	245.31
119	R311	541	291	0.43	993	0	1	30.4	46.1	S	0	6.90073	292681	0.1849	6.98276	-0.08203	1077.89	986.02
120	F7T6	545	173	0.54	357	1	1	24.8	40.0	S	1	5.87774	297025	0.2916	6.01535	-0.13762	409.67	350.98
121	F7T5	546	171	0.58	321	1	1	24.8	36.0	S	1	5.77144	299116	0.3364	5.40771	0.36373	223.12	315.59
122	R6	547	193	0.50	1058	1	1	30.4	45.0	S	1	6.96414	299209	0.2500	6.96681	-0.00268	1060.84	1051.03
123	F12	550	199	0.48	880	1	1	30.7	42.0	S	1	6.77992	302500	0.2304	6.52023	0.25969	678.73	873.48
124	R23	550	356	0.35	789	1	1	34.9	42.0	S	0	6.67077	302500	0.1225	6.59557	0.07520	731.84	782.40
125	R22	553	376	0.40	421	1	1	24.8	38.7	S	0	6.04263	305809	0.1600	5.73236	0.31028	308.70	415.27
126	F7T2	554	181	0.54	644	1	1	29.3	41.7	S	1	6.46770	306916	0.2916	6.43655	0.03115	624.25	637.56
127	R12	554	191	0.50	572	1	1	25.3	42.0	S	1	6.34914	306916	0.2500	6.33783	0.01131	565.57	565.66
128	R18	556	353	0.40	691	1	1	29.6	43.5	S	0	6.53814	309136	0.1600	6.64397	-0.10583	768.13	684.36
129	R5	557	228	0.50	742	1	1	30.4	42.0	S	1	6.60935	310249	0.2500	6.50055	0.10880	665.51	735.50
130	F10	564	274	0.48	736	1	1	30.4	42.0	S	1	6.60123	318096	0.2304	6.47938	0.12185	651.57	729.52
131	R361	567	360	0.46	420	0	1	24.9	41.7	S	0	6.04025	321489	0.2116	6.10199	-0.06174	446.75	413.90
132	R371	570	326	0.52	516	0	1	25.6	44.6	S	0	6.24611	324900	0.2704	6.58194	-0.33583	721.94	509.42
133	R11	573	193	0.50	729	1	1	35.5	43.0	S	1	6.59167	328329	0.2500	6.84066	-0.24898	935.10	722.16
134	R331	574	327	0.51	441	0	1	29.9	39.1	S	0	6.08904	329476	0.2601	5.88528	0.19976	361.15	435.11
135	R351	574	385	0.43	331	0	1	25.2	38.7	S	0	5.80212	329476	0.1849	5.63749	0.16463	280.76	325.36
136	R311	575	294	0.56	1090	0	1	30.4	46.1	S	0	6.99393	330625	0.3136	6.98776	0.00617	1083.29	1083.01
137	R341	575	332	0.50	284	0	1	25.0	39.0	S	0	5.64897	330625	0.2500	5.69915	-0.05018	298.61	278.30
138	R13F	576	189	0.50	991	1	1	30.6	45.0	S	1	6.89871	331776	0.2500	6.97231	-0.07359	1066.68	984.03
139	R321	576	314	0.53	689	0	1	30.1	42.0	S	0	6.53524	331776	0.2809	6.34176	0.19348	567.80	682.66
140	F7T5	579	183	0.75	211	1	1	24.8	36.0	S	1	5.35186	335241	0.5625	5.39561	-0.04375	220.44	205.60
141	GMF	580	176	0.57	1304	1	1	30.2	44.9	S	1	7.17319	336400	0.3249	6.94284	0.23035	1035.71	1297.06
142	F13	581	228	0.57	692	1	1	28.9	41.5	S	1	6.53959	337561	0.3249	6.35358	0.18601	574.54	685.65
143	EMF	583	184	0.54	994	1	1	30.7	42.8	S	1	6.90174	339889	0.2916	6.63101	0.27073	758.25	987.37
144	F4	585	205	0.64	689	1	1	29.9	42.0	S	1	6.53524	342225	0.4096	6.46738	0.06786	643.80	682.53
145	R21	586	365	0.50	490	1	1	24.8	42.0	S	0	6.19441	343396	0.2500	6.21391	-0.01950	499.65	483.79
146	R22	586	383	0.50	360	1	1	24.8	38.7	S	0	5.88610	343396	0.2500	5.70260	0.18350	299.65	354.30
147	F7T2	589	192	0.71	468	1	1	29.3	41.7	S	1	6.14847	346921	0.5041	6.39733	-0.24886	600.24	461.60
148	R18	589	361	0.50	683	1	1	29.6	43.5	S	0	6.52649	346921	0.2500	6.60522	-0.07872	738.94	676.39
149	R5	591	233	0.70	648	1	1	30.4	42.0	S	1	6.47389	349281	0.4900	6.45770	0.01619	637.59	641.54
150	F10	597	280	0.60	609	1	1	30.4	42.0	S	1	6.41182	356409	0.3600	6.41877	-0.00695	613.25	602.58
151	R12	599	198	0.60	463	1	1	25.3	42.0	S	1	6.13773	357604	0.3600	6.27455	-0.13682	530.89	456.73
152	R361	601	364	0.57	463	0	1	24.9	41.7	S	0	6.13773	361201	0.3249	6.03027	0.10746	415.83	456.97
153	R371	605	332	0.64	526	0	1	25.6	44.6	S	0	6.26530	366025	0.4096	6.49667	-0.23137	662.93	519.50
154	R341	609	338	0.62	263	0	1	25.0	39.0	S	0	5.57215	370881	0.3844	5.60305	-0.03089	271.25	257.40
155	R351	609	389	0.53	357	0	1	25.2	38.7	S	0	5.87774	370881	0.2809	5.54106	0.33667	254.95	351.46
156	F13L	610	213	0.78	635	1	1	29.7	41.5	S	1	6.45362	372100	0.6084	6.30000	0.15363	544.57	628.70
157	R311	610	300	0.70	1006	0	1	30.4	46.1	S	0	6.91374	372100	0.4900	6.88740	0.02634	979.85	999.11
158	R331	610	336	0.63	384	0	1	29.9	39.1	S	0	5.95064	372100	0.3969	5.78632	0.16432	325.81	378.21
159	F7T5	612	193	0.92	139	1	1	24.8	36.0	S	1	4.93447	374544	0.8464	5.29047	-0.35599	198.44	133.71
160	F13	614	241	0.71	399	1	1	28.9	41.5	S	1	5.98896	376996	0.5041	6.24137	-0.25241	513.56	392.76
161	F11	615	197	0.86	611	1	1	29.8	41.9	S	1	6.41510	379225	0.7396	6.34919	0.06590	572.03	604.65
162	F12	618	210	0.79	679	1	1	30.7	42.0	S	1	6.52062	381924	0.6241	6.37541	0.14521	587.23	672.62
163	R21	619	379	0.60	428	1	1	24.8	42.0	S	0	6.05912	383161	0.3600	6.08701	-0.02789	440.10	421.91
164	R22	619	395	0.60	314	1	1	24.8	38.7	S	0	5.74939	383161	0.3600	5.57662	0.17278	264.18	308.42
165	F7T1	621	211	0.99	369	1	1	29.4	41.3	S	1	5.91090	385641	0.9801	6.20741	-0.29662	496.42	362.79

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OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	VISP1	RESID
166	R18	622	371	0.60	570	1	1	29.6	43.5	S	0	6.34564	386884	0.3600	6.47160	-0.12596	646.517	563.53
167	GHF	624	186	0.74	921	1	1	30.2	44.9	S	1	6.82546	389376	0.5476	6.77949	0.04597	879.622	914.22
168	R13F	624	193	0.60	1038	1	1	30.6	45.0	S	1	6.94505	389376	0.3600	6.80554	0.13951	902.833	1031.19
169	F8	625	217	0.96	449	1	1	31.3	42.4	S	1	6.10702	390625	0.9216	6.41715	-0.31013	612.255	442.58
170	R5	625	240	0.80	555	1	1	30.4	42.0	S	1	6.31897	390625	0.6400	6.31421	0.00476	552.364	548.69
171	EHF	630	192	0.71	814	1	1	30.7	42.8	S	1	6.70196	396900	0.5041	6.43950	0.26247	626.091	807.56
172	MMF	632	195	0.70	592	1	1	35.2	42.1	S	1	6.38351	399424	0.4900	6.47657	-0.09306	649.739	585.52
173	R36I	635	370	0.68	458	0	1	24.9	41.7	S	0	6.12687	403225	0.4624	5.85790	0.26897	349.988	452.14
174	R37I	640	341	0.76	454	0	1	25.6	44.6	S	0	6.11810	409600	0.5776	6.30436	-0.18626	546.950	447.70
175	R12	642	206	0.80	423	1	1	25.3	42.0	S	1	6.04737	412164	0.6400	6.04378	0.00359	421.484	416.96
176	R35I	643	400	0.64	279	0	1	25.2	38.7	S	0	5.63121	413449	0.4096	5.34294	0.28827	209.128	273.66
177	F7T6	644	194	1.06	171	1	1	24.8	40.0	S	1	5.14166	414736	1.1236	5.71256	-0.57090	302.646	165.29
178	R34I	644	350	0.73	191	0	1	25.0	39.0	S	0	5.25227	414736	0.5329	5.39728	-0.14501	220.806	185.60
179	R31I	645	313	0.83	693	0	1	30.4	46.1	S	0	6.54103	416025	0.6889	6.67816	-0.13713	794.856	686.32
180	F7T5	646	200	1.08	137	1	1	24.8	36.0	S	1	4.91998	417316	1.1664	5.08537	-0.16539	161.640	131.91
181	R33I	646	346	0.75	345	0	1	29.9	39.1	S	0	5.84354	417316	0.5625	5.57109	0.27246	262.720	339.43
182	F13	648	256	0.83	282	1	1	28.9	41.5	S	1	5.64191	419904	0.6889	6.02676	-0.38485	414.371	275.97
183	R10	651	208	0.80	606	1	1	30.4	43.0	S	1	6.40688	423801	0.6400	6.30666	0.10022	548.211	599.69
184	F12	652	220	0.94	495	1	1	30.7	42.0	S	1	6.20456	425104	0.8836	6.15135	0.05321	469.350	488.85
185	F7T1	652	223	1.14	213	1	1	29.4	41.3	S	1	5.36129	425104	1.2996	5.99780	-0.63650	402.541	207.00
186	R21	652	391	0.70	340	1	1	24.8	42.0	S	0	5.82895	425104	0.4900	5.86707	-0.03812	353.212	334.13
187	R22	652	407	0.70	269	1	1	24.8	38.7	S	0	5.59471	425104	0.4900	5.35668	0.23804	212.019	263.64
188	R23	652	393	0.67	472	1	1	34.9	42.0	S	0	6.15698	425104	0.4489	6.21940	-0.06242	502.400	465.78
189	AAHF	655	167	1.03	432	1	1	29.4	42.2	S	1	6.06843	429025	1.0609	6.13637	-0.06795	462.373	425.86
190	R18	655	382	0.80	549	1	1	29.6	43.5	S	0	6.30810	429025	0.6400	6.24357	0.06453	514.694	542.76
191	F7T2	659	211	1.02	261	1	1	29.3	41.7	S	1	5.56452	434281	1.0404	6.00318	-0.43866	404.713	255.00
192	F8	659	232	1.09	254	1	1	31.3	42.4	S	1	5.53733	434281	1.1881	6.17027	-0.63294	478.317	247.83
193	R5	659	247	0.90	494	1	1	30.4	42.0	S	1	6.20254	434281	0.8100	6.07098	0.13156	433.104	487.93
194	F10	663	295	0.82	483	1	1	30.4	42.0	S	1	6.18002	439569	0.6724	6.01431	0.16571	409.242	476.99
195	R13F	663	199	0.80	996	1	1	30.6	45.0	S	1	6.79794	439569	0.6400	6.52242	0.27552	680.220	889.48
196	GHF	665	195	0.91	778	1	1	30.2	44.9	S	1	6.65673	442225	0.8281	6.47709	0.17964	650.076	771.52
197	R36I	670	379	0.79	406	0	1	24.9	41.7	S	0	6.00635	448900	0.6241	5.57499	0.43136	263.747	400.43
198	EHF	674	202	0.87	608	1	1	30.7	42.8	S	1	6.41017	454276	0.7569	6.08634	0.32384	439.807	601.91
199	R37I	675	354	0.87	336	0	1	25.6	44.6	S	0	5.81711	455625	0.7569	6.00453	-0.18742	405.260	330.00
200	F7T6	678	201	1.22	135	1	1	24.8	40.0	S	1	4.90527	459684	1.4884	5.41360	-0.50832	224.438	129.59
201	R34I	678	364	0.85	137	0	1	25.0	39.0	S	0	4.91998	459684	0.7225	5.09513	-0.17515	163.225	131.90
202	R35I	678	418	0.73	145	0	1	25.2	38.7	S	0	4.97673	459684	0.5329	5.03178	-0.05504	153.205	139.97
203	F7T5	679	208	1.24	67	1	1	24.8	36.0	S	1	4.20469	461041	1.5376	4.79038	-0.58569	120.347	62.21
204	R31I	680	332	0.95	370	0	1	30.4	46.1	S	0	5.91350	462400	0.9025	6.36050	-0.44700	578.535	363.64
205	F13	681	268	0.95	195	1	1	28.9	41.5	S	1	5.27300	463761	0.9025	5.72425	-0.45125	306.204	189.28
206	R33I	682	359	0.86	239	0	1	29.9	39.1	S	0	5.47646	465124	0.7396	5.24267	0.23379	189.175	233.76
207	F7T5	683	214	1.39	67	1	1	24.8	36.0	S	1	4.20469	466489	1.9321	4.74595	-0.54125	115.117	62.25
208	R32I	683	345	0.90	359	0	1	30.1	42.0	S	0	5.88332	466489	0.8100	5.68761	0.19571	295.188	353.31
209	F12	685	232	1.08	258	1	1	30.7	42.0	S	1	5.55296	469225	1.1664	5.83745	-0.28449	342.904	252.16
210	R12	685	216	0.90	288	1	1	25.3	42.0	S	1	5.66296	469225	0.8100	5.65588	0.00708	285.969	282.34
211	R21	685	405	0.80	282	1	1	24.8	42.0	S	0	5.64191	469225	0.6400	5.55226	0.08965	257.820	276.45
212	R22	686	420	0.80	225	1	1	24.9	38.7	S	0	5.41610	470596	0.6400	5.03151	0.38459	153.164	219.97
213	R23	686	405	0.77	332	1	1	34.9	42.0	S	0	5.80513	470596	0.5929	5.89469	-0.08955	363.103	326.11
214	IMF	691	215	0.99	195	1	1	25.1	42.3	S	1	5.27300	477481	0.9801	5.62891	-0.35591	278.358	189.37
215	R5	692	256	1.10	318	1	1	30.4	42.0	S	1	5.76205	478864	1.2100	5.73852	0.02353	310.604	312.26
216	F8	693	245	1.23	188	1	1	31.3	42.4	S	1	5.23644	480249	1.5129	5.82457	-0.58813	338.517	182.18
217	F7T2	694	221	1.17	193	1	1	29.3	41.7	S	1	5.26269	481636	1.3689	5.64734	-0.38465	283.537	187.35
218	R11	696	218	0.90	412	1	1	35.5	43.0	S	1	6.02102	484416	0.8100	6.04047	-0.01945	420.092	405.96
219	R13F	696	210	1.00	474	1	1	30.6	45.0	S	1	6.16121	484416	1.0000	6.17766	-0.01645	481.862	467.82
220	AAHF	699	180	1.21	214	1	1	29.4	42.2	S	1	5.36598	488601	1.4641	5.68694	-0.32097	294.990	208.31

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	VISPI	RESID
221	GMF	705	204	1.06	606	1	1	30.2	44.9	S	1	6.40688	497025	1.1236	6.04219	0.36469	420.814	599.958
222	R36I	705	370	0.89	201	0	1	24.9	41.7	S	0	5.30330	497025	0.7921	5.19460	0.10871	180.296	195.805
223	MMF	707	218	1.01	256	1	1	35.2	42.1	S	1	5.54518	499849	1.0201	5.75864	-0.21347	316.919	250.241
224	R37I	710	374	0.98	174	0	1	25.6	44.6	S	0	5.15906	504100	0.9604	5.59582	-0.43676	269.298	168.404
225	R34E	713	378	0.95	102	0	1	25.0	39.0	S	0	4.62497	508369	0.9025	4.68010	-0.05512	107.780	97.320
226	R35I	713	440	0.83	100	0	1	25.2	38.7	S	0	4.60517	508369	0.6889	4.61310	-0.00793	100.796	95.387
227	F13	714	280	1.07	137	1	1	28.9	41.5	S	1	4.91998	509796	1.1449	5.32779	-0.40781	205.982	131.672
228	F7T6	714	210	1.37	99	1	1	24.8	40.0	S	1	4.59512	509796	1.8769	4.98762	-0.39250	146.586	94.012
229	R31E	715	354	1.07	244	0	1	30.4	46.1	S	0	5.49717	511225	1.1449	5.93578	-0.43861	378.335	238.064
230	EHF	716	215	1.02	378	1	1	30.7	42.8	S	1	5.93489	512656	1.0404	5.59184	0.34305	268.229	372.408
231	F7T5	717	223	1.53	33	1	1	24.8	36.0	S	1	3.49651	514089	2.3409	4.33167	-0.83516	76.071	28.668
232	R21	718	421	0.90	198	1	1	24.8	42.0	S	0	5.28827	515524	0.8100	5.14259	0.14568	171.157	192.857
233	R22	718	434	0.90	169	1	1	24.8	38.7	S	0	5.12990	515524	0.8100	4.63356	0.49634	102.879	164.366
234	R32I	718	368	1.01	152	0	1	30.1	42.0	S	0	5.02388	515524	1.0201	5.25338	-0.22950	191.211	146.747
235	R33I	718	378	0.97	118	0	1	29.9	39.1	S	0	4.77068	515524	0.9409	4.79971	-0.02902	121.475	113.200
236	R24	719	413	0.88	402	1	1	35.1	45.4	S	0	5.99645	516961	0.7744	6.01115	-0.01470	407.952	395.989
237	R23	720	425	0.86	235	1	1	34.9	42.0	S	0	5.45959	518400	0.7396	5.46659	-0.00701	236.653	229.533
238	R5	725	268	1.20	202	1	1	30.4	42.0	S	1	5.30827	525625	1.4400	5.31074	-0.00247	202.499	196.689
239	F8	726	254	1.35	155	1	1	31.3	42.4	S	1	5.04343	527076	1.8225	5.39531	-0.35189	220.371	149.605
240	R12	728	227	1.10	252	1	1	25.3	42.0	S	1	5.52943	529984	1.2100	5.10800	0.42143	165.340	246.892
241	R13F	729	225	1.10	343	1	1	30.6	45.0	S	1	5.83773	531441	1.2100	5.73712	0.10061	310.169	337.263
242	F7T2	730	232	1.31	127	1	1	29.3	41.7	S	1	4.84419	532900	1.7161	5.17075	-0.32656	176.047	121.829
243	R11	732	228	1.10	250	1	1	35.5	43.0	S	1	5.52146	535824	1.2100	5.55813	-0.03667	259.337	244.442
244	IMF	735	225	1.13	159	1	1	25.1	42.3	S	1	5.06890	540225	1.2769	5.04418	0.02472	155.118	153.956
245	R36I	739	421	0.99	122	0	1	24.9	41.7	S	0	4.80402	546121	0.9801	4.69664	0.10738	109.579	117.303
246	GMF	740	215	1.21	439	1	1	30.2	44.9	S	1	6.08450	547600	1.4641	5.54699	0.53750	256.466	433.453
247	AAHF	742	194	1.38	126	1	1	29.4	42.2	S	1	4.83628	550564	1.9044	5.08575	-0.24947	161.702	120.914
248	MMF	742	230	1.15	157	1	1	35.2	42.1	S	1	5.05625	550564	1.3225	5.25695	-0.20071	191.896	151.743
249	R34I	747	391	1.06	83	0	1	25.0	39.0	S	0	4.41884	558009	1.1236	4.17599	0.24285	65.104	78.824
250	F13	748	289	1.18	135	1	1	28.9	41.5	S	1	4.90527	559504	1.3924	4.82257	0.08270	124.285	130.177
251	R35I	748	454	0.92	99	0	1	25.2	38.7	S	0	4.59512	559504	0.8464	4.09238	0.50274	59.882	94.908
252	R31E	749	372	1.18	171	0	1	30.4	46.1	S	0	5.14166	561001	1.3924	5.42353	-0.28187	226.678	165.576
253	F7T6	750	221	1.52	65	1	1	24.8	40.0	S	1	4.17439	562500	2.3104	4.44891	-0.27452	85.533	60.551
254	R21	751	441	1.00	129	1	1	24.8	42.0	S	0	4.85981	564001	1.0000	4.63713	0.22268	103.248	124.363
255	R22	751	453	1.00	115	1	1	24.8	38.7	S	0	4.74493	564001	1.0000	4.12856	0.61637	62.088	110.871
256	R24	753	432	0.97	255	1	1	35.1	45.4	S	0	5.54126	567009	0.9409	5.48671	0.05455	241.462	249.513
257	R23	754	446	0.96	141	1	1	34.9	42.0	S	0	4.94876	568516	0.9216	4.93831	0.01045	139.534	136.062
258	R33I	754	398	1.07	83	0	1	29.9	39.1	S	0	4.41884	568516	1.1449	4.24447	0.17437	69.719	78.756
259	EHF	755	232	1.16	154	1	1	30.7	42.8	S	1	5.03695	570025	1.3456	4.99415	0.04281	147.547	149.006
260	F8	760	263	1.48	122	1	1	31.3	42.4	S	1	4.80402	577600	2.1904	4.85490	-0.05087	128.367	117.145
261	F3	762	213	1.84	81	1	1	31.2	42.6	S	1	4.39445	580644	3.3856	4.87002	-0.47557	130.324	76.130
262	F7T2	765	244	1.44	93	1	1	29.3	41.7	S	1	4.53260	585225	2.0736	4.59961	-0.06701	99.445	88.400
263	R13F	767	236	1.20	306	1	1	30.6	45.0	S	1	5.72359	588289	1.4400	5.11630	0.60728	166.718	300.884
264	R11	768	242	1.20	184	1	1	35.5	43.0	S	1	5.21494	589824	1.4400	4.96214	0.25279	142.900	179.038
265	R12	771	241	1.20	123	1	1	25.3	42.0	S	1	4.81218	594441	1.4400	4.39923	0.41296	81.388	118.601
266	GMF	773	229	1.35	247	1	1	30.2	44.9	S	1	5.50939	597529	1.8225	4.98164	0.52775	145.713	242.018
267	IMF	773	236	1.27	125	1	1	25.1	42.3	S	1	4.82831	597529	1.6129	4.40370	0.42462	81.753	120.596
268	R36I	773	443	1.08	60	0	1	24.9	41.7	S	0	4.09434	597529	1.1664	4.11217	-0.01782	61.079	55.888
269	MMF	774	244	1.28	93	1	1	35.2	42.1	S	1	4.53260	599076	1.6384	4.70439	-0.17179	110.431	88.296
270	F13	781	302	1.29	53	1	1	28.9	41.5	S	1	3.97029	609961	1.6641	4.23490	-0.26460	69.055	48.765
271	R34I	782	404	1.16	66	0	1	25.0	39.0	S	0	4.18965	611524	1.3456	3.55306	0.63660	34.920	62.447
272	R21	783	467	1.10	51	1	1	24.8	42.0	S	0	3.93183	613089	1.2100	4.05425	-0.12243	57.642	46.946
273	R31E	783	389	1.28	101	0	1	30.4	46.1	S	0	4.61512	613089	1.6384	4.81200	-0.19688	122.977	96.188
274	R35I	783	468	1.00	83	0	1	25.2	38.7	S	0	4.41884	613089	1.0000	3.46597	0.95288	32.007	79.534
275	R22	784	477	1.10	50	1	1	24.8	38.7	S	0	3.91202	614656	1.2100	3.52733	0.38470	34.033	46.473

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	VISPI	RESID
276	AAHF	785	206	1.53	83	1	1	29.4	42.2	S	1	4.41884	616225	2.3409	4.32595	0.09289	75.638	78.6740
277	R6	785	263	1.40	59	1	1	30.4	45.0	S	1	4.07754	616225	1.9600	4.76182	-0.68429	116.959	54.2382
278	F12	787	282	1.44	54	1	1	30.7	42.0	S	1	3.98898	619369	2.0736	4.26732	-0.27834	71.331	49.7327
279	R23	787	470	1.04	88	1	1	34.9	42.0	S	0	4.47734	619369	1.0816	4.32854	0.14880	75.833	83.6715
280	R24	787	496	1.06	83	1	1	35.1	45.4	S	0	4.41884	619369	1.1236	4.84203	-0.42319	126.726	78.1580
281	R331	789	415	1.17	49	0	1	29.9	39.1	S	0	3.89182	622521	1.3689	3.59858	0.29324	36.546	45.4014
282	EHF	790	252	1.29	91	1	1	30.7	42.8	S	1	4.51086	624100	1.6641	4.34386	0.16700	77.004	86.6561

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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PLOT OF RESIDUALS vs PREDL SYMBOL USED IS *

NOTE: 25 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

15:23 FRIDAY, DECEMBER 23, 1983 49

PLOT OF RESID1*TEMP SYMBOL USED IS *

NOTE: 20 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

15:23 FRIDAY, DECEMBER 23, 1983 50

PLOT OF RESIDUALS SYMBOL USED IS *

NOTE: 100 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

15:23 FRIDAY, DECEMBER 23, 1983 51

PLOT OF RESIDUALS SYMBOL USED IS *

NOTE: 108 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

15:23 FRIDAY, DECEMBER 23, 1983 52

PLOT OF RESID1*SRTH SYMBOL USED IS *

NOTE: 58 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

15:23 FRIDAY, DECEMBER 23, 1983 53

PLOT OF RESIDUALS vs SHEAR SYMBOL USED IS *

NOTE: 24 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

15:23 FRIDAY, DECEMBER 23, 1983 54

PLOT OF RESIDUALS SYMBOL USED IS *

NOTE: 231 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

15:23 FRIDAY, DECEMBER 23, 1983 55

PLOT OF RESIDUALS VS SIZE SYMBOL USED IS *

NOTE: 226 OBS HIDDEN

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APPENDIX E

SLURRY VISCOSITY DATA ANALYSIS
FINE CJAL

10:15 WEDNESDAY, JANUARY 11, 1984 28

DEP VARIABLE: LV

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	5	172.312	34.562434	418.449	0.0001
ERROR	210	22.906113	0.082993		
C TOTAL	211	195.218			
ROOT MSE		0.286065	R-SQUARE	0.8830	
DEP MEAN		5.656333	ADJ R-SQ	0.8808	
C.V.		5.093113			

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	PROB > T	TYPE I SS	TYPE II SS	STANDARDIZED ESTIMATE	TOLERANCE
INTERCEP	1	-14.335103	0.494196	-29.017	0.0001	9022.466	74.283569	0.000000	.
TEMP	1	0.348561	0.001278241	37.990	0.0001	7.103263	119.782	7.529031	0.010796
TEMP2	1	-0.000434124	0.0000111288	-39.009	0.0001	109.212	126.291	-7.726256	0.010809
CC	1	0.034763	0.006563134	5.296	0.0001	28.443125	2.329047	0.134554	0.657002
TS	1	0.154780	0.008519491	18.168	0.0001	27.034366	27.393254	0.437858	0.730039
CT	1	0.143321	0.040898	3.504	0.0005	1.019172	1.019172	0.077256	0.372482

Obs	ACTUAL	PREDICT VALUE	STD ERR PREDICT	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COMMENTS
1	4.304	4.206	0.062902	0.098146	0.281134	0.349	0.001
2	4.290	4.543	0.064732	-0.252499	0.280719	-0.899	0.007
3	4.710	4.675	0.061185	0.034601	0.291513	0.123	0.000
4	4.700	4.724	0.060603	-0.023610	0.281619	-0.094	0.000
5	4.700	4.446	0.057133	0.254615	0.282351	0.902	0.006
6	3.638	4.232	0.064391	-0.594264	0.290797	-2.116	0.039
7	4.997	4.388	0.056456	0.609495	0.282500	0.389	0.001
8	4.692	4.712	0.051290	-0.020094	0.283485	-0.106	0.000
9	5.198	5.065	0.053154	0.133242	0.283119	0.471	0.001
10	5.204	4.900	0.048904	0.403797	0.283904	1.422	0.010
11	4.025	4.127	0.064798	-0.101650	0.280703	-0.362	0.001
12	4.477	4.390	0.056617	0.086929	0.282467	0.308	0.001
13	5.394	5.231	0.049270	0.163114	0.281841	0.575	0.002
14	3.638	4.095	0.056510	-0.457193	0.282489	-1.619	0.017
15	3.392	4.089	0.056651	-0.696896	0.282460	-0.697	0.003
16	4.475	5.646	0.051356	-0.770863	0.283471	-2.719	0.040
17	4.205	4.946	0.043139	-0.641160	0.284837	-2.251	0.019
18	5.451	5.317	0.044358	-0.066266	0.284650	-0.233	0.000
19	3.638	3.961	0.054136	-0.323525	0.280855	-1.152	0.012
20	5.775	5.556	0.043593	0.218813	0.284767	0.768	0.002
21	5.283	5.289	0.040661	-5.4E-04	0.285201	-0.002	0.000
22	4.673	5.256	0.052757	-0.583652	0.281214	-2.061	0.025
23	5.371	5.341	0.037518	0.029483	0.285632	0.103	0.000
24	5.537	5.387	0.052257	0.148103	0.283306	0.523	0.002
25	5.784	5.579	0.041123	0.105268	0.285135	0.369	0.000
26	4.360	4.700	0.055860	-0.339860	0.282618	-0.566	0.002
27	4.927	4.043	0.046764	-0.015611	0.284265	-0.055	0.000

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

10:15 WEDNESDAY, JANUARY 11, 1984 29

QSS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COJK'S 0
28	5.635	5.362	0.034540	0.272388	0.286007	0.952	*	0.002
29	5.737	5.453	0.033353	0.273110	0.283102	0.982	*	0.006
30	4.043	4.626	0.047402	-0.593113	0.284159	-2.052	***	0.020
31	5.447	5.292	0.034547	0.154699	0.286007	0.541	*	0.001
32	5.943	5.925	0.052855	0.016379	0.283195	0.059		0.000
33	4.394	4.600	0.048078	-0.205848	0.284045	-0.725	*	0.003
34	5.974	6.005	0.037053	-0.031459	0.285693	-0.110		0.000
35	4.331	4.443	0.057790	-0.112438	0.282232	-0.398		0.001
36	5.347	5.736	0.047066	-0.388481	0.284215	-1.367	**	0.009
37	6.267	6.112	0.035761	0.154752	0.285857	0.541	*	0.001
38	4.078	4.972	0.044092	-0.894343	0.284691	-3.141	*****	0.039
39	5.945	5.344	0.029716	0.101452	0.286549	0.354		0.000
40	5.966	5.535	0.040198	0.430742	0.285267	1.510	**	0.008
41	6.749	6.189	0.034836	0.559578	0.285972	1.957	**	0.009
42	6.282	5.941	0.046887	0.341309	0.284244	1.201	**	0.007
43	5.561	5.160	0.050994	0.400344	0.283538	1.412	**	0.011
44	5.136	5.389	0.041122	-0.253164	0.285135	-0.888	*	0.003
45	6.223	5.764	0.028629	0.458875	0.286659	1.601	**	0.004
46	6.125	5.884	0.049461	0.240249	0.283808	0.847	*	0.004
47	6.257	5.737	0.029630	0.529702	0.286659	1.150	**	0.002
48	6.298	5.814	0.028795	0.473749	0.286643	1.653	**	0.005
49	5.889	5.682	0.029150	0.207039	0.286607	0.722	*	0.001
50	4.787	5.051	0.042263	-0.263493	0.284969	-0.925	*	0.003
51	4.710	5.012	0.043199	-0.301978	0.284828	-1.060	**	0.004
52	6.532	6.349	0.050016	0.184128	0.283710	0.649	*	0.002
53	5.908	5.874	0.027457	0.034068	0.286774	0.119		0.000
54	6.232	6.573	0.042043	-0.345311	0.284995	-1.212	**	0.005
55	6.420	6.393	0.034000	0.027132	0.286072	0.095		0.000
56	5.714	5.809	0.027695	-0.095141	0.286751	-0.332		0.000
57	5.412	4.815	0.054485	0.596577	0.282886	2.109	***	0.027
58	6.052	5.873	0.027221	0.178855	0.286797	0.624	*	0.001
59	6.091	6.114	0.044812	-0.023017	0.284579	-0.081		0.000
60	6.105	6.200	0.028490	-0.095432	0.286674	-0.333		0.000
61	5.081	5.318	0.041076	-0.236586	0.285142	-0.930	*	0.002
62	6.061	6.032	0.027266	0.029023	0.286792	0.101		0.000
63	5.325	5.720	0.038960	-0.195015	0.285439	-0.683	*	0.001
64	5.852	5.508	0.049146	0.343984	0.283863	1.212	**	0.007
65	6.337	6.125	0.027010	0.210989	0.286816	0.736	*	0.001
66	6.356	6.129	0.027176	0.226795	0.286801	0.791	*	0.001
67	6.183	5.949	0.037592	0.239706	0.235622	0.839	*	0.002
68	6.631	6.597	0.033503	0.033556	0.286131	0.117		0.000
69	6.109	6.213	0.048272	-0.108845	0.284012	-0.383		0.001
70	6.474	6.296	0.025830	0.177421	0.286833	0.619	*	0.001
71	6.373	6.489	0.044717	-0.115935	0.284594	-0.407		0.001
72	5.106	5.362	0.040245	-0.255886	0.285260	-0.897	*	0.003
73	5.147	5.322	0.041192	-0.174855	0.285125	-0.613	*	0.001
74	6.673	6.656	0.049677	0.017203	0.283770	0.061		0.000
75	7.288	6.636	0.033563	0.651892	0.286124	2.278	***	0.012
76	6.443	6.884	0.042196	-0.441528	0.284978	-1.549	***	0.009
77	6.599	6.687	0.033905	-0.084579	0.286081	-0.285		0.000
78	6.290	5.093	0.026671	0.196568	0.286848	0.685	*	0.001
79	6.423	6.193	0.025433	0.230062	0.286870	0.802	*	0.001
80	6.436	6.393	0.044702	0.043454	0.284596	0.153		0.000

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

10:15 WEDNESDAY, JANUARY 11, 1984 30

OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
81	6.116	6.239	0.026191	-0.123245	0.286892	-0.430		0.000
82	7.006	6.384	0.027123	0.620199	0.286806	2.162	***	0.007
83	5.513	5.563	0.040165	-0.049814	0.285272	0.175		0.000
84	6.447	6.479	0.028477	-0.032034	0.286675	-0.112		0.000
85	5.775	6.086	0.039910	-0.311916	0.285309	-1.093	**	0.004
86	6.547	6.287	0.027186	0.259599	0.286800	0.905	*	0.001
87	5.753	5.952	0.039756	-0.199032	0.285457	-0.697	*	0.001
88	5.940	5.744	0.048963	0.196598	0.283894	0.693	*	0.002
89	6.205	6.445	0.048536	-0.240833	0.283959	-0.849	*	0.004
90	6.545	6.362	0.027694	0.183907	0.286751	0.641	*	0.001
91	6.423	6.209	0.040442	0.214085	0.285233	0.751	*	0.002
92	6.492	6.499	0.028612	-0.006768	0.286661	-0.024		0.000
93	5.384	5.572	0.039899	-0.187809	0.285309	-0.658	*	0.001
94	5.509	5.531	0.040823	-0.023433	0.285178	-0.082		0.000
95	6.752	6.854	0.050428	-0.111345	0.283637	-0.393		0.001
96	6.692	7.080	0.143311	-0.387696	0.294811	-1.361	**	0.007
97	6.304	6.217	0.037791	0.087335	0.285596	0.306		0.000
98	5.894	5.894	0.037727	0.000000	0.285604	0.000		0.000
99	6.782	6.867	0.035016	-0.084752	0.285950	-0.296		0.000
100	6.522	6.277	0.027321	0.245042	0.286787	0.854	*	0.001
101	6.553	6.571	0.045405	-0.018188	0.294485	-0.064		0.000
102	5.635	5.723	0.049165	-0.088166	0.285272	-0.391		0.001
103	6.777	6.903	0.035112	-0.126768	0.285938	-0.443		0.000
104	6.332	6.237	0.040318	0.094176	0.285250	0.330		0.000
105	6.594	6.643	0.029590	-0.045214	0.285562	-0.158		0.000
106	6.492	6.442	0.028145	0.050671	0.286707	0.177		0.000
107	6.439	6.444	0.027343	-0.004370	0.286785	-0.015		0.000
108	7.380	6.900	0.035286	0.479329	0.285916	1.676	***	0.007
109	6.008	6.463	0.028355	-0.446693	0.286687	-0.505	*	0.000
110	5.885	6.082	0.039218	-0.196267	0.285404	-0.689	*	0.001
111	7.045	6.602	0.028674	0.442779	0.286655	1.545	***	0.004
112	6.227	6.564	0.049250	-0.337813	0.283844	-1.190	**	0.007
113	6.489	6.473	0.029640	0.016656	0.286653	0.041		0.000
114	6.707	6.556	0.047064	0.050461	0.284215	0.179		0.000
115	6.061	5.866	0.049240	0.195053	0.283846	0.687	*	0.002
116	5.613	5.543	0.040964	-0.029796	0.285158	-0.104		0.000
117	6.521	6.325	0.041112	0.194880	0.285137	0.683	*	0.002
118	5.525	5.684	0.040076	-0.158671	0.285284	-0.556	*	0.001
119	6.901	6.972	0.051315	-0.071667	0.283478	-0.253		0.000
120	5.878	5.993	0.037990	-0.104828	0.285570	-0.367		0.000
121	5.771	5.365	0.052631	0.406797	0.283237	1.436	**	0.012
122	6.964	6.953	0.036025	0.010706	0.285824	0.037		0.000
123	6.780	6.502	0.029243	0.277590	0.286597	0.969	*	0.002
124	6.571	6.643	0.045977	-0.022441	0.284393	-0.079		0.000
125	6.043	5.787	0.040241	0.254130	0.285261	0.891	*	0.003
126	6.463	6.410	0.027952	0.057931	0.286726	0.202		0.000
127	6.347	6.317	0.039364	0.031980	0.285520	0.112		0.000
128	6.538	6.700	0.030393	-0.161405	0.286478	-0.563	*	0.001
129	6.609	6.495	0.028763	0.113923	0.286646	0.397		0.000
130	6.631	6.495	0.028790	0.106535	0.286643	0.372		0.000
131	6.040	6.112	0.039504	-0.071983	0.285364	-0.252		0.000
132	6.245	5.563	0.049635	-0.315332	0.283777	-1.187	**	0.007
133	6.592	6.320	0.046482	-0.227888	0.284311	-0.802	*	0.003

SLURRY VISCOSITY DATA ANALYSIS
FINE CUAL

10:15 WEDNESDAY, JANUARY 11, 1984 31

Obs	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-J 1 2	COOK'S D
134	6.089	5.877	0.049255	0.212335	0.283844	0.748	*	0.003
135	5.802	5.651	0.040908	0.150695	0.285166	0.528	*	0.001
136	6.994	6.976	0.051734	0.017706	0.283402	0.062		0.000
137	5.649	5.693	0.040029	-0.040611	0.285291	-0.142		0.000
138	6.899	6.955	0.036127	-0.056120	0.285811	-0.196		0.000
139	6.535	6.330	0.041334	0.205446	0.285105	0.721	*	0.002
140	5.352	5.355	0.052322	-0.003609	0.283294	-0.013		0.000
141	7.173	6.919	0.035978	0.254235	0.285830	0.869	*	0.002
142	6.540	6.346	0.027983	0.193409	0.286723	0.676	*	0.001
143	6.902	6.606	0.029042	0.296220	0.286618	1.034	**	0.002
144	6.535	6.450	0.027981	0.085646	0.286723	0.299		0.000
145	6.194	6.273	0.040595	-0.075636	0.285211	-0.265		0.000
146	5.885	5.759	0.039931	0.126835	0.285305	0.445		0.001
147	6.148	6.373	0.027716	-0.224216	0.286749	-0.782	*	0.001
148	6.526	6.662	0.030313	-0.135220	0.286486	-0.472		0.000
149	6.474	6.452	0.028491	0.021868	0.286673	0.076		0.000
150	6.412	6.434	0.028341	-0.022126	0.286688	-0.077		0.000
151	6.138	6.253	0.038091	-0.115622	0.285553	-0.405		0.000
152	6.133	6.037	0.039271	0.098509	0.285396	0.345		0.000
153	6.265	6.477	0.049522	-0.211932	0.283797	-0.817	*	0.003
154	5.572	5.591	0.039559	-0.020890	0.285357	-0.073		0.000
155	5.878	5.554	0.040422	0.324173	0.285235	1.137	**	0.004
156	6.454	6.232	0.027577	0.171296	0.286762	0.597	*	0.001
157	6.914	6.875	0.051561	0.038410	0.283434	0.136		0.000
158	5.951	5.774	0.048792	0.176153	0.283923	0.620	*	0.002
159	4.934	5.252	0.031731	-0.317263	0.283403	-1.119	**	0.007
160	5.989	6.236	0.027070	-0.247256	0.286811	-0.962	*	0.001
161	6.415	6.325	0.027063	0.090477	0.286811	0.315		0.000
162	6.321	6.356	0.028182	0.164138	0.286704	0.573	*	0.001
163	6.059	5.146	0.040005	0.913132	0.285294	-0.305		0.000
164	5.749	5.635	0.039206	0.113910	0.285405	0.399		0.001
165	5.911	6.187	0.027199	-0.276470	0.286799	-0.964	*	0.001
166	6.346	6.529	0.029399	-0.183697	0.286581	-0.641	*	0.001
167	6.825	6.756	0.035114	0.069541	0.285937	0.244		0.000
168	6.345	6.785	0.035247	0.159850	0.285921	0.559	*	0.001
169	6.137	6.401	0.028914	-0.294423	0.286631	-1.027	**	0.002
170	6.319	6.303	0.027335	0.010719	0.286786	0.037		0.000
171	6.702	6.413	0.027583	0.289068	0.286762	1.008	**	0.002
172	6.384	6.449	0.046106	-0.065011	0.284372	-0.229		0.000
173	6.127	5.865	0.038719	0.260945	0.285472	0.914	*	0.003
174	6.115	6.305	0.049105	-0.187070	0.283870	-0.659	*	0.002
175	6.047	6.021	0.037069	0.025927	0.285691	0.091		0.000
176	5.031	5.357	0.039829	0.274559	0.285319	0.962	*	0.003
177	5.142	5.680	0.036445	-0.538308	0.285771	-1.884	***	0.010
178	5.252	5.139	0.038953	-0.136550	0.285440	-0.478		0.001
179	6.541	6.659	0.051037	-0.127037	0.283529	-0.443		0.001
180	4.920	5.046	0.051098	-0.125990	0.283519	-0.444		0.001
181	5.844	5.560	0.048140	0.283799	0.284035	0.999	*	0.005
182	5.642	6.025	0.025715	-0.382639	0.286935	-1.334	**	0.002
183	6.407	6.285	0.026722	0.121519	0.286843	0.424		0.000
184	6.205	6.133	0.026305	0.071554	0.286836	0.249		0.000
185	5.361	5.379	0.025969	-0.018179	0.286913	-0.155	***	0.006
186	5.829	5.729	0.039322	-0.098972	0.285389	-0.347		0.000

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

10:15 WEDNESDAY, JANUARY 11, 1984 32

QSS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
187	5.595	5.417	0.038477	0.177567	0.285504	0.622	*	0.001
188	6.157	6.279	0.044233	-0.122019	0.284669	-0.429		0.001
189	6.068	6.094	0.025349	-0.025808	0.286968	-0.090		0.000
190	6.303	6.302	0.028227	0.005699	0.286699	0.020		0.000
191	5.565	5.779	0.025219	-0.414915	0.286979	-1.446		0.003
192	5.537	6.157	0.027610	-0.619968	0.286759	-2.162	***	0.007
193	6.203	6.064	0.026013	0.138429	0.286909	0.482		0.000
194	6.180	6.029	0.025912	0.151232	0.286918	0.527	+	0.000
195	6.798	6.500	0.034119	0.297865	0.286058	1.041	**	0.003
196	6.657	6.453	0.033972	0.204215	0.286075	0.714	+	0.001
197	6.000	5.583	0.038561	0.423601	0.285493	1.484	**	0.007
198	6.410	6.059	0.026207	0.351435	0.286391	1.225	**	0.002
199	5.817	6.007	0.049046	-0.189530	0.283880	-0.668	+	0.002
200	4.900	5.380	0.036277	-0.474464	0.285792	-1.660	***	0.007
201	4.920	5.089	0.039099	-0.168610	0.285420	-0.591	+	0.001
202	4.977	5.749	0.039952	-0.772376	0.285302	-0.254		0.000
203	4.200	4.750	0.051054	-0.549579	0.283526	-1.924	***	0.020
204	5.914	6.354	0.050861	-0.440943	0.283560	-1.555	***	0.013
205	5.273	5.723	0.025262	-0.450117	0.286976	-1.564	***	0.003
206	5.476	5.232	0.048116	0.243988	0.284039	0.859	+	0.004
207	4.200	4.708	0.051133	-0.503311	0.283511	-1.775	***	0.017
208	5.893	5.673	0.040122	0.205731	0.285278	0.721	+	0.002
209	5.553	5.820	0.025412	-0.267154	0.286872	-0.931	+	0.001
210	5.663	5.612	0.036948	0.030554	0.285706	0.107		0.000
211	5.642	5.615	0.039422	0.026881	0.285375	0.094		0.000
212	5.416	5.091	0.038676	0.322404	0.285478	1.131	**	0.004
213	5.805	5.955	0.043768	-0.150015	0.284741	-0.527	+	0.001
214	5.273	5.605	0.039144	-0.331841	0.285414	-1.163	***	0.004
215	5.762	5.731	0.026090	0.030892	0.286902	0.108		0.000
216	5.236	5.813	0.027621	-0.576348	0.286753	-2.010	***	0.006
217	5.253	5.623	0.025527	-0.369581	0.286952	-1.257	***	0.002
218	6.021	6.010	0.044341	0.004539	0.284653	0.016		0.000
219	6.151	6.156	0.034289	0.005540	0.286038	0.019		0.000
220	5.366	5.545	0.025923	-0.178598	0.286926	-0.971	+	0.001
221	6.407	6.016	0.034672	0.390934	0.285991	1.367	**	0.005
222	5.303	5.193	0.040130	0.110205	0.285277	0.386		0.000
223	5.545	5.731	0.045562	-0.185713	0.284460	-0.653	+	0.002
224	5.159	5.632	0.050449	-0.442900	0.283634	-1.562	***	0.013
225	4.625	4.675	0.041370	-0.049715	0.285100	-0.174		0.000
226	4.605	4.635	0.042174	-0.030036	0.284982	-0.105		0.000
227	4.920	5.327	0.027590	-0.407154	0.286761	-1.420	***	0.003
228	4.095	4.952	0.038401	-0.857327	0.285515	-1.252	***	0.005
229	5.497	5.734	0.052165	-0.237297	0.283323	-1.543	***	0.013
230	5.935	5.564	0.029434	0.371015	0.286679	1.294	**	0.003
231	3.497	4.293	0.052974	-0.796135	0.283173	-2.811	****	0.046
232	5.286	5.708	0.041568	0.080683	0.285071	0.283		0.000
233	5.130	4.697	0.040934	0.433088	0.285155	1.519	***	0.008
234	5.024	5.248	0.042218	-0.224613	0.284975	-0.788	+	0.002
235	4.771	4.793	0.050625	-0.021996	0.283709	-0.078		0.000
236	5.995	6.073	0.043602	-0.091592	0.284767	-0.287		0.000
237	5.460	5.531	0.045142	-0.071347	0.284527	-0.251		0.000
238	5.303	5.304	0.027466	0.004609	0.286575	0.015		0.000
239	5.043	5.302	0.030826	-0.259700	0.286431	-1.184	***	0.003

SLURRY VISCOSITY DATA ANALYSIS
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QUS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
240	5.529	5.093	0.340500	0.446600	0.285224	1.566	***	0.009
241	5.838	5.717	0.037146	0.121023	0.285681	0.424		0.001
242	4.844	5.146	0.029956	-0.301781	0.286524	-1.053	**	0.002
243	5.521	5.533	0.346642	-0.011419	0.284285	-0.040		0.000
244	5.069	5.018	0.043409	0.051254	0.284796	0.180		0.000
245	4.804	4.713	0.044728	0.091227	0.284592	0.321		0.000
246	6.084	5.520	0.318922	0.564506	0.285444	1.978	***	0.012
247	4.836	5.043	0.032520	-0.206445	0.286244	-0.721	*	0.001
249	5.056	5.229	0.048832	-0.172614	0.283917	-0.568	*	0.002
247	4.419	4.171	0.346946	0.248076	0.284235	0.873	*	0.003
250	4.905	4.820	0.334403	0.085015	0.286024	0.297		0.000
251	4.595	4.115	0.047878	0.480177	0.284079	1.690	***	0.014
252	5.142	5.425	0.356125	-0.282975	0.282565	-1.001	**	0.007
253	4.174	4.413	0.344499	-0.238243	0.284628	-0.837	*	0.003
254	4.860	4.706	0.046979	0.154224	0.284229	0.543	*	0.001
255	4.745	4.195	0.046678	0.550116	0.284279	1.935	***	0.017
256	5.541	5.556	0.343014	-0.015145	0.284056	-0.053		0.000
257	4.949	5.006	0.349772	-0.057585	0.283753	-0.203		0.000
253	4.419	4.240	0.355301	0.178490	0.282728	0.531	*	0.003
259	5.037	4.967	0.36463	0.069727	0.285769	0.244		0.000
260	4.804	4.940	0.318644	-0.136105	0.285482	-0.125		0.000
261	4.394	4.333	0.319012	-0.038131	0.285432	-1.535	***	0.007
262	4.533	4.574	0.319297	-0.041444	0.285394	-0.145		0.000
263	5.724	5.094	0.345291	0.629474	0.284503	2.213	***	0.021
264	5.215	4.937	0.352997	0.278135	0.283169	0.982	*	0.006
265	4.812	4.373	0.350192	0.439472	0.283679	1.540	***	0.013
266	5.509	4.955	0.347126	0.554425	0.284205	1.951	***	0.017
267	4.823	4.375	0.352277	0.453056	0.283303	1.599	***	0.015
269	4.094	4.132	0.353241	-0.037773	0.283123	-0.133		0.000
269	4.533	4.677	0.355379	-0.144185	0.282713	-0.510	*	0.002
270	3.970	4.232	0.345339	-0.262016	0.284495	-0.921	*	0.004
271	4.190	3.547	0.356457	0.642475	0.282417	2.275	***	0.035
272	3.732	4.129	0.355926	-0.396682	0.282605	-0.696	*	0.003
273	4.615	4.914	0.363735	-0.299321	0.280947	-0.709	*	0.004
274	4.419	3.439	0.357794	0.980522	0.282229	3.297	*****	0.076
275	3.712	3.593	0.356260	0.113755	0.282539	1.110	**	0.008
276	4.419	4.280	0.346544	0.138499	0.284331	0.487		0.001
277	4.078	4.743	0.351273	-0.670948	0.281486	-2.367	***	0.031
279	3.989	4.255	0.347734	-0.266223	0.294103	-0.937	*	0.004
279	4.477	4.401	0.358226	0.076135	0.282140	0.270		0.001
280	4.419	4.934	0.356619	-0.515564	0.282467	-1.825	***	0.022
291	3.892	3.596	0.364563	0.296317	0.280758	1.055	**	0.010
282	4.511	4.319	0.346721	0.191530	0.283936	0.675	*	0.002

SUM OF RESIDUALS -2.43650E-12
SUM OF SQUARED RESIDUALS 22.90613

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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PLOT OF LV*TEMP
PLOT OF PREDI*TEMP

LEGEND: A = 1 OBS, B = 2 OBS, ETC.
SYMBOL USED IS *

NOTE: 20 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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PLOT OF LV*SRTH.
PLOT OF PREDI*SRTH

LEGEND: A = 1 OBS, O = 2 OBS, ETC.
SYMBOL USED IS *

NOTE: 50 OBS. MINIMUM

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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PLOT OF LY*CC
PLOT OF PREDI*CC

LEGEND: A = 1 OBS, B = 2 OBS, ETC.
SYMBOL USED IS *

NOTE: 56 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE CUAL

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PLOT OF LV*TS
PLOT OF PREDI*TS

LEGEND: A = 1 OBS. B = 2 OBS, ETC.
SYMBOL USED IS *

NOTE: 74 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

10:15 WEDNESDAY, JANUARY 11, 1984 39

PLOT OF LV* γ *SHEAR
PLOT OF PREDI* γ *SHEAR

LEGEND: A = 1 OBS, B = 2 OBS, ETC.
SYMBOL USED IS *

NOTE: 17 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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QBS	RUID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	VISPI	RESID
1	EHF	323	196	J	74	1	1	30.7	42.8	S	1	4.30407	104329	0	4.20592	0.09815	67.082	69.794
2	R13F	323	200	J	73	1	1	30.6	45.0	S	1	4.29046	104329	0	4.54296	-0.25250	93.968	68.457
3	GHF	331	191	J	111	1	1	30.2	44.9	S	1	4.70953	109561	0	4.67493	0.03460	107.225	106.325
4	R13F	332	194	J	110	1	1	30.6	45.0	S	1	4.70049	110224	0	4.72409	-0.02361	112.628	105.276
5	EHF	335	191	J	113	1	1	30.7	42.8	S	1	4.70048	112225	0	4.44587	0.25461	85.274	105.554
6	IMF	338	193	J	33	1	1	25.1	42.3	S	1	3.63759	114244	0	4.23185	-0.59426	68.844	33.768
7	GHF	342	185	0	148	1	1	30.2	44.9	S	1	4.99721	116964	0	4.88772	0.10950	132.650	143.112
8	Q10	348	199	J	108	1	1	30.4	43.0	S	1	4.68213	121104	0	4.71223	-0.03009	111.300	103.298
9	R13F	350	191	0	181	1	1	30.6	45.0	S	1	5.19850	122500	0	5.06525	0.13324	158.421	175.935
10	EHF	354	187	J	182	1	1	30.7	42.8	S	1	5.20401	125316	0	4.80021	0.40380	121.536	177.200
11	R33I	358	323	0	56	0	1	29.9	39.1	S	0	4.02535	128164	0	4.12700	-0.10165	61.992	51.873
12	R36I	360	353	0	80	0	1	24.9	41.7	S	0	4.47734	129600	0	4.39041	0.08693	80.673	83.610
13	GHF	361	183	0	220	1	1	30.2	44.9	S	1	5.39363	130321	0	5.23051	0.16311	196.899	214.769
14	Q34I	367	327	0	38	0	1	25.0	39.0	S	0	3.63759	134689	0	4.09498	-0.45739	50.038	33.705
15	R35I	369	376	0	49	0	1	25.2	38.7	S	0	3.89182	136161	0	4.08872	-0.17690	59.663	44.911
16	Q24	371	368	0	131	1	1	35.1	45.4	S	0	4.87520	137641	0	5.64606	-0.77086	283.174	125.354
17	F77I	373	213	0	67	1	1	29.4	41.3	S	1	4.20460	139129	0	4.84585	-0.64116	127.212	62.154
18	Q6	377	205	0	233	1	1	30.4	45.0	S	1	5.45104	142129	0	5.51730	-0.06627	248.963	227.483
19	F77S	379	184	0	33	1	1	24.8	36.0	S	1	3.63759	143641	0	3.96111	-0.32353	52.516	34.039
20	R13F	379	187	0	322	1	1	30.6	45.0	S	1	5.77455	143641	0	5.55574	0.21881	258.718	316.444
21	R14	379	357	0	193	1	1	29.0	43.5	S	0	5.28827	143641	0	5.29881	-0.00054	198.107	192.711
22	R23	380	370	0	107	1	1	34.9	42.0	S	0	4.67283	144400	0	5.25648	-0.58365	191.805	101.744
23	EHF	387	187	0	215	1	1	30.7	42.8	S	1	5.37064	149769	0	5.34116	0.02948	208.754	209.659
24	MMF	387	188	0	254	1	1	35.2	42.1	S	1	5.53733	149769	0	5.38923	0.14810	219.035	248.611
25	GHF	399	181	0	325	1	1	30.2	44.9	S	1	5.78383	151321	0	5.67856	0.10527	292.527	319.321
26	R33I	394	316	0	129	0	1	29.9	39.1	S	0	4.85981	155236	0	4.69993	0.15983	109.940	124.300
27	R36I	395	349	0	133	0	1	24.9	41.7	S	0	4.72725	156025	0	4.94287	-0.01561	140.171	133.057
28	AAHF	398	152	0	230	1	1	29.4	42.2	S	1	5.63479	158404	0	5.36240	0.27239	213.237	274.638
29	Q37I	399	297	0	313	0	1	25.6	44.6	S	0	5.73657	158404	0	5.45846	0.27811	234.736	304.542
30	R34I	402	329	0	57	0	1	25.0	39.0	S	0	4.04305	161604	0	4.62616	-0.58311	192.122	52.374
31	F77I	403	203	0	232	1	1	29.4	41.3	S	1	5.44674	162409	0	5.29204	0.15470	198.748	226.708
32	Q31I	403	282	0	381	0	1	30.4	46.1	S	0	5.94780	162409	0	5.92642	0.01539	374.810	375.074
33	R35I	403	377	0	81	0	1	25.2	38.7	S	0	4.39445	162409	0	4.60030	-0.20585	99.514	76.400
34	Q6	411	196	0	393	1	1	30.4	45.0	S	1	5.97381	168921	0	6.00527	-0.03146	405.560	386.995
35	F77S	413	183	0	76	1	1	24.8	36.0	S	1	4.33073	170569	0	4.44317	-0.11244	95.044	71.557
36	R23	414	363	0	210	1	1	34.9	42.0	S	0	5.34711	171396	0	5.73559	-0.38849	309.695	204.264
37	R13F	419	194	0	527	1	1	30.6	45.0	S	1	6.26720	175561	0	6.11245	0.15475	451.443	520.988
38	R22	422	393	0	59	1	1	24.8	38.7	S	0	4.07754	178084	0	4.97188	-0.99434	144.298	54.028
39	R10	423	193	0	382	1	1	30.4	43.0	S	1	5.74542	178929	0	5.84397	0.10145	345.146	376.156
40	R12	425	182	0	390	1	1	25.3	42.0	S	1	5.96615	180625	0	5.53540	0.43074	253.510	384.465
41	GHF	428	174	0	353	1	1	30.2	44.9	S	1	6.74276	193134	0	6.18918	0.55958	487.447	846.811
42	MMF	429	179	0	535	1	1	35.2	42.1	S	1	6.29227	184041	0	5.94096	0.34131	380.299	529.059
43	Q33I	430	314	0	260	0	1	29.9	39.1	S	0	5.56068	184900	0	5.15034	0.40034	174.223	254.840
44	R36I	430	352	0	170	0	1	24.9	41.7	S	0	5.13580	184900	0	5.38896	-0.25316	218.976	164.611
45	F4	431	194	0	504	1	1	29.9	42.0	S	1	6.22259	195761	0	5.76370	0.45887	318.525	498.236
46	Q37I	432	302	0	457	0	1	25.6	44.6	S	0	6.12469	196624	0	5.88443	0.24025	359.399	451.116
47	EHF	433	184	0	527	1	1	30.7	42.8	S	1	6.26720	187489	0	5.93744	0.32976	378.963	521.063
48	F10	434	267	0	538	1	1	30.4	42.0	S	1	6.29786	188356	0	5.81411	0.47375	334.993	532.186
49	F77I	435	197	0	361	1	1	29.4	41.3	S	1	5.88889	192225	0	5.68184	0.20704	293.489	355.318
50	Q34I	437	330	0	120	0	1	25.0	39.0	S	0	4.78749	190969	0	5.25099	-0.26350	156.177	114.949
51	Q35I	437	378	0	111	0	1	25.2	38.7	S	0	4.70953	190969	0	5.01151	-0.30198	150.131	105.988
52	Q31I	438	282	0	697	0	1	30.4	46.1	S	0	6.53231	191844	0	5.34821	0.18413	571.467	680.652
53	AAHF	440	154	0	368	1	1	29.4	42.2	S	1	5.70309	193600	0	5.97402	0.03407	355.674	362.126
54	Q24	441	353	0	209	1	1	35.1	45.4	S	0	6.23245	194481	0	6.57775	-0.34531	718.927	502.422
55	Q6	445	193	0	614	1	1	30.4	45.0	S	1	6.41099	199025	0	6.39286	0.02713	597.555	607.607

SLURRY VISCOSITY DATA ANALYSIS
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OBS	RUNIC	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PREO1	RESID1	VISPI	RESID
56	F13	446	236	0.30	303	1	1	28.9	41.5	S	1	5.71373	198916	0.0000	5.80887	-0.09514	333.24	297.19
57	F7T5	446	176	0.00	224	1	1	24.9	36.0	S	1	5.41165	193916	0.0000	4.81507	0.59658	123.36	219.18
58	F7T2	448	186	0.00	425	1	1	29.3	41.7	S	1	6.05209	200704	0.0000	5.87323	0.17385	355.40	419.13
59	R23	448	354	0.00	442	1	1	34.9	42.0	S	0	6.09131	200704	0.0000	6.11433	-0.02302	452.29	435.89
60	R18	452	352	0.10	449	1	1	29.5	43.5	S	0	6.10479	204304	0.0100	6.20022	-0.09543	492.86	441.86
61	R22	455	391	0.10	161	1	1	24.3	38.7	S	0	5.08140	207025	0.0100	5.31799	-0.23659	203.97	155.68
62	R5	456	230	0.10	429	1	1	30.4	42.0	S	1	6.06146	207916	0.0100	6.03243	0.02902	416.73	422.97
63	R36I	454	353	0.12	251	0	1	24.7	41.7	S	0	5.52545	215296	0.0144	5.72047	-0.19502	305.05	245.28
64	R33I	406	315	0.13	348	0	1	29.9	39.1	S	0	5.85220	217156	0.0169	5.50822	0.34398	246.71	342.49
65	F10	467	265	0.12	565	1	1	30.4	42.0	S	1	6.33683	219099	0.0144	6.12584	0.21099	457.53	558.87
66	F9	467	241	0.13	576	1	1	30.5	42.0	S	1	6.35611	213089	0.0169	6.12931	0.22679	459.12	569.87
67	R12	467	195	0.10	487	1	1	25.3	42.0	S	1	6.18826	218089	0.0100	5.94956	0.23971	383.20	481.05
68	R13F	467	183	0.10	758	1	1	30.5	45.0	S	1	6.63068	219089	0.0100	6.59713	0.03356	732.99	751.40
69	R37I	467	308	0.13	450	0	1	25.5	46.6	S	0	6.10925	219089	0.0169	6.21809	-0.10885	501.75	443.78
70	R10	459	191	0.10	648	1	1	30.4	43.0	S	1	6.47389	219961	0.0100	6.29647	0.17742	542.65	641.70
71	R11	471	195	0.10	586	1	1	35.5	43.0	S	1	6.37332	221841	0.0100	5.48925	-0.11594	658.03	579.51
72	R34I	471	327	0.12	165	0	1	25.0	39.0	S	0	5.10595	221841	0.0144	5.36183	-0.25589	213.11	159.64
73	R35I	471	379	0.11	172	0	1	25.2	38.7	S	0	5.14749	221841	0.0121	5.32235	-0.17485	204.86	166.68
74	R31I	472	285	0.14	791	0	1	30.4	46.1	S	0	6.67330	222784	0.0196	6.65610	0.01720	777.51	784.34
75	GMF	476	169	0.10	1463	1	1	30.2	44.9	S	1	7.29824	226576	0.0361	6.63635	0.65189	762.31	1456.36
76	R24	476	347	0.12	628	1	1	35.1	45.4	S	0	6.44254	226576	0.0144	6.88407	-0.44153	976.59	621.12
77	R6	479	192	0.10	734	1	1	30.4	45.0	S	1	6.59851	229441	0.0100	6.68009	-0.08153	796.39	727.32
78	F13	480	227	0.14	539	1	1	28.9	41.5	S	1	6.28972	230400	0.0196	6.09315	0.19657	442.81	532.91
79	F11	481	197	0.17	616	1	1	29.4	41.7	S	1	6.42325	231361	0.0289	6.19319	0.23006	489.40	609.81
80	R23	482	350	0.12	624	1	1	34.9	42.0	S	0	6.43515	232324	0.0144	6.39270	0.04345	597.47	617.61
81	AAHF	433	155	0.21	453	1	1	29.4	42.2	S	1	6.11599	233239	0.0441	6.23914	-0.12325	512.42	446.76
82	EMF	434	177	0.18	1101	1	1	30.7	42.9	S	1	7.00397	234256	0.0324	6.38377	0.62020	592.16	1094.62
83	R22	487	374	0.20	274	1	1	24.8	38.7	S	0	5.51313	237169	0.0400	5.56331	0.04981	260.69	268.44
84	R18	488	345	0.20	631	1	1	29.6	43.5	S	0	6.44731	238144	0.0400	6.47934	-0.03203	651.54	624.52
85	R21	489	365	0.20	322	1	1	24.8	42.0	S	0	5.77455	239121	0.0400	6.08647	-0.31192	439.86	315.91
86	R5	490	224	0.20	697	1	1	30.4	42.0	S	1	6.54679	240100	0.0400	6.28719	0.25960	537.64	690.71
87	R36I	499	353	0.23	315	0	1	24.7	41.7	S	0	5.75257	248004	0.0529	5.75160	-0.19903	384.37	309.05
88	R33I	502	317	0.26	380	0	1	29.9	39.1	S	0	5.94017	252004	0.0676	5.74357	-0.19660	312.18	374.26
89	R37I	502	314	0.26	495	0	1	25.6	46.6	S	0	6.20456	252004	0.0676	6.44539	-0.24083	629.79	489.55
90	F9	503	239	0.27	696	1	1	30.5	42.0	S	1	6.54535	253009	0.0729	6.36154	0.18381	579.14	639.64
91	R32I	504	305	0.27	616	0	1	30.1	42.0	S	0	6.42325	254016	0.0729	6.20916	0.21408	497.28	609.79
92	F3	505	166	0.38	653	1	1	31.2	42.6	S	1	6.48158	255025	0.1444	6.48834	-0.00677	657.43	646.51
93	R34I	505	326	0.25	219	0	1	25.0	39.0	S	0	5.38450	255025	0.0625	5.57230	-0.19781	263.04	212.43
94	R35I	505	178	0.22	247	0	1	25.2	39.7	S	0	5.50939	255025	0.0484	5.53282	-0.02343	252.86	241.47
95	R31I	506	298	0.29	856	0	1	30.4	46.1	S	0	6.75227	255036	0.0841	6.86362	-0.11134	956.92	849.14
96	R24	510	350	0.23	806	1	1	35.1	45.4	S	0	6.69208	260100	0.0529	7.07978	-0.38770	1187.71	798.92
97	R12	511	188	0.30	547	1	1	25.3	42.0	S	1	6.30445	261121	0.0900	6.21711	0.08734	501.25	540.78
98	F7T6	512	177	0.35	363	1	1	24.8	40.0	S	1	5.89440	262144	0.1225	5.89432	0.00009	362.97	357.11
99	R6	513	193	0.30	982	1	1	30.4	45.0	S	1	6.79219	263169	0.0900	6.86694	-0.08475	960.01	875.13
100	F13	514	225	0.29	680	1	1	28.9	41.5	S	1	6.52209	264196	0.0841	6.27705	0.24504	532.22	673.72
101	R23	516	352	0.23	701	1	1	34.9	42.0	S	0	6.55251	266256	0.0529	6.57070	-0.01819	713.87	694.43
102	R22	520	374	0.30	342	1	1	24.8	38.7	S	0	5.83481	270400	0.0900	5.72318	0.11163	305.88	336.28
103	R13F	521	185	0.30	977	1	1	30.6	45.0	S	1	6.77651	271441	0.0900	6.90329	-0.12677	995.53	870.10
104	R21	521	357	0.30	562	1	1	24.3	42.0	S	0	6.33150	271441	0.0900	6.23733	0.09418	511.49	555.76
105	R18	522	346	0.30	731	1	1	29.6	43.5	S	0	6.59441	272484	0.0900	6.63963	-0.04521	764.81	724.36
106	R5	524	224	0.40	650	1	1	30.4	42.0	S	1	6.49224	274576	0.1600	5.44157	0.35067	627.39	653.56
107	AAHF	526	155	0.42	626	1	1	29.4	42.2	S	1	5.43935	276676	0.1764	6.44372	-0.00437	628.74	619.56
108	GMF	530	170	0.38	1503	1	1	30.2	44.9	S	1	7.37963	280900	0.1444	6.90030	0.47933	992.58	1596.10
109	F10	532	257	0.37	741	1	1	30.4	42.0	S	1	6.60800	281024	0.1369	6.46331	0.14469	641.18	734.54
110	R36I	532	356	0.35	360	0	1	24.9	41.7	S	0	5.68610	281024	0.1225	6.08237	-0.19627	438.07	353.92

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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DBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	VISP1	RESID
111	EHF	534	177	0.36	1147	1	1	30.7	42.8	S	1	7.04471	285156	0.1296	6.60213	0.44278	736.66	1140.40
112	R37I	536	319	0.39	506	0	1	25.6	44.6	S	0	6.22654	287296	0.1521	6.56435	-0.33781	709.35	499.44
113	F9	537	242	0.40	658	1	1	30.5	42.0	S	1	6.48920	288369	0.1600	6.47755	0.01166	650.37	651.52
114	MMF	537	180	0.36	818	1	1	35.2	42.1	S	1	6.70636	288369	0.1296	6.55640	0.05046	777.75	811.34
115	R33I	539	322	0.39	429	0	1	29.9	39.1	S	0	6.06146	289444	0.1444	5.86640	0.19505	352.98	423.13
116	R35I	539	381	0.32	274	0	1	25.2	39.7	S	0	5.61313	290521	0.1024	5.64292	-0.02980	282.29	268.36
117	R32I	540	309	0.40	679	0	1	30.1	42.0	S	0	6.52062	291600	0.1500	6.32574	0.19488	558.77	672.67
118	R34I	540	328	0.37	251	0	1	25.0	39.0	S	0	5.52545	291600	0.1369	5.68412	-0.15867	294.16	245.32
119	R31I	541	291	0.43	993	0	1	30.4	46.1	S	0	6.90073	292681	0.1849	6.97240	-0.07167	1066.78	986.03
120	F7T6	545	173	0.54	357	1	1	24.8	40.0	S	1	5.87774	297025	0.2916	5.98256	-0.10483	396.46	351.02
121	F7T5	546	171	0.58	321	1	1	24.8	36.0	S	1	5.77144	298116	0.3364	5.36464	0.40680	213.72	315.64
122	R6	547	193	0.50	1053	1	1	30.4	45.0	S	1	6.96414	299209	0.2500	6.95343	0.01071	1046.73	1051.05
123	F12	550	179	0.48	880	1	1	30.7	42.0	S	1	6.77992	302500	0.2304	6.50233	0.27759	666.69	873.50
124	R23	550	356	0.35	789	1	1	34.9	42.0	S	0	6.67077	302500	0.1225	6.64833	0.02244	771.49	792.35
125	R22	553	376	0.40	421	1	1	24.8	39.7	S	0	6.04263	305809	0.1600	5.78850	0.25413	326.52	415.21
126	F7T2	554	181	0.54	644	1	1	29.3	41.7	S	1	6.46770	306916	0.2916	6.40977	0.05793	607.75	637.59
127	R12	554	191	0.50	572	1	1	25.3	42.0	S	1	6.34914	306916	0.2500	6.31716	0.03198	554.00	565.68
128	R18	556	353	0.40	691	1	1	29.6	43.5	S	0	6.53314	307136	0.1600	6.69954	-0.16140	812.04	684.30
129	R5	557	228	0.50	742	1	1	30.4	42.0	S	1	6.60935	310249	0.2500	6.49543	0.11392	662.11	735.50
130	F10	564	274	0.48	736	1	1	30.4	42.0	S	1	6.60123	318096	0.2304	6.49470	0.10653	661.62	729.51
131	R36I	567	360	0.46	420	0	1	24.9	41.7	S	0	5.84025	321489	0.2116	6.11214	-0.07189	451.30	413.89
132	R37I	570	326	0.52	516	0	1	25.6	44.6	S	0	6.24611	324900	0.2704	6.58294	-0.33683	722.66	509.42
133	R11	573	173	0.50	729	1	1	35.5	43.0	S	1	6.59167	329329	0.2500	6.81956	-0.22789	915.58	722.18
134	R33I	574	327	0.51	441	0	1	29.9	39.1	S	0	6.08904	329476	0.2601	5.97671	0.21234	356.63	435.12
135	R35I	574	335	0.43	331	0	1	25.2	38.7	S	0	5.80212	329476	0.1849	5.65142	0.15070	284.70	325.35
136	R31I	575	294	0.56	1090	0	1	30.4	46.1	S	0	6.99393	330625	0.3136	6.97623	0.01771	1070.37	1033.02
137	R34I	575	312	0.50	284	0	1	25.0	39.0	S	0	5.64897	330625	0.2500	5.68959	-0.04061	295.77	278.31
138	R13F	576	199	0.50	991	1	1	30.6	45.0	S	1	6.89871	331776	0.2500	6.95483	-0.05612	1049.21	984.05
139	R32I	576	314	0.53	689	0	1	30.1	42.0	S	0	6.53524	331776	0.2809	6.32980	0.20545	561.04	682.67
140	F7T5	579	183	0.75	211	1	1	24.8	36.0	S	1	5.35186	335241	0.5625	5.35547	-0.00361	211.76	205.64
141	GMF	580	176	0.57	1304	1	1	30.2	44.9	S	1	7.17319	336400	0.3249	6.91896	0.25423	1011.26	1297.08
142	F13	581	228	0.57	692	1	1	28.9	41.5	S	1	6.53959	337561	0.3249	6.34568	0.19391	570.02	685.65
143	EHF	583	134	0.54	994	1	1	30.7	42.3	S	1	6.70174	339889	0.2916	6.60552	0.29622	739.16	987.39
144	F4	585	205	0.64	689	1	1	29.9	42.0	S	1	6.53524	342225	0.4096	6.44960	0.08565	632.45	682.55
145	R21	586	365	0.50	490	1	1	24.8	42.0	S	0	6.19441	343396	0.2500	6.27004	-0.07564	528.50	483.73
146	R22	586	383	0.50	360	1	1	24.8	38.7	S	0	5.89610	343396	0.2500	5.75927	0.12583	317.12	354.24
147	F7T2	589	192	0.71	463	1	1	29.3	41.7	S	1	6.14847	346921	0.5041	6.37269	-0.22422	585.63	461.63
148	R18	589	361	0.50	683	1	1	29.6	43.5	S	0	6.52049	346921	0.2500	6.66172	-0.13522	731.89	676.34
149	R5	591	233	0.70	648	1	1	30.4	42.0	S	1	6.47389	349281	0.4900	6.45202	0.02187	633.98	641.55
150	F10	597	280	0.60	609	1	1	30.4	42.0	S	1	6.41182	355409	0.3600	6.43394	-0.02213	622.62	602.57
151	R12	599	198	0.60	463	1	1	25.3	42.0	S	1	6.13773	357604	0.3600	6.25335	-0.11562	519.75	456.75
152	R36I	601	364	0.57	463	0	1	24.9	41.7	S	0	6.13773	361231	0.3249	6.03922	0.09851	419.56	456.96
153	R37I	605	332	0.54	526	0	1	25.6	44.6	S	0	6.26530	366025	0.4096	6.49723	-0.23193	663.30	519.50
154	R34I	609	338	0.62	263	0	1	25.0	39.0	S	0	5.57215	370881	0.3844	5.59304	-0.02089	268.55	257.41
155	R35I	609	389	0.53	357	0	1	25.2	38.7	S	0	5.87774	370881	0.2809	5.55356	0.32417	259.16	351.45
156	F13L	610	213	0.78	635	1	1	29.7	41.5	S	1	6.45362	372100	0.6084	6.28233	0.17130	535.03	628.72
157	R31I	610	300	0.72	1006	0	1	30.4	46.1	S	0	6.71374	372100	0.4900	6.87533	0.03841	968.09	999.12
158	R33I	610	336	0.63	384	0	1	29.9	39.1	S	0	5.95064	372100	0.3969	5.77449	0.17615	321.98	378.23
159	F7T5	612	193	0.92	139	1	1	24.8	36.0	S	1	4.93447	374544	0.8464	5.25174	-0.31726	190.90	133.75
160	F13	614	241	0.71	399	1	1	28.9	41.5	S	1	5.98896	376996	0.5041	6.23622	-0.24725	510.92	392.76
161	F11	615	197	0.86	611	1	1	29.8	41.9	S	1	6.41510	379225	0.7396	6.32462	0.09049	558.15	604.68
162	F12	619	210	0.79	479	1	1	30.7	42.0	S	1	6.52052	381924	0.6241	6.35648	0.16414	576.22	672.64
163	R21	619	379	0.60	429	1	1	24.8	42.0	S	0	6.05912	383161	0.3600	6.14626	-0.09713	466.97	421.85
164	R22	619	395	0.50	314	1	1	24.8	38.7	S	0	5.74939	383161	0.3600	5.63543	0.11391	280.19	308.36
165	F7T1	621	211	0.99	369	1	1	29.4	41.3	S	1	5.91043	385641	0.9301	6.18727	-0.27647	486.51	362.81

SLURRY VISCOSITY DATA ANALYSIS
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OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	VISPI	RESID
166	R18	622	371	0.60	570	1	1	29.6	43.5	S	0	6.34564	386884	0.3600	6.52933	-0.18370	684.942	563.47
167	GHF	624	186	0.74	921	1	1	30.2	44.9	S	1	6.82546	389376	0.5476	6.75582	0.06964	859.043	914.24
168	R13F	624	193	0.60	1038	1	1	30.6	45.0	S	1	6.94505	389376	0.3600	6.78520	0.15985	884.658	1031.21
169	F8	625	217	0.96	449	1	1	31.3	42.4	S	1	6.10702	390625	0.9216	6.40145	-0.27442	602.716	442.60
170	R5	625	240	0.80	555	1	1	30.4	42.0	S	1	6.31897	390625	0.6400	6.30825	0.01072	549.083	548.69
171	EMF	630	192	0.71	814	1	1	30.7	42.8	S	1	6.70196	396900	0.5041	6.41289	0.28907	609.655	807.59
172	MMF	632	195	0.70	592	1	1	35.2	42.1	S	1	6.38351	399424	0.4900	6.44852	-0.06501	631.765	585.55
173	R36I	635	370	0.68	458	0	1	24.9	41.7	S	0	6.12687	403225	0.4624	5.86592	0.26094	352.808	452.13
174	R37I	640	341	0.76	454	0	1	25.6	44.6	S	0	6.11910	409600	0.5776	6.30517	-0.18707	547.393	447.69
175	R12	642	206	0.80	423	1	1	25.3	42.0	S	1	6.64737	412164	0.6400	6.02145	0.02593	412.174	416.98
176	R35I	643	400	0.64	279	0	1	25.2	38.7	S	0	5.63121	413449	0.4096	5.35665	0.27456	212.014	273.64
177	F7T6	644	194	1.06	171	1	1	24.8	40.0	S	1	5.14166	414736	1.1236	5.67997	-0.53931	292.941	165.32
178	R34I	644	350	0.73	191	0	1	25.0	39.0	S	0	5.25227	414736	0.5329	5.38882	-0.13655	218.946	185.61
179	R31I	645	313	0.83	693	0	1	30.4	46.1	S	0	6.54103	416025	0.6889	6.66807	-0.12704	786.873	686.33
180	F7T5	646	200	1.03	137	1	1	24.3	36.0	S	1	4.91998	417316	1.1664	5.04597	-0.12599	155.395	131.95
181	R33I	646	346	0.75	345	0	1	29.9	39.1	S	0	5.34354	417316	0.5625	5.55975	0.28380	259.757	339.44
182	F13	649	256	0.83	282	1	1	28.9	41.5	S	1	5.64191	419904	0.6889	6.02455	-0.38264	413.454	275.98
183	R10	651	208	0.80	606	1	1	30.4	43.0	S	1	6.40698	423801	0.6400	6.28536	0.12152	536.658	599.71
184	F12	652	220	0.94	495	1	1	30.7	42.0	S	1	6.20456	425104	0.8836	6.13300	0.07155	460.818	488.87
185	F7T1	652	223	1.14	213	1	1	29.4	41.3	S	1	5.36129	425104	1.2996	5.97947	-0.61918	375.231	207.02
186	R21	652	391	0.70	340	1	1	24.3	42.0	S	0	5.82895	425104	0.4900	5.92792	-0.09997	375.372	314.07
187	R22	652	407	0.70	269	1	1	24.9	38.7	S	0	5.59471	425104	0.4900	5.41714	0.17757	225.235	263.58
188	R23	652	393	0.67	472	1	1	34.9	42.0	S	0	6.15698	425104	0.4499	6.27900	-0.12202	533.254	465.72
189	AAHF	655	157	1.03	432	1	1	29.4	42.2	S	1	6.06843	429025	1.0609	6.09423	-0.02581	443.294	425.91
190	R18	655	382	0.30	549	1	1	29.6	43.5	S	0	6.30810	429025	0.6400	6.30240	0.00570	545.840	542.70
191	F7T2	659	211	1.02	261	1	1	29.3	41.7	S	1	5.56452	434281	1.0404	5.97944	-0.41492	395.217	255.02
192	F8	659	232	1.09	254	1	1	31.3	42.4	S	1	5.53733	434281	1.1881	6.15730	-0.61997	472.153	247.84
193	R5	659	247	0.90	494	1	1	30.4	42.0	S	1	6.20254	434281	0.8100	5.06411	0.13843	430.138	487.94
194	F10	663	295	0.82	481	1	1	30.4	42.0	S	1	6.18002	439569	0.6724	6.02878	0.15123	415.210	476.97
195	R13F	663	199	0.80	996	1	1	30.6	45.0	S	1	6.79794	439569	0.6400	6.50008	0.29786	665.192	889.50
196	GHF	665	195	0.91	778	1	1	30.2	44.9	S	1	6.65673	442225	0.8281	6.45251	0.20421	634.294	771.55
197	R36I	670	379	0.79	406	0	1	24.9	41.7	S	0	6.00635	448900	0.6241	5.58269	0.42366	265.786	400.42
198	EMF	674	202	0.87	608	1	1	30.7	42.8	S	1	5.41017	454276	0.7569	6.05874	0.35144	427.836	601.94
199	R37I	675	354	0.87	336	0	1	25.6	44.6	S	0	5.31711	455625	0.7569	6.00674	-0.19963	406.158	329.99
200	F7T6	678	201	1.22	135	1	1	24.3	40.0	S	1	4.70527	459684	1.4884	5.37974	-0.47446	216.966	129.62
201	R34I	679	354	0.85	137	0	1	25.0	39.0	S	0	4.91998	459684	0.7225	5.08859	-0.16861	162.161	131.91
202	R35I	679	418	0.73	145	0	1	25.2	38.7	S	0	4.97673	459684	0.5329	5.04911	-0.37238	155.984	139.95
203	F7T5	679	278	1.24	67	1	1	24.3	36.0	S	1	4.20469	461041	1.5376	4.75027	-0.54558	115.616	62.25
204	R31I	680	332	0.95	370	0	1	30.4	46.1	S	0	5.91350	463400	0.9025	6.35445	-0.44094	575.044	363.65
205	F13	681	268	0.95	195	1	1	28.9	41.5	S	1	5.27300	463761	0.9025	5.72312	-0.45012	305.857	189.28
206	R33I	682	359	0.86	239	0	1	29.9	39.1	S	0	5.47646	465124	0.7396	5.23248	0.24399	187.256	233.77
207	F7T5	683	214	1.39	67	1	1	24.8	36.0	S	1	4.20469	466489	1.9321	4.70900	-0.50331	110.831	62.29
208	R32I	683	345	0.90	359	0	1	30.1	42.0	S	0	5.88332	466489	0.8100	5.67759	0.20573	292.245	353.32
209	F12	685	232	1.08	258	1	1	30.7	42.0	S	1	5.55296	467225	1.1664	5.82011	-0.26715	337.010	252.19
210	R12	685	216	0.90	288	1	1	25.3	42.0	S	1	5.66296	467225	0.8100	5.63241	0.03055	279.334	282.37
211	R21	685	405	0.80	282	1	1	24.9	42.0	S	0	5.64191	469225	0.6400	5.61503	0.02688	274.521	276.38
212	R22	686	420	0.80	225	1	1	24.8	38.7	S	0	5.41610	470596	0.6400	5.09330	0.32280	162.926	219.91
213	R23	686	405	0.77	332	1	1	34.9	42.0	S	0	5.80513	470596	0.5929	5.95515	-0.15001	385.735	326.04
214	IMF	691	215	0.99	195	1	1	25.1	42.3	S	1	5.27300	477481	0.9801	5.60484	-0.33184	271.739	189.40
215	R5	692	256	1.10	319	1	1	30.4	42.0	S	1	5.76205	478864	1.2100	5.73116	0.03089	308.326	312.27
216	F9	693	245	1.23	188	1	1	31.3	42.4	S	1	5.23644	480249	1.5129	5.81279	-0.57635	334.551	182.19
217	F7T2	694	221	1.17	193	1	1	29.3	41.7	S	1	5.26264	481636	1.3689	5.62327	-0.36058	276.793	187.38
218	R11	696	218	0.90	412	1	1	35.5	43.0	S	1	6.02192	484416	0.8100	6.31643	0.00459	410.114	405.98
219	R13F	696	210	1.00	474	1	1	30.6	45.0	S	1	6.16121	484416	1.0000	5.15567	0.00554	471.381	467.84
220	AAHF	699	190	1.21	214	1	1	29.4	42.2	S	1	5.34598	488601	1.4641	5.64457	-0.27860	292.753	208.36

SLURRY VISCOSITY DATA ANALYSIS
FINE CUAL

10:15 WEDNESDAY, JANUARY 11, 1984 44

OBS	RUNID	TE4P	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	VISPL	RESID
221	GMF	705	204	1.06	606	1	1	30.2	44.9	S	1	6.40638	497025	1.1236	6.01595	0.19093	409.913	599.984
222	R36I	705	370	0.89	201	0	1	24.9	41.7	S	0	5.30330	497025	0.7921	5.19310	0.11020	180.026	195.807
223	MMF	707	218	1.01	256	1	1	35.2	42.1	S	1	5.54518	497849	1.0201	5.73089	-0.18571	308.244	250.269
224	R37I	710	374	0.99	174	0	1	25.6	44.6	S	0	5.15906	504100	0.9604	5.60195	-0.44290	270.956	168.398
225	R34I	713	378	0.95	102	0	1	25.0	39.0	S	0	4.62497	508369	0.7025	4.67469	-0.04972	107.199	97.325
226	R35I	713	440	0.83	100	0	1	25.2	38.7	S	0	4.60517	503369	0.6889	4.63521	-0.03004	103.049	95.365
227	F13	714	290	1.07	137	1	1	28.9	41.5	S	1	4.91998	509736	1.1449	5.32713	-0.40715	205.847	131.673
228	F7T6	714	210	1.37	99	1	1	24.8	40.0	S	1	4.59512	509796	1.8769	4.95245	-0.35733	141.521	94.048
229	R31I	715	354	1.37	244	0	1	30.4	46.1	S	0	5.49717	511225	1.1449	5.93447	-0.43730	377.838	238.066
230	EHF	716	215	1.32	378	1	1	30.7	42.8	S	1	5.93439	512656	1.0404	5.56388	0.37102	260.833	372.436
231	F7T5	717	223	1.53	33	1	1	24.9	36.0	S	1	3.49651	514089	2.3409	4.29264	-0.79613	73.160	28.707
232	R21	718	421	0.90	198	1	1	24.8	42.0	S	0	5.28827	515524	0.8100	5.20758	0.08068	182.652	192.792
233	R22	718	434	0.90	169	1	1	24.8	38.7	S	0	5.12990	515524	0.8100	4.69581	0.43309	109.597	164.303
234	R32I	718	368	1.01	152	0	1	30.1	42.0	S	0	5.02388	515524	1.0201	5.24849	-0.22461	190.279	146.752
235	R33I	718	378	0.97	118	0	1	29.9	39.1	S	0	4.77068	515524	0.9409	4.79268	-0.02200	120.624	113.207
236	R24	719	413	0.88	402	1	1	35.1	45.4	S	0	5.99645	516961	0.7744	6.07804	-0.08159	436.175	395.922
237	R23	720	425	0.86	235	1	1	34.9	42.0	S	0	5.45959	519400	0.7396	5.53093	-0.07135	252.379	229.469
238	R5	725	258	1.20	202	1	1	30.4	42.0	S	1	5.30827	525525	1.4400	5.30366	0.00461	201.071	196.696
239	F8	726	254	1.35	155	1	1	31.3	42.4	S	1	5.04343	527076	1.8225	5.38243	-0.33900	217.549	149.618
240	R12	729	227	1.10	252	1	1	25.3	42.0	S	1	5.52943	529944	1.2100	5.08283	0.44660	161.230	246.917
241	R13F	729	225	1.10	343	1	1	30.6	45.0	S	1	5.83773	531441	1.2100	5.71671	0.12102	303.903	337.283
242	F7T2	730	232	1.31	127	1	1	29.3	41.7	S	1	4.84419	532900	1.7161	5.14597	-0.30178	171.739	121.854
243	R11	732	228	1.10	250	1	1	35.5	43.0	S	1	5.52146	535824	1.2100	5.53288	-0.01142	252.871	244.467
244	IMF	735	225	1.13	159	1	1	25.1	42.3	S	1	5.06890	547225	1.2769	5.01765	0.05125	151.056	153.982
245	R16I	739	421	0.99	122	0	1	24.9	41.7	S	0	4.80402	546121	0.9801	4.71279	0.09123	111.363	117.287
246	GMF	740	215	1.21	439	1	1	30.2	44.9	S	1	6.08450	547600	1.4641	5.51999	0.56451	249.633	433.480
247	AAHF	742	194	1.39	126	1	1	29.4	42.2	S	1	4.83628	550564	1.9044	5.04273	-0.20645	154.892	120.957
248	MMF	742	230	1.15	157	1	1	35.2	42.1	S	1	5.05625	550564	1.3225	5.22886	-0.17261	186.580	151.771
249	R34I	747	391	1.06	83	0	1	25.0	39.0	S	0	4.41884	558009	1.1236	4.17076	0.24808	64.765	78.829
250	F13	748	299	1.18	135	1	1	28.9	41.5	S	1	4.90527	559504	1.3924	4.82026	0.08502	123.997	130.180
251	R35I	748	454	0.92	99	0	1	25.2	38.7	S	0	4.59512	559504	0.8464	4.11494	0.48019	61.249	94.885
252	R31I	749	372	1.19	171	0	1	30.4	46.1	S	0	5.14166	561001	1.3924	5.42464	-0.28297	226.929	165.575
253	F7T6	750	221	1.52	65	1	1	24.8	40.0	S	1	4.17439	562500	2.3104	4.41263	-0.23924	82.486	60.587
254	R21	751	441	1.00	129	1	1	24.9	42.0	S	0	4.85981	564001	1.0000	4.70559	0.15422	110.563	124.294
255	R22	751	453	1.00	115	1	1	24.8	38.7	S	0	4.74493	564001	1.0000	4.19482	0.55012	66.342	110.805
256	R24	753	432	0.97	255	1	1	35.1	45.4	S	0	5.54126	567009	0.9409	5.55641	-0.01515	258.891	249.444
257	R23	754	446	0.96	141	1	1	34.9	42.0	S	0	4.94876	569516	0.9215	5.00634	-0.05758	149.358	135.994
258	R33I	754	398	1.07	83	0	1	29.9	39.1	S	0	4.41884	568516	1.1449	4.24036	0.17949	69.433	73.760
259	EHF	755	232	1.16	154	1	1	30.7	42.8	S	1	5.03695	570025	1.3456	4.96723	0.36973	143.628	149.033
260	F8	767	263	1.49	122	1	1	31.3	42.4	S	1	4.80402	577600	2.1904	4.84013	-0.03610	126.485	117.160
261	F3	762	213	1.84	31	1	1	31.2	42.6	S	1	4.39445	580644	3.3856	4.83258	-0.43813	125.534	76.167
262	F7T2	765	244	1.44	93	1	1	29.3	41.7	S	1	4.53260	585225	2.0736	4.57404	-0.04144	96.935	88.426
263	R13F	767	236	1.20	306	1	1	30.6	45.0	S	1	5.72359	588299	1.4400	5.09411	0.52947	163.059	300.906
264	R11	768	242	1.20	184	1	1	35.5	43.0	S	1	5.21494	589824	1.4400	4.93680	0.27813	139.324	179.063
265	R12	771	241	1.20	123	1	1	25.3	42.0	S	1	4.81218	594441	1.4400	4.37271	0.43947	79.258	118.627
266	GMF	773	229	1.35	247	1	1	30.2	44.9	S	1	5.50939	597529	1.8225	4.95496	0.55443	141.877	242.045
267	IMF	773	236	1.27	125	1	1	25.1	42.3	S	1	4.82931	597529	1.6129	4.37526	0.45306	79.460	120.625
268	R36I	773	443	1.08	60	0	1	24.9	41.7	S	0	4.09434	597529	1.1664	4.13212	-0.03777	62.310	55.868
269	MMF	774	244	1.28	93	1	1	35.2	42.1	S	1	4.53260	599076	1.6384	4.67578	-0.14419	107.424	89.323
270	F13	781	302	1.29	53	1	1	28.9	41.5	S	1	3.97029	609961	1.6641	4.23231	-0.26202	68.876	48.768
271	R34I	782	404	1.16	66	0	1	25.0	39.0	S	0	4.18965	611524	1.3456	3.54718	0.64248	34.715	62.453
272	R21	783	467	1.10	51	1	1	24.8	42.0	S	0	3.93183	611089	1.2100	4.12951	-0.19668	62.085	46.871
273	R31I	783	389	1.28	101	0	1	30.4	46.1	S	0	4.61512	613089	1.6384	4.81444	-0.19932	123.278	96.186
274	R35I	783	458	1.00	93	0	1	25.2	38.7	S	0	4.41864	613089	1.0000	3.48832	0.93052	32.731	79.512
275	R22	784	477	1.10	50	1	1	24.8	38.7	S	0	3.91202	614656	1.2100	3.59827	0.31375	36.535	46.402

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	VISPI	RESID
276	AAHF	785	276	1.53	83	1	1	29.4	42.2	S	1	4.41884	616225	2.3409	4.28034	0.13850	72.265	78.7197
277	R6	785	263	1.40	59	1	1	30.4	45.0	S	1	4.07754	616225	1.9600	4.74848	-0.67095	115.409	54.2515
278	F12	787	292	1.44	54	1	1	30.7	42.0	S	1	3.98898	619365	2.0736	4.25521	-0.26622	70.471	49.7448
279	R23	787	470	1.34	88	1	1	34.3	42.0	S	7	4.47734	619365	1.0816	4.40120	0.07614	81.549	83.5988
280	R24	787	496	1.36	83	1	1	35.1	45.4	S	0	4.41844	619365	1.1236	4.93440	-0.51556	138.990	78.0656
281	R331	789	415	1.17	49	0	1	29.9	39.1	S	0	3.89192	622521	1.3689	3.59550	-0.29632	36.434	45.4045
292	EHF	790	252	1.29	91	1	1	30.7	42.8	S	1	4.51086	624100	1.6641	4.31933	0.19153	75.138	86.6807

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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PLOT OF RESIDUAL*PREDI SYMBOL USED IS *

NOTE: 26 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

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PLOT OF RESIDUAL*TEMP SYMBOL USED IS *

NOTE: 17 OPS MISSING

PLOT OF RESIDUALS SYMBOL USED IS *

NOTE: 95 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE GJAL

10:15 WEDNESDAY, JANUARY 11, 1984 51

PLOT OF RESIDUALS VS TS SYMBOL USED IS *

NOTE: 91 OBS HIDDEN

PLOT OF RESID1*SRTH SYMBOL USED IS *

NOTE: 47 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

10:15 WEDNESDAY, JANUARY 11, 1984 53.

PLOT OF RESIDUALS vs SHEAR SYMBOL USED IS *

NOTE: 22 DE, HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

10:15 WEDNESDAY, JANUARY 11, 1984 54

PLOT OF RESIDUALS CT SYMBOL USED IS *

NOTE: 221 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE CUAL

10:15 WEDNESDAY, JANUARY 11, 1984 55

PLOT OF RESIDUE SIZE SYMBOL USED IS *

NOTE: 217 JBS H10064

APPENDIX F

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SLURRY VISCOSITY DATA ANALYSIS
FINE CUAL

11:05 WEDNESDAY, JANUARY 11, 1994 28

DEP VARIABLE: VISC

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	5	15934680	3186936	149.824	0.0001
ERROR	276	5870854	21271.212		
C TOTAL	281	21605534			
ROOT MSE		145.847	R-SQUARE	0.7308	
DEP MEAN		385.504	ADJ R-SQ	0.7259	
C.V.		37.83273			

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB > T	TYPE I SS	TYPE II SS	STANDARDIZED ESTIMATE	TOLERANCE
INTERCEP	1	-5835.308	250.192	-23.323	0.0001	41908862	11571019	0.000000	.
TEMP	1	14.032054	0.647124	21.684	0.0001	758292	10001377	6.517876	0.010796
TEMP2	1	-0.012577	0.0005634085	-22.322	0.0001	8944925	10599122	-6.705784	0.010809
CC	1	10.915547	3.322661	3.285	0.0012	3083817	229568	0.126587	0.657002
TS	1	51.689340	4.313084	11.984	0.0001	3010710	3055051	0.438079	0.730039
CT	1	52.534566	20.705268	2.537	0.0117	136937	136937	0.084840	0.872482

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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
1	74.000	-15.110	31.845	89.110	142.327	0.626	*	0.003
2	73.000	97.515	32.771	-24.515	142.117	-0.172		0.000
3	111.000	134.436	30.976	-23.436	142.519	-0.164		0.000
4	110.000	149.665	30.681	-39.665	142.583	-0.278		0.001
5	110.000	53.970	28.924	56.030	142.950	0.392		0.001
6	38.000	-16.298	32.599	54.298	142.157	0.382		0.001
7	148.000	195.684	28.581	-47.684	143.019	-0.333		0.001
8	108.000	131.783	25.961	-23.783	143.517	-0.166		0.000
9	181.000	247.852	26.910	-66.852	143.343	-0.466		0.001
10	182.000	155.939	24.758	26.061	143.730	0.181		0.000
11	56.000	-76.268	32.805	132.268	142.109	0.931	*	0.008
12	89.000	13.550	28.663	74.450	143.002	0.521	*	0.002
13	220.000	294.308	24.943	-74.308	143.698	-0.517	*	0.001
14	38.000	-90.697	28.609	128.697	143.013	0.900	*	0.005
15	49.000	-94.469	28.680	143.469	142.999	1.003	**	0.007
16	131.000	421.899	26.000	-290.899	143.510	-2.027	***	0.022
17	67.000	157.104	21.839	-90.104	144.202	-0.625	*	0.001
18	233.000	377.668	22.457	-144.668	144.107	-1.004	**	0.004
19	38.000	-139.614	32.470	177.614	142.186	1.249	**	0.014
20	322.000	388.900	22.072	-66.900	144.167	-0.464		0.001
21	198.000	300.450	20.585	-102.450	144.386	-0.710	*	0.002
22	107.000	285.255	26.709	-178.255	143.380	-1.243	**	0.009
23	215.000	311.462	18.994	-96.462	144.604	-0.667	*	0.001
24	254.000	324.399	26.456	-70.399	143.427	-0.491		0.001
25	325.000	423.097	20.819	-98.097	144.353	-0.680	*	0.002
26	129.000	88.413	28.280	40.587	143.079	0.284		0.001
27	138.000	172.336	23.675	-34.336	143.912	-0.239		0.000

SLURRY VISCOSITY DATA ANALYSIS
FINE CUAL

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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
28	280.000	312.012	17.496	-32.012	144.794	-0.221		0.000
29	310.000	342.053	27.010	-32.053	143.324	-0.224		0.000
30	57.000	61.926	23.998	-4.926	143.859	-0.034		0.000
31	232.000	285.283	17.490	-53.283	144.794	-0.368		0.000
32	381.000	491.773	26.759	-110.773	143.371	-0.773	*	0.003
33	81.000	52.511	24.340	28.489	143.801	0.198		0.000
34	393.000	517.807	18.759	-124.807	144.635	-0.863	*	0.002
35	76.000	-1.186	29.252	77.186	142.883	0.540	*	0.002
36	210.000	422.828	23.828	-212.828	143.887	-1.479	**	0.010
37	527.000	548.739	18.104	-21.738	144.719	-0.150		0.000
38	59.000	170.150	22.322	-111.150	144.128	-0.771	*	0.002
39	382.000	456.946	15.044	-74.946	145.069	-0.517	*	0.000
40	390.000	356.322	20.351	33.678	144.420	0.233		0.000
41	853.000	569.620	17.636	283.380	144.776	1.957	***	0.009
42	535.000	482.722	23.737	52.278	143.902	0.363		0.001
43	260.000	220.495	25.811	39.505	143.544	0.275		0.000
44	170.000	300.310	20.819	-130.310	144.353	-0.903	*	0.003
45	504.000	426.133	14.494	77.867	145.125	0.537	*	0.000
46	457.000	464.232	25.040	-7.232	143.681	-0.050		0.000
47	527.000	482.548	14.494	44.452	145.125	0.306		0.000
48	538.000	441.050	14.578	96.950	145.116	0.668	*	0.001
49	361.000	397.055	14.758	-36.055	145.098	-0.248		0.000
50	120.000	183.737	21.396	-63.737	144.269	-0.442		0.001
51	111.000	170.414	21.870	-59.414	144.197	-0.412		0.001
52	687.000	612.703	25.321	74.297	143.632	0.517	*	0.001
53	368.000	459.713	13.900	-90.713	145.183	-0.625	*	0.001
54	509.000	689.290	21.305	-180.290	144.282	-1.250	**	0.006
55	614.000	628.868	17.213	-14.868	144.827	-0.103		0.000
56	303.000	434.408	14.021	-131.408	145.171	-0.905	*	0.001
57	224.000	105.363	27.583	118.637	143.214	0.828	*	0.004
58	425.000	454.690	13.781	-29.690	145.194	-0.204		0.000
59	442.000	531.324	22.687	-89.324	144.071	-0.620	*	0.002
60	448.000	561.853	14.418	-113.853	145.132	-0.785	*	0.001
61	161.000	269.230	20.795	-108.230	144.356	-0.750	*	0.002
62	429.000	503.506	13.804	-74.506	145.192	-0.513	*	0.000
63	251.000	395.122	19.724	-144.122	144.507	-0.997	*	0.003
64	348.000	319.979	24.881	28.021	143.709	0.195		0.000
65	565.000	530.169	13.674	34.831	145.204	0.240		0.000
66	576.000	531.261	13.758	44.739	145.196	0.308		0.000
67	487.000	474.500	19.031	12.500	144.600	0.086		0.000
68	758.000	687.420	16.961	70.580	144.857	0.487		0.001
69	450.000	559.632	24.438	-109.632	143.785	-0.762	*	0.003
70	648.000	586.379	13.583	61.621	145.213	0.424		0.000
71	586.000	646.469	22.638	-60.469	144.079	-0.420		0.001
72	165.000	272.563	20.375	-107.563	144.416	-0.745	*	0.002
73	172.000	259.240	20.854	-87.240	144.348	-0.604	*	0.001
74	791.000	700.674	25.150	90.326	143.662	0.629	*	0.002
75	1463	697.436	16.992	765.564	144.853	5.285	*****	0.364
76	628.000	776.767	21.362	-148.767	144.274	-1.031	**	0.004
77	734.000	710.852	17.165	23.148	144.833	0.160		0.000
78	539.000	515.538	13.502	23.462	145.220	0.162		0.000
79	616.000	547.983	13.392	68.017	145.231	0.468		0.000
80	624.000	610.742	22.631	13.258	144.080	0.092		0.000

SLURRY VISCOSITY DATA ANALYSIS
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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	STD ERR RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
81	453.000	562.940	13.260	-109.940	145.243	-0.757	*	0.001
82	1101	610.015	13.731	490.985	145.199	3.381	*****	0.017
83	274.000	339.147	20.334	-65.147	144.422	-0.451		0.001
84	631.000	641.421	14.417	-10.421	145.132	-0.072		0.000
85	322.000	513.237	20.205	-191.237	144.440	-1.324	**	0.006
86	697.000	576.083	13.763	120.917	145.196	0.833	*	0.001
87	315.000	460.858	19.621	-145.858	144.521	-1.009	**	0.003
88	380.000	386.865	24.788	-6.865	143.725	-0.049		0.000
89	495.000	624.220	24.597	-129.220	143.757	-0.899	*	0.004
90	696.000	597.241	14.020	98.759	145.171	0.680	*	0.001
91	616.000	541.707	20.474	74.293	144.402	0.514	*	0.001
92	653.000	639.605	14.495	14.395	145.125	0.099		0.000
93	218.000	332.312	20.199	-114.312	144.441	-0.791	*	0.002
94	247.000	318.989	20.667	-71.989	144.375	-0.499		0.001
95	856.000	759.568	25.530	96.432	143.595	0.672	*	0.002
96	806.000	832.240	21.927	-26.240	144.189	-0.182		0.000
97	547.000	550.715	19.132	-3.715	144.586	-0.026		0.000
98	363.000	443.045	19.100	-80.045	144.591	-0.554	*	0.001
99	882.000	763.760	17.727	118.240	144.765	0.817	*	0.002
100	680.000	567.590	13.831	112.410	145.189	0.774	*	0.001
101	701.000	661.084	22.987	39.916	144.024	0.277		0.000
102	342.000	384.273	20.334	-42.273	144.422	-0.293		0.000
103	877.000	774.166	17.776	102.834	144.759	0.710	*	0.001
104	562.000	555.788	20.411	6.212	144.411	0.043		0.000
105	731.000	686.631	14.980	44.369	145.075	0.306		0.000
106	660.000	619.583	14.249	40.417	145.149	0.278		0.000
107	626.000	620.659	13.843	5.341	145.188	0.037		0.000
108	1603	771.957	17.864	831.043	144.748	5.741	*****	0.084
109	741.000	625.593	14.355	115.407	145.138	0.795	*	0.001
110	360.000	497.516	19.855	-137.516	144.489	-0.952	*	0.003
111	1147	671.470	14.517	475.530	145.122	3.277	*****	0.018
112	506.000	657.457	24.934	-151.457	143.699	-1.054	**	0.006
113	658.000	629.623	14.499	28.377	145.124	0.196		0.000
114	818.000	686.095	23.827	131.905	143.887	0.917	*	0.004
115	429.000	421.152	24.928	7.848	143.700	0.055		0.000
116	274.000	349.661	20.739	-75.661	144.365	-0.524	*	0.001
117	679.000	574.183	20.814	104.817	144.354	0.726	*	0.002
118	251.000	363.446	20.289	-112.446	144.428	-0.779	*	0.002
119	993.000	789.821	25.979	203.179	143.514	1.416	**	0.011
120	357.000	467.419	19.233	-110.419	144.573	-0.764	*	0.002
121	321.000	260.973	26.645	60.027	143.392	0.419		0.001
122	1058	787.590	18.238	270.410	144.702	1.869	***	0.009
123	880.000	636.503	14.805	243.497	145.093	1.678	***	0.005
124	789.000	682.349	23.276	106.651	143.977	0.741	*	0.002
125	421.000	402.007	20.372	18.993	144.417	0.132		0.000
126	644.000	606.305	14.151	37.695	145.158	0.260		0.000
127	572.000	578.149	19.422	-6.149	144.548	-0.043		0.000
128	691.000	702.764	15.387	-11.764	145.033	-0.081		0.000
129	742.000	633.997	14.561	108.003	145.118	0.744	*	0.001
130	736.000	633.533	14.575	102.467	145.116	0.706	*	0.001
131	420.000	504.880	19.999	-84.880	144.469	-0.588	*	0.001
132	516.000	661.618	25.128	-145.618	143.666	-1.014	**	0.005
133	729.000	738.484	23.532	-9.484	143.936	-0.066		0.000

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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	Cook's D
134	441.000	422.841	24.936	19.159	143.699	0.126		0.000
135	331.000	350.862	20.710	-19.862	144.369	-0.138		0.000
136	1090	789.706	26.191	300.294	143.476	2.093	***	0.024
137	284.000	363.767	20.265	-79.767	144.432	-0.552	*	0.001
138	991.000	787.122	18.290	203.878	144.695	1.409	**	0.005
139	689.000	574.061	20.926	114.939	144.338	0.796	*	0.002
140	211.000	257.126	26.489	-46.126	143.421	-0.322		0.001
141	1304	775.561	18.214	528.439	144.705	3.652	*****	0.035
142	692.000	585.057	14.166	106.943	145.157	0.737	*	0.001
143	994.000	670.687	14.703	323.313	145.104	2.228	***	0.008
144	689.000	619.259	14.166	69.711	145.157	0.480		0.000
145	490.000	562.924	20.552	-72.924	144.391	-0.505	*	0.001
146	360.000	392.349	20.216	-32.349	144.439	-0.224		0.000
147	468.000	594.301	14.032	-126.301	145.170	-0.870	*	0.001
148	683.000	690.617	15.346	-7.617	145.037	-0.053		0.000
149	648.000	629.198	14.424	27.802	145.132	0.192		0.000
150	609.000	614.745	14.348	-5.745	145.139	-0.040		0.000
151	463.000	558.079	19.279	-95.079	144.567	-0.658	*	0.001
152	463.000	482.529	19.881	-19.529	144.485	-0.135		0.000
153	526.000	635.528	25.071	-109.528	143.675	-0.762	*	0.003
154	263.000	334.575	20.027	-71.575	144.465	-0.495		0.001
155	357.000	321.251	20.464	35.749	144.404	0.248		0.000
156	635.000	566.337	13.961	68.663	145.177	0.473		0.000
157	1006	759.214	26.103	246.786	143.492	1.720	***	0.016
158	384.000	391.931	24.702	-7.931	143.739	-0.055		0.000
159	139.000	225.886	26.189	-86.886	143.476	-0.606	*	0.002
160	399.000	552.159	13.705	-153.159	145.201	-1.055	**	0.002
161	611.000	581.233	13.701	29.767	145.202	0.205		0.000
162	679.000	591.802	14.268	87.198	145.147	0.601	*	0.001
163	428.000	525.975	20.253	-97.975	144.433	-0.678	*	0.002
164	314.000	355.300	19.848	-41.300	144.490	-0.286		0.000
165	359.000	536.778	13.770	-167.778	145.195	-1.156	**	0.002
166	570.000	651.077	14.884	-81.077	145.085	-0.559	*	0.001
167	921.000	726.715	17.777	194.285	144.759	1.342	**	0.005
168	1038	736.250	17.844	301.750	144.751	2.085	***	0.011
169	449.000	607.822	14.638	-158.822	145.110	-1.094	**	0.002
170	555.000	577.322	13.839	-22.322	145.189	-0.154		0.000
171	814.000	613.191	13.964	200.809	145.176	1.383	**	0.003
172	592.000	622.449	23.342	-30.449	143.967	-0.212		0.000
173	458.000	431.101	19.602	26.899	144.523	0.186		0.000
174	454.000	578.626	24.860	-124.626	143.712	-0.867	*	0.004
175	423.000	489.311	18.766	-66.311	144.634	-0.458		0.001
176	279.000	262.982	20.164	16.018	144.446	0.111		0.000
177	171.000	376.192	18.451	-205.192	144.675	-1.418	**	0.005
178	191.000	274.151	19.721	-83.151	144.507	-0.575	*	0.001
179	693.000	697.910	25.838	-4.910	143.540	-0.034		0.000
180	137.000	165.051	25.864	-28.051	143.535	-0.195		0.000
181	345.000	328.423	24.371	16.577	143.796	0.115		0.000
182	282.000	489.612	13.019	-207.612	145.264	-1.429	**	0.003
183	606.000	576.605	13.528	29.395	145.218	0.202		0.000
184	495.000	525.835	13.570	-30.835	145.214	-0.212		0.000
185	213.000	475.462	13.147	-262.462	145.253	-1.807	***	0.004
186	340.000	461.433	19.907	-121.433	144.482	-0.840	*	0.002

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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
187	269.000	290.859	19.479	-21.859	144.540	-0.151		0.000
188	472.000	571.680	22.393	-99.680	144.117	-0.692	*	0.002
189	432.000	514.766	12.833	-82.766	145.281	-0.570	*	0.000
190	549.000	584.145	14.290	-35.145	145.145	-0.242		0.000
191	261.000	477.856	12.767	-216.856	145.287	-1.493	**	0.003
192	254.000	535.869	13.978	-281.869	145.175	-1.942	***	0.006
193	494.000	505.370	13.170	-11.370	145.251	-0.078		0.000
194	483.000	494.993	13.118	-11.993	145.255	-0.083		0.000
195	896.000	652.244	17.273	243.756	144.820	1.683	***	0.007
196	778.000	637.370	17.199	140.630	144.829	0.971	*	0.002
197	406.000	347.788	19.522	58.212	144.534	0.403		0.000
198	608.000	509.008	13.267	98.992	145.242	0.682	*	0.001
199	336.000	490.911	24.830	-154.911	143.717	-1.078	**	0.006
200	135.000	287.990	18.366	-152.990	144.686	-1.057	**	0.003
201	137.000	185.949	19.794	-48.949	144.497	-0.339		0.000
202	145.000	172.626	20.226	-27.626	144.437	-0.191		0.000
203	67.000	78.199	25.847	-11.199	143.538	-0.078		0.000
204	370.000	605.794	25.749	-235.794	143.556	-1.643	***	0.014
205	195.000	401.100	12.789	-206.100	145.285	-1.419	**	0.003
206	239.000	232.316	24.359	6.684	143.798	0.046		0.000
207	67.000	65.810	25.886	1.190	143.531	0.008		0.000
208	359.000	381.264	20.312	-22.264	144.425	-0.154		0.000
209	258.000	434.002	13.371	-176.002	145.232	-1.212	**	0.002
210	288.000	375.058	18.706	-87.058	144.642	-0.602	*	0.001
211	282.000	369.600	19.958	-87.600	144.475	-0.606	*	0.001
212	225.000	195.815	19.580	29.185	144.526	0.202		0.000
213	332.000	476.637	22.158	-144.637	144.154	-1.003	**	0.004
214	195.000	368.742	19.817	-173.742	144.494	-1.202	**	0.005
215	318.000	407.726	13.208	-89.726	145.247	-0.618	*	0.001
216	198.000	434.839	13.983	-246.839	145.175	-1.700	***	0.004
217	193.000	373.414	12.923	-180.414	145.273	-1.242	**	0.002
218	412.000	501.388	22.448	-89.388	144.109	-0.620	*	0.002
219	474.000	551.280	17.359	-77.280	144.810	-0.534	*	0.001
220	214.000	382.915	13.073	-168.915	145.259	-1.163	**	0.002
221	606.000	509.456	17.553	96.544	144.786	0.667	*	0.001
222	201.000	233.663	20.316	-32.663	144.425	-0.226		0.000
223	256.000	411.851	23.066	-155.851	144.011	-1.082	**	0.005
224	174.000	372.384	25.541	-198.384	143.593	-1.382	**	0.010
225	102.000	64.781	20.944	37.219	144.335	0.258		0.000
226	100.000	51.457	21.351	48.543	144.275	0.336		0.000
227	137.000	285.195	13.968	-148.195	145.176	-1.021	**	0.002
228	99.000	162.907	19.441	-63.907	144.545	-0.442		0.001
229	244.000	482.865	26.409	-238.865	143.436	-1.665	***	0.016
230	378.000	364.134	14.395	13.866	145.134	0.096		0.000
231	33.000	-55.745	26.819	89.745	143.360	0.619	*	0.002
232	198.000	250.375	21.044	-52.375	144.320	-0.363		0.000
233	169.000	79.801	20.749	89.199	144.363	0.618	*	0.001
234	152.000	255.693	21.373	-103.693	144.272	-0.719	*	0.002
235	118.000	103.611	25.326	14.389	143.631	0.100		0.000
236	402.000	534.509	22.074	-132.509	144.166	-0.919	*	0.003
237	235.000	352.516	22.854	-117.516	144.045	-0.816	*	0.003
238	202.000	282.691	14.918	-80.691	145.082	-0.556	*	0.001
239	155.000	308.974	15.606	-153.974	145.009	-1.062	**	0.002

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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	STD ERR RESIDUAL	STUDENT RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
240	252.000	214.297	20.504	37.703	144.398	0.261		0.000
241	343.000	422.925	18.805	-79.925	144.629	-0.553	*	0.001
242	127.000	233.843	15.166	-106.843	145.056	-0.737	*	0.001
243	250.000	360.006	23.613	-110.006	143.922	-0.764	*	0.003
244	159.000	197.048	21.976	-38.048	144.181	-0.264		0.000
245	122.000	93.293	22.644	28.707	144.078	0.199		0.000
246	439.000	364.518	19.705	74.482	144.509	0.515	*	0.001
247	126.000	207.311	16.464	-81.011	144.914	-0.559	*	0.001
248	157.000	265.152	24.722	-108.152	143.736	-0.752	*	0.003
249	83.000	-82.430	23.767	165.430	143.897	1.150	**	0.006
250	135.000	137.129	17.417	-2.129	144.803	-0.015		0.000
251	99.000	-100.524	24.239	199.524	143.818	1.387	**	0.009
252	171.000	333.943	28.414	-162.943	143.052	-1.139	**	0.009
253	65.000	5.226	22.528	59.774	144.096	0.415		0.001
254	129.000	103.759	23.783	25.241	143.894	0.175		0.000
255	115.000	-66.816	23.631	181.816	143.919	1.263	**	0.007
256	255.000	382.167	24.308	-127.167	143.807	-0.884	*	0.004
257	141.000	199.319	25.198	-58.319	143.653	-0.406		0.001
258	83.000	-57.693	27.997	140.693	143.134	0.983	*	0.006
259	154.000	189.879	18.460	-35.879	144.674	-0.248		0.000
260	122.000	150.645	19.564	-28.645	144.528	-0.198		0.000
261	81.000	149.673	19.750	-68.673	144.503	-0.475		0.001
262	93.000	66.895	19.889	26.104	144.484	0.181		0.000
263	306.000	241.190	22.929	64.810	144.033	0.450		0.001
264	184.000	186.025	26.830	-2.025	143.357	-0.014		0.000
265	123.000	7.027	25.410	115.973	143.616	0.808	*	0.003
266	247.000	199.640	23.858	47.360	143.882	0.329		0.000
267	125.000	9.578	26.466	115.422	143.425	0.805	*	0.004
268	60.000	-76.153	26.954	136.153	143.334	0.950	*	0.005
269	93.000	104.064	28.036	-11.064	143.126	-0.077		0.000
270	53.000	-34.390	22.953	87.390	144.029	0.607	*	0.002
271	66.000	-264.343	28.785	330.343	142.978	2.310	***	0.036
272	51.000	-64.574	28.313	115.574	143.072	0.808	*	0.004
273	101.000	155.945	32.266	-54.945	142.233	-0.386		0.001
274	83.000	-283.317	29.259	366.317	142.882	2.564	****	0.046
275	50.000	-240.824	28.482	290.824	143.038	2.033	***	0.027
276	83.000	-15.401	23.563	98.401	143.930	0.684	*	0.002
277	59.000	140.245	25.958	-81.245	143.518	-0.566	*	0.002
278	54.000	-23.025	24.166	77.025	143.831	0.536	*	0.001
279	88.000	22.820	29.477	65.180	142.837	0.456		0.001
280	83.000	200.747	28.664	-117.747	143.002	-0.823	*	0.005
281	49.000	-245.768	32.686	294.768	142.137	2.074	***	0.038
282	91.000	0.922921	24.665	90.077	143.746	0.627	*	0.002

SUM OF RESIDUALS -3.36656E-09
SUM OF SQUARED RESIDUALS 5870854

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

11:05 WEDNESDAY, JANUARY 11, 1984 35

PLOT OF VISC*TEMP
PLOT OF PREDI*TEMP

LEGEND: A = 1 OBS, & = 2 OBS, ETC.
SYMBOL USED IS *

NOTE: 38 OBS HIDDEN

11:05 WEDNESDAY, JANUARY 11, 1984 36

LEGEND: A = 1 OBS, B = 2 OBS, ETC.
SYMBOL USED IS *

NOTE: 73 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

11:05 WEDNESDAY, JANUARY 11, 1984 37

PLOT OF VISC*CC LEGEND: A = 1 OBS, B = 2 OBS, ETC.
PLOT OF PREDI*CC SYMBOL USED IS *

NOTE: 101 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE CUAL

11:05 WEDNESDAY, JANUARY 11, 1984 38

PLOT OF VISC+TS LEGEND: A = 1 OBS, B = 2 OBS, ETC.
PLOT OF PRED1+TS SYMBOL USED IS *

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

11:05 WEDNESDAY, JANUARY 11, 1984 39

PLOT OF VISC*SHEAR
PLOT OF PREDI*SHEAR

LEGEND: A = 1 OBS, B = 2 OBS, ETC.
SYMBOL USED IS *

NOTE: 35 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

11:05 WEDNESDAY, JANUARY 11, 1984 40

OBS	RUNID	TEMP	SHEAR	SRTM	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRT42	PRED1	RESID1	RESID
1	EHF	323	196	0	74	1	1	30.7	42.8	S	1	4.30407	104329	0	-15.11	89.11	89.11
2	R13F	323	200	0	73	1	1	30.6	45.0	S	1	4.29046	104329	0	97.51	-24.51	-24.51
3	GHF	331	191	0	111	1	1	30.2	44.9	S	1	4.70953	109561	0	134.44	-23.44	-23.44
4	R13F	332	194	0	110	1	1	30.6	45.0	S	1	4.70048	110224	0	149.66	-39.66	-39.66
5	EHF	335	191	0	110	1	1	30.7	42.8	S	1	4.70048	112225	0	53.97	56.03	56.03
6	IMF	338	193	0	38	1	1	25.1	42.3	S	1	3.63759	114244	0	-16.30	54.30	54.30
7	GHF	342	185	0	148	1	1	30.2	44.9	S	1	4.99721	116964	0	195.68	-47.68	-47.68
8	R10	349	199	0	108	1	1	30.4	43.0	S	1	4.68213	121104	0	131.78	-23.78	-23.78
9	R13F	350	191	0	181	1	1	30.6	45.0	S	1	5.19850	122500	0	247.85	-66.85	-66.85
10	EHF	354	187	0	182	1	1	30.7	42.8	S	1	5.20401	125316	0	155.94	26.06	26.06
11	R33I	358	323	0	56	0	1	29.9	39.1	S	0	4.02535	128164	0	-76.27	132.27	132.27
12	R36I	360	353	0	88	0	1	24.9	41.7	S	0	4.47734	129600	0	13.55	74.45	74.45
13	GHF	361	183	0	220	1	1	30.2	44.9	S	1	5.39363	130321	0	294.31	-74.31	-74.31
14	R34I	367	327	0	38	0	1	25.0	39.0	S	0	3.63759	134689	0	-90.70	128.70	128.70
15	R35I	369	376	0	49	0	1	25.2	38.7	S	0	3.89182	136161	0	-94.47	143.47	143.47
16	R24	371	368	0	131	1	1	35.1	45.4	S	0	4.87520	137641	0	421.90	-290.90	-290.90
17	F7T1	373	213	0	67	1	1	29.4	41.3	S	1	4.20469	139129	0	157.10	-90.10	-90.10
18	R6	377	205	0	233	1	1	30.4	45.0	S	1	5.45104	142129	0	377.67	-144.67	-144.67
19	F7T5	379	184	0	38	1	1	24.8	36.0	S	1	3.63759	143641	0	-139.61	177.61	177.61
20	R13F	379	187	0	322	1	1	30.6	45.0	S	1	5.77455	143641	0	388.90	-66.90	-66.90
21	R18	379	357	0	198	1	1	29.6	43.5	S	0	5.28827	143641	0	300.45	-102.45	-102.45
22	K23	380	370	0	107	1	1	34.9	42.0	S	0	4.67283	144400	0	285.26	-178.26	-178.26
23	EHF	387	187	0	215	1	1	30.7	42.8	S	1	5.37064	149769	0	311.46	-96.46	-96.46
24	MHF	387	188	0	254	1	1	35.2	42.1	S	1	5.53733	149769	0	324.40	-70.40	-70.40
25	GHF	389	181	0	325	1	1	30.2	44.9	S	1	5.78383	151321	0	423.10	-98.10	-98.10
26	R33I	394	316	0	129	0	1	29.9	39.1	S	0	4.85981	155236	0	88.41	40.59	40.59
27	R36I	395	349	0	138	0	1	24.9	41.7	S	0	4.92725	156025	0	172.34	-34.34	-34.34
28	AAHF	398	152	0	280	1	1	29.4	42.2	S	1	5.63479	158404	0	312.01	-32.01	-32.01
29	R37I	398	297	0	310	0	1	25.6	44.6	S	0	5.73657	158404	0	342.05	-32.05	-32.05
30	R34I	402	329	0	57	0	1	25.0	39.0	S	0	4.04305	161604	0	61.93	-4.93	-4.93
31	F7T1	403	203	0	232	1	1	29.4	41.3	S	1	5.44674	162409	0	285.28	-53.28	-53.28
32	R31I	403	282	0	381	0	1	30.4	46.1	S	0	5.94280	162409	0	491.77	-110.77	-110.77
33	R35I	403	377	0	81	0	1	25.2	38.7	S	0	4.39445	162409	0	52.51	28.49	28.49
34	R6	411	196	0	393	1	1	30.4	45.0	S	1	5.97391	168921	0	517.91	-124.81	-124.81
35	F7T5	413	183	0	76	1	1	24.8	36.0	S	1	4.33073	170569	0	-1.19	77.19	77.19
36	R23	414	363	0	210	1	1	34.9	42.0	S	0	5.34711	171396	0	422.83	-212.83	-212.83
37	R13F	419	184	0	527	1	1	30.6	45.0	S	1	6.26720	175561	0	548.74	-21.74	-21.74
38	R22	422	393	0	59	1	1	24.8	38.7	S	0	4.07754	178084	0	170.15	-111.15	-111.15
39	R10	423	193	0	382	1	1	30.4	43.0	S	1	5.94542	178929	0	456.95	-74.95	-74.95
40	R12	425	182	0	390	1	1	25.3	42.0	S	1	5.96615	180625	0	356.32	33.68	33.68
41	GHF	428	174	0	853	1	1	30.2	44.9	S	1	6.74876	183184	0	569.62	283.38	283.38
42	MHF	429	179	0	535	1	1	35.2	42.1	S	1	6.28227	184041	0	482.72	52.28	52.28
43	R33I	430	314	0	260	0	1	29.9	39.1	S	0	5.56068	184900	0	220.50	39.50	39.50
44	R36I	430	352	0	170	0	1	24.9	41.7	S	0	5.13580	184900	0	300.31	-130.31	-130.31
45	F4	431	194	0	504	1	1	29.9	42.0	S	1	6.22258	185761	0	426.13	77.87	77.87
46	R37I	432	302	0	457	0	1	25.6	44.6	S	0	6.12468	186624	0	464.23	-7.23	-7.23
47	EHF	433	184	0	527	1	1	30.7	42.8	S	1	6.26720	187489	0	482.55	44.45	44.45
48	F10	434	267	0	538	1	1	30.4	42.0	S	1	6.28786	188356	0	441.05	96.95	96.95
49	F7T1	435	197	0	361	1	1	29.4	41.3	S	1	5.88888	189225	0	397.06	-36.06	-36.06
50	R34I	437	330	0	120	0	1	25.0	39.0	S	0	4.78749	190969	0	183.74	-63.74	-63.74
51	R35I	437	378	0	111	0	1	25.2	38.7	S	0	4.70953	190969	0	170.41	-59.41	-59.41
52	R31I	438	282	0	687	0	1	30.4	46.1	S	0	6.53233	191844	0	612.70	74.30	74.30
53	AAHF	440	154	0	368	1	1	29.4	42.2	S	1	5.90808	193600	0	458.71	-90.71	-90.71
54	R24	441	353	0	509	1	1	35.1	45.4	S	0	6.23245	194481	0	689.29	-180.29	-180.29
55	R6	445	193	0	614	1	1	30.4	45.0	S	1	6.41999	199025	0	628.87	-14.87	-14.87

SLURRY VISCOSITY DATA ANALYSIS
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OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	RESID
56	F13	446	236	0.00	303	1	1	28.9	41.5	S	1	5.71373	198916	0.0000	434.408	-131.41	-131.41
57	F7T5	446	176	0.00	224	1	1	24.8	36.0	S	1	5.41165	198916	0.0000	105.363	118.64	118.64
58	F7T2	448	186	0.00	425	1	1	29.3	41.7	S	1	6.05209	200704	0.0000	454.690	-29.69	-29.69
59	R23	448	354	0.00	442	1	1	34.9	42.0	S	0	6.09131	200704	0.0000	531.324	-89.32	-89.32
60	R18	452	352	0.10	448	1	1	29.6	43.5	S	0	6.10479	204304	0.0100	561.858	-113.86	-113.86
61	R22	455	381	0.10	161	1	1	24.8	38.7	S	0	5.08140	207025	0.0100	269.230	-108.23	-108.23
62	R5	456	230	0.10	429	1	1	30.4	42.0	S	1	6.06146	207936	0.0100	503.506	-74.51	-74.51
63	R361	464	353	0.12	251	0	1	24.9	41.7	S	0	5.52545	215296	0.0144	395.122	-144.12	-144.12
64	R331	466	315	0.13	348	0	1	29.9	39.1	S	0	5.95220	217156	0.0169	319.979	28.02	28.02
65	F10	467	265	0.12	565	1	1	30.4	42.0	S	1	6.33683	218089	0.0144	530.169	34.83	34.83
66	F9	467	241	0.13	576	1	1	30.5	42.0	S	1	6.35611	218089	0.0169	531.261	44.74	44.74
67	R12	467	185	0.10	487	1	1	25.3	42.0	S	1	6.18826	218089	0.0100	474.500	12.50	12.50
68	R13F	467	183	0.10	758	1	1	30.6	45.0	S	1	6.63068	218089	0.0100	687.420	70.58	70.58
69	R371	467	308	0.13	450	0	1	25.6	44.6	S	0	6.10925	218089	0.0169	559.632	-109.63	-109.63
70	R10	469	191	0.10	648	1	1	30.4	43.0	S	1	6.47389	219961	0.0100	586.379	61.62	61.62
71	R11	471	185	0.10	586	1	1	35.5	43.0	S	1	6.37332	221841	0.0100	646.469	-60.47	-60.47
72	R341	471	327	0.12	165	0	1	25.0	39.0	S	0	5.10595	221841	0.0144	272.563	-107.56	-107.56
73	R351	471	379	0.11	172	0	1	25.2	38.7	S	0	5.14749	221841	0.0121	259.240	-87.24	-87.24
74	R311	472	285	0.14	791	0	1	30.4	46.1	S	0	6.07330	222784	0.0196	700.674	90.33	90.33
75	GHF	476	169	0.19	1463	1	1	30.2	44.9	S	1	7.28824	226576	0.0361	697.436	765.56	765.56
76	R24	476	349	0.12	628	1	1	35.1	45.4	S	0	6.44254	226576	0.0144	776.767	-148.77	-148.77
77	R6	479	192	0.10	734	1	1	30.4	45.0	S	1	6.59951	229441	0.0100	710.852	23.15	23.15
78	F13	490	227	0.14	539	1	1	28.9	41.5	S	1	6.28972	230400	0.0196	515.538	23.46	23.46
79	F11	481	187	0.17	616	1	1	29.8	41.9	S	1	6.42325	231361	0.0289	547.983	68.02	68.02
80	R23	482	350	0.12	624	1	1	34.9	42.0	S	0	6.43615	232324	0.0144	610.742	13.26	13.26
81	AAHF	493	155	0.21	453	1	1	29.4	42.2	S	1	6.11589	233289	0.0441	562.940	-109.94	-109.94
82	EHF	494	177	0.18	1101	1	1	30.7	42.8	S	1	7.00397	234256	0.0324	610.015	490.99	490.99
83	R22	497	374	0.20	274	1	1	24.8	38.7	S	0	5.61313	237169	0.0400	339.147	-65.15	-65.15
84	R18	488	345	0.20	631	1	1	29.6	43.5	S	0	6.44731	238144	0.0400	641.421	-10.42	-10.42
85	P21	489	365	0.20	322	1	1	24.8	42.0	S	0	5.77455	239121	0.0400	513.237	-191.24	-191.24
86	R5	490	224	0.20	697	1	1	30.4	42.0	S	1	6.54679	240100	0.0400	576.083	120.92	120.92
87	R361	498	353	0.23	315	0	1	24.9	41.7	S	0	5.75257	248004	0.0529	460.858	-145.86	-145.86
88	R331	502	317	0.26	380	0	1	29.9	39.1	S	0	5.94017	252004	0.0676	386.865	-6.87	-6.87
89	R371	502	314	0.26	495	0	1	25.6	44.6	S	0	6.20456	252004	0.0676	624.220	-129.22	-129.22
90	F9	503	239	0.27	696	1	1	30.5	42.0	S	1	6.54535	253009	0.0729	597.241	98.76	98.76
91	R321	504	305	0.27	616	0	1	30.1	42.0	S	0	6.42325	254016	0.0729	541.707	74.29	74.29
92	F3	505	166	0.38	653	1	1	31.2	42.6	S	1	6.48158	255025	0.1444	638.605	14.40	14.40
93	R341	505	326	0.25	218	0	1	25.0	39.0	S	0	5.38450	255025	0.0625	332.312	-114.31	-114.31
94	R351	505	378	0.22	247	0	1	25.2	38.7	S	0	5.50939	255025	0.0484	318.989	-71.99	-71.99
95	R311	506	288	0.29	856	0	1	30.4	46.1	S	0	6.75227	256036	0.0841	759.568	96.43	96.43
96	R24	510	350	0.23	806	1	1	35.1	45.4	S	0	6.69208	260100	0.0529	832.240	-26.24	-26.24
97	R12	511	188	0.30	547	1	1	25.3	42.0	S	1	6.30445	261121	0.0900	550.715	-3.72	-3.72
98	F7T6	512	177	0.35	363	1	1	24.8	40.0	S	1	5.89440	262144	0.1225	443.045	-80.04	-80.04
99	R6	513	193	0.30	882	1	1	30.4	45.0	S	1	6.78219	263169	0.0900	763.760	118.24	118.24
100	F13	514	225	0.29	680	1	1	28.9	41.5	S	1	6.52209	264196	0.0841	567.590	112.41	112.41
101	R23	516	352	0.23	701	1	1	34.9	42.0	S	0	6.55251	266256	0.0529	661.084	39.92	39.92
102	R22	520	374	0.30	342	1	1	24.8	38.7	S	0	5.83481	270400	0.0900	384.273	-42.27	-42.27
103	R13F	521	185	0.30	877	1	1	30.6	45.0	S	1	6.77651	271441	0.0900	774.166	102.83	102.83
104	R21	521	357	0.30	562	1	1	24.8	42.0	S	0	6.33150	271441	0.0900	555.788	6.21	6.21
105	R18	522	346	0.30	731	1	1	29.6	43.5	S	0	6.59441	272484	0.0900	686.631	44.37	44.37
106	R5	524	224	0.40	660	1	1	30.4	42.0	S	1	6.49224	274576	0.1600	619.583	40.42	40.42
107	AAHF	526	155	0.42	626	1	1	29.4	42.2	S	1	6.43935	276676	0.1764	620.659	5.34	5.34
108	GHF	530	170	0.38	1603	1	1	30.2	44.9	S	1	7.37963	280900	0.1444	771.957	831.04	831.04
109	F10	532	267	0.37	741	1	1	30.4	42.0	S	1	6.60800	283024	0.1369	625.593	115.41	115.41
110	R361	532	356	0.35	360	0	1	24.9	41.7	S	0	5.88610	283024	0.1225	497.516	-137.52	-137.52

SLURRY VISCOSITY DATA ANALYSIS
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OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	RESID
111	EHF	534	177	0.36	1147	1	1	30.7	42.8	S	1	7.04491	285156	0.1296	671.470	475.53	475.53
112	R371	536	319	0.39	506	0	1	25.6	44.6	S	0	6.22654	287296	0.1521	657.457	-151.46	-151.46
113	F9	537	242	0.40	658	1	1	30.5	42.0	S	1	6.48920	288369	0.1600	629.623	28.38	28.38
114	MHF	537	180	0.36	818	1	1	35.2	42.1	S	1	6.70686	288369	0.1296	686.095	131.90	131.90
115	R331	538	322	0.38	429	0	1	29.9	39.1	S	0	6.06146	289444	0.1444	421.152	7.85	7.85
116	R351	539	381	0.32	274	0	1	25.2	38.7	S	0	5.61313	290521	0.1024	349.661	-75.66	-75.66
117	P321	540	309	0.40	679	0	1	30.1	42.0	S	0	6.52062	291608	0.1600	574.183	104.82	104.82
118	R341	540	328	0.37	251	0	1	25.0	39.0	S	0	5.52545	291608	0.1369	363.446	-112.45	-112.45
119	R311	541	291	0.43	993	0	1	30.4	46.1	S	0	6.90073	292681	0.1849	789.821	203.18	203.18
120	F776	545	173	0.54	357	1	1	24.8	40.0	S	1	5.87774	297025	0.2916	467.419	-110.42	-110.42
121	F775	546	171	0.58	321	1	1	24.8	36.0	S	1	5.77144	298116	0.3364	260.973	60.03	60.03
122	R6	547	193	0.50	1058	1	1	30.4	45.0	S	1	6.96414	299209	0.2500	787.590	270.41	270.41
123	F12	550	199	0.48	880	1	1	30.7	42.0	S	1	6.77992	302500	0.2304	636.503	243.50	243.50
124	R23	550	356	0.35	789	1	1	34.9	42.0	S	0	6.67077	302500	0.1225	682.349	106.65	106.65
125	R22	553	376	0.40	421	1	1	24.8	38.7	S	0	6.04263	305809	0.1600	402.007	18.99	18.99
126	F772	554	181	0.54	644	1	1	29.3	41.7	S	1	6.46770	306916	0.2916	606.305	37.70	37.70
127	R12	554	191	0.50	572	1	1	25.3	42.0	S	1	6.34914	306916	0.2500	578.149	-6.15	-6.15
128	R18	556	353	0.40	691	1	1	29.6	43.5	S	0	6.53814	309136	0.1600	702.764	-11.76	-11.76
129	R5	557	228	0.50	742	1	1	30.4	42.0	S	1	6.60935	310249	0.2500	633.997	108.00	108.00
130	F10	564	274	0.48	736	1	1	30.4	42.0	S	1	6.60123	318096	0.2304	633.533	102.47	102.47
131	R361	567	360	0.46	420	0	1	24.9	41.7	S	0	6.04025	321489	0.2116	504.880	-84.88	-84.88
132	R371	570	326	0.52	516	0	1	25.6	44.6	S	0	6.24611	324900	0.2704	661.618	-145.62	-145.62
133	R11	573	193	0.50	729	1	1	35.5	43.0	S	1	6.59167	328329	0.2500	738.484	-9.48	-9.48
134	R331	574	327	0.51	441	0	1	29.9	39.1	S	0	6.08904	329476	0.2601	422.841	18.16	18.16
135	R351	574	385	0.43	331	0	1	25.2	38.7	S	0	5.80212	329476	0.1849	350.862	-19.86	-19.86
136	R311	575	294	0.56	1090	0	1	30.4	46.1	S	0	6.99393	330625	0.3136	789.706	300.29	300.29
137	R341	575	332	0.50	284	0	1	25.0	39.0	S	0	5.64897	330625	0.2500	363.767	-79.77	-79.77
138	R13F	576	189	0.50	991	1	1	30.6	45.0	S	1	6.89871	331776	0.2500	787.122	203.88	203.88
139	R321	576	314	0.53	689	0	1	30.1	42.0	S	0	6.53524	331776	0.2809	574.061	114.94	114.94
140	F775	579	183	0.75	211	1	1	24.8	36.0	S	1	5.53186	335241	0.5625	257.126	-46.13	-46.13
141	GMF	580	176	0.57	1304	1	1	30.2	44.9	S	1	7.17319	336400	0.3249	775.561	528.44	528.44
142	F13	581	228	0.57	692	1	1	28.9	41.5	S	1	6.53959	337561	0.3249	585.057	106.94	106.94
143	EHF	583	184	0.54	994	1	1	30.7	42.8	S	1	6.90174	339889	0.2916	670.687	323.31	323.31
144	F4	585	205	0.64	689	1	1	29.9	42.0	S	1	6.53524	342225	0.4096	619.289	69.71	69.71
145	R21	586	365	0.50	490	1	1	24.8	42.0	S	0	6.19441	343396	0.2500	562.924	-72.92	-72.92
146	R22	586	383	0.50	360	1	1	24.8	38.7	S	0	5.88610	343396	0.2500	392.349	-32.35	-32.35
147	F772	589	192	0.71	468	1	1	29.3	41.7	S	1	6.14847	346921	0.5041	594.301	-126.30	-126.30
148	R18	589	361	0.50	683	1	1	29.6	43.5	S	0	6.52649	346921	0.2500	690.617	-7.62	-7.62
149	R5	591	233	0.70	648	1	1	30.4	42.0	S	1	6.47389	349281	0.4900	620.198	27.80	27.80
150	F10	597	280	0.60	609	1	1	30.4	42.0	S	1	6.41182	356409	0.3600	614.745	-5.74	-5.74
151	R12	598	198	0.60	463	1	1	25.3	42.0	S	1	6.13773	357604	0.3600	558.079	-95.08	-95.08
152	R361	601	364	0.57	463	0	1	24.9	41.7	S	0	6.13773	361201	0.3249	482.529	-19.53	-19.53
153	R371	605	332	0.64	526	0	1	25.6	44.6	S	0	6.26530	366025	0.4096	635.528	-109.53	-109.53
154	R341	609	338	0.62	263	0	1	25.0	39.0	S	0	5.57215	370881	0.3844	334.575	-71.57	-71.57
155	R351	609	389	0.53	357	0	1	25.2	38.7	S	0	5.47774	370881	0.2809	321.251	35.75	35.75
156	F13L	610	213	0.78	635	1	1	29.7	41.5	S	1	6.45362	372100	0.6084	566.337	68.66	68.66
157	R311	610	300	0.70	1006	0	1	30.4	46.1	S	0	6.91374	372100	0.4900	759.214	246.79	246.79
158	R331	610	336	0.63	384	0	1	29.9	39.1	S	0	5.95064	372100	0.3969	391.931	-7.93	-7.93
159	F775	612	193	0.92	139	1	1	24.8	36.0	S	1	4.93447	374544	0.8464	225.886	-86.89	-86.89
160	F13	614	241	0.71	399	1	1	28.9	41.5	S	1	5.98896	376996	0.5041	552.158	-153.16	-153.16
161	F11	615	197	0.86	611	1	1	29.8	41.9	S	1	6.41510	378225	0.7396	581.233	29.77	29.77
162	F12	618	210	0.79	679	1	1	30.7	42.0	S	1	6.52062	381924	0.6241	591.802	87.20	87.20
163	R21	619	379	0.60	428	1	1	24.8	42.0	S	0	6.05912	383161	0.3600	525.875	-97.87	-97.87
164	R22	619	395	0.60	314	1	1	24.8	38.7	S	0	5.74939	383161	0.3600	355.300	-41.30	-41.30
165	F771	621	211	0.99	369	1	1	29.4	41.3	S	1	5.91080	385641	0.9801	536.778	-167.78	-167.78

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OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	RESID
166	R18	622	371	0.60	570	1	1	29.6	43.5	S	0	6.34564	396884	0.3600	651.077	-81.08	-81.08
167	GMF	624	186	0.74	921	1	1	30.2	44.9	S	1	6.82546	389376	0.5476	726.715	194.29	194.29
168	R13F	624	193	0.60	1038	1	1	30.6	45.0	S	1	6.94505	389376	0.3600	736.250	301.75	301.75
169	F8	625	217	0.96	449	1	1	31.3	42.4	S	1	6.10702	390625	0.9216	607.822	-158.82	-158.82
170	R5	625	240	0.80	555	1	1	30.4	42.0	S	1	6.31897	390625	0.6400	577.322	-22.32	-22.32
171	EHF	630	192	0.71	814	1	1	30.7	42.8	S	1	6.70196	396900	0.5041	613.191	200.81	200.81
172	MMF	632	195	0.70	592	1	1	35.2	42.1	S	1	6.38351	399424	0.4900	622.449	-30.45	-30.45
173	R361	635	370	0.68	458	0	1	24.9	41.7	S	0	6.12687	403225	0.4624	431.101	26.90	26.90
174	R371	640	341	0.76	454	0	1	25.6	44.6	S	0	6.11810	409600	0.5776	578.626	-124.63	-124.63
175	R12	642	206	0.90	423	1	1	25.3	42.0	S	1	6.04737	412164	0.6400	489.311	-66.31	-66.31
176	R351	643	400	0.64	279	0	1	25.2	38.7	S	0	5.63121	413449	0.4096	262.982	16.02	16.02
177	F7T6	644	194	1.06	171	1	1	24.8	40.0	S	1	5.14166	414736	1.1236	376.192	-205.19	-205.19
178	R341	644	350	0.73	191	0	1	25.0	39.0	S	0	5.25227	414736	0.5329	274.151	-83.15	-83.15
179	R311	645	313	0.83	693	0	1	30.4	46.1	S	0	6.54103	416025	0.6889	697.910	-4.91	-4.91
180	F7T5	646	200	1.08	137	1	1	24.8	36.0	S	1	4.91998	417316	1.1664	165.051	-28.05	-28.05
191	R331	646	346	0.75	345	0	1	29.9	39.1	S	0	5.94354	417316	0.5625	328.423	16.58	16.58
182	F13	648	256	0.93	282	1	1	28.9	41.5	S	1	5.64191	419904	0.6889	489.612	-207.61	-207.61
183	R10	651	208	0.80	606	1	1	30.4	43.0	S	1	6.40688	423801	0.6400	576.605	29.40	29.40
184	F12	652	220	0.94	495	1	1	30.7	42.0	S	1	6.20456	425104	0.8836	525.835	-30.84	-30.84
185	F7T1	652	223	1.14	213	1	1	29.4	41.3	S	1	5.36129	425104	1.2996	475.462	-262.46	-262.46
186	R21	652	391	0.70	340	1	1	24.8	42.0	S	0	5.82895	425104	0.4900	461.433	-121.43	-121.43
187	R22	652	407	0.70	269	1	1	24.8	38.7	S	0	5.59471	425104	0.4900	290.859	-21.86	-21.86
188	R23	652	393	0.57	472	1	1	34.9	42.0	S	0	6.15698	425104	0.4489	571.680	-99.68	-99.68
189	AAHF	655	167	1.03	432	1	1	29.4	42.2	S	1	6.06843	429025	1.0609	514.766	-82.77	-82.77
190	R18	655	382	0.80	549	1	1	29.6	43.5	S	0	6.30810	429025	0.6400	584.145	-35.15	-35.15
191	F7T2	659	211	1.02	261	1	1	29.3	41.7	S	1	5.56452	434281	1.0404	477.856	-216.86	-216.86
192	F8	659	232	1.09	254	1	1	31.3	42.4	S	1	5.53733	434281	1.1881	535.869	-281.87	-281.87
193	R5	659	247	0.90	494	1	1	30.4	42.0	S	1	6.20254	434281	0.8100	505.370	-11.37	-11.37
194	F10	663	295	0.92	483	1	1	30.4	42.0	S	1	6.18002	439569	0.6724	494.993	-11.99	-11.99
195	R13F	663	199	0.80	896	1	1	30.6	45.0	S	1	6.79794	439569	0.6400	652.244	243.76	243.76
196	GMF	665	195	0.91	778	1	1	30.2	44.9	S	1	6.65673	442225	0.8281	637.370	140.63	140.63
197	R361	670	379	0.79	406	0	1	24.9	41.7	S	0	6.00635	448900	0.6241	347.788	58.21	58.21
198	EHF	674	202	0.87	608	1	1	30.7	42.8	S	1	6.41017	454276	0.7569	509.008	98.99	98.99
199	R371	675	354	0.87	336	0	1	25.6	44.6	S	0	5.81711	455625	0.7569	490.911	-154.91	-154.91
200	F7T6	678	201	1.22	135	1	1	24.8	40.0	S	1	4.90527	459684	1.4884	287.990	-152.99	-152.99
201	R341	678	364	0.85	137	0	1	25.0	39.0	S	0	4.91998	459684	0.7225	185.949	-48.95	-48.95
202	R351	678	418	0.73	145	0	1	25.2	38.7	S	0	4.97673	459684	0.5329	172.626	-27.63	-27.63
203	F7T5	679	208	1.24	67	1	1	24.8	36.0	S	1	4.20469	461041	1.5376	78.199	-11.20	-11.20
204	R311	680	332	0.95	370	0	1	30.4	46.1	S	0	5.91350	462400	0.9025	605.794	-235.79	-235.79
205	F13	681	268	0.95	195	1	1	28.9	41.5	S	1	5.27300	463761	0.9025	401.100	-206.10	-206.10
206	R331	682	359	0.86	239	0	1	29.9	39.1	S	0	5.47646	465124	0.7396	232.316	6.68	6.68
207	F7T5	683	214	1.39	67	1	1	24.8	36.0	S	1	4.20469	466489	1.9321	65.810	1.19	1.19
208	R321	683	345	0.90	359	0	1	30.1	42.0	S	0	5.88332	466489	0.8100	381.264	-22.26	-22.26
209	F12	685	232	1.08	258	1	1	30.7	42.0	S	1	5.55296	469225	1.1664	434.002	-176.00	-176.00
210	R12	685	216	0.90	288	1	1	25.3	42.0	S	1	5.66296	469225	0.8100	375.058	-87.06	-87.06
211	R21	685	405	0.80	282	1	1	24.8	42.0	S	0	5.64191	469225	0.6400	369.600	-87.60	-87.60
212	R22	686	420	0.80	225	1	1	24.8	38.7	S	0	5.41610	470596	0.6400	195.815	29.18	29.18
213	R23	686	405	0.77	332	1	1	34.9	42.0	S	0	5.90513	470596	0.5929	476.637	-144.64	-144.64
214	IMF	691	215	0.99	195	1	1	25.1	42.3	S	1	5.27300	477481	0.9801	368.742	-173.74	-173.74
215	R5	692	256	1.10	318	1	1	30.4	42.0	S	1	5.76205	478864	1.2100	407.726	-89.73	-89.73
216	F8	693	245	1.23	188	1	1	31.3	42.4	S	1	5.23644	480249	1.5129	434.839	-246.84	-246.84
217	F7T2	694	221	1.17	193	1	1	29.3	41.7	S	1	5.26269	481636	1.3689	373.414	-180.41	-180.41
218	R11	696	218	0.90	412	1	1	35.5	43.0	S	1	6.02102	484416	0.8100	501.398	-89.39	-89.39
219	R13F	696	210	1.00	474	1	1	30.6	45.0	S	1	6.16121	484416	1.0000	551.280	-77.28	-77.28
220	AAHF	699	180	1.21	214	1	1	29.4	42.2	S	1	5.36598	488601	1.4641	382.915	-168.91	-168.91

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ORS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	RESID
221	GHF	705	204	1.06	606	1	1	30.2	44.9	S	1	6.40688	497025	1.1236	509.46	96.54	96.54
222	R361	705	370	0.89	201	0	1	24.9	41.7	S	0	5.30330	497025	0.7921	233.66	-32.66	-32.66
223	MMF	707	218	1.01	256	1	1	35.2	42.1	S	1	5.54518	499849	1.0201	411.85	-155.85	-155.85
224	R371	710	374	0.98	174	0	1	25.6	44.6	S	0	5.15906	504100	0.9604	372.38	-198.38	-198.38
225	R341	713	378	0.95	102	0	1	25.0	39.0	S	0	4.62497	508369	0.9025	64.78	37.22	37.22
226	R351	713	440	0.83	100	0	1	25.2	38.7	S	0	4.60517	508369	0.6889	51.46	48.54	48.54
227	F13	714	280	1.07	137	1	1	28.9	41.5	S	1	4.91998	509796	1.1449	285.19	-148.19	-148.19
228	F776	714	210	1.37	99	1	1	24.8	40.0	S	1	4.59512	509796	1.8769	162.91	-63.91	-63.91
229	R311	715	354	1.07	244	0	1	30.4	46.1	S	0	5.49717	511225	1.1449	482.86	-238.86	-238.86
230	EHF	716	215	1.02	378	1	1	30.7	42.8	S	1	5.93489	512656	1.0404	364.13	13.87	13.87
231	F775	717	223	1.53	33	1	1	24.8	36.0	S	1	3.49651	514089	2.3409	-55.75	88.75	88.75
232	R21	718	421	0.90	198	1	1	24.8	42.0	S	0	5.28827	515524	0.8100	250.38	-52.38	-52.38
233	R22	718	434	0.90	169	1	1	24.8	38.7	S	0	5.12990	515524	0.8100	79.80	89.20	89.20
234	R321	718	368	1.01	152	0	1	30.1	42.0	S	0	5.02388	515524	1.0201	255.69	-103.69	-103.69
235	R331	718	378	0.97	118	0	1	29.9	39.1	S	0	4.77068	515524	0.9409	103.61	14.39	14.39
236	R24	719	413	0.88	402	1	1	35.1	45.4	S	0	5.99645	516961	0.7744	534.51	-132.51	-132.51
237	R23	720	425	0.86	235	1	1	34.9	42.0	S	0	5.45959	518400	0.7396	352.52	-117.52	-117.52
238	R5	725	268	1.20	202	1	1	30.4	42.0	S	1	5.30827	525625	1.4400	282.69	-80.69	-80.69
239	F8	726	254	1.35	155	1	1	31.3	42.4	S	1	5.04343	527076	1.8225	308.97	-153.97	-153.97
240	R12	728	227	1.10	252	1	1	25.3	42.0	S	1	5.52943	529984	1.2100	214.30	37.70	37.70
241	R13F	729	225	1.10	343	1	1	30.6	45.0	S	1	5.83773	531441	1.2100	422.92	-79.92	-79.92
242	F772	730	232	1.31	127	1	1	29.3	41.7	S	1	4.84419	532900	1.7161	233.84	-106.84	-106.84
243	R11	732	228	1.10	250	1	1	35.5	43.0	S	1	5.52146	535824	1.2100	360.01	-110.01	-110.01
244	IMF	735	225	1.13	159	1	1	25.1	42.3	S	1	5.06890	540225	1.2769	197.05	-38.05	-38.05
245	R361	739	421	0.99	122	0	1	24.9	41.7	S	0	4.90402	546121	0.9801	93.29	28.71	28.71
246	GHF	740	215	1.21	439	1	1	30.2	44.9	S	1	6.08450	547600	1.4641	364.52	74.48	74.48
247	AAMF	742	194	1.38	126	1	1	29.4	42.2	S	1	4.83628	550564	1.9044	207.01	-81.01	-81.01
248	MMF	742	230	1.15	157	1	1	35.2	42.1	S	1	5.05625	550564	1.3225	265.15	-108.15	-108.15
249	R341	747	391	1.06	83	0	1	25.0	39.0	S	0	4.41884	558009	1.1236	-82.43	165.43	165.43
250	F13	748	289	1.18	135	1	1	28.9	41.5	S	1	4.90527	559504	1.3924	137.13	-2.13	-2.13
251	R351	748	454	0.92	99	0	1	25.2	38.7	S	0	4.59512	559504	0.8464	-100.52	199.52	199.52
252	R311	749	372	1.18	171	0	1	30.4	46.1	S	0	5.14166	561001	1.3924	333.94	-162.94	-162.94
253	F776	750	221	1.52	65	1	1	24.8	40.0	S	1	4.17439	562500	2.3104	5.23	59.77	59.77
254	R21	751	441	1.00	129	1	1	24.8	42.0	S	0	4.85981	564001	1.0000	103.76	25.24	25.24
255	R22	751	453	1.00	115	1	1	24.8	38.7	S	0	4.74493	564001	1.0000	-66.82	181.82	181.82
256	R24	753	432	0.97	255	1	1	35.1	45.4	S	0	5.54126	567009	0.9409	382.17	-127.17	-127.17
257	R23	754	446	0.96	141	1	1	34.9	42.0	S	0	4.94876	568516	0.9216	199.32	-58.32	-58.32
258	R331	754	398	1.07	83	0	1	29.9	39.1	S	0	4.41984	568516	1.1449	-57.69	140.69	140.69
259	EHF	755	232	1.16	154	1	1	30.7	42.8	S	1	5.03695	570025	1.3456	189.88	-35.88	-35.88
260	F8	760	263	1.48	122	1	1	31.3	42.4	S	1	4.90402	577600	2.1904	150.65	-28.65	-28.65
261	F3	762	213	1.84	81	1	1	31.2	42.6	S	1	4.39445	580644	3.3956	149.67	-68.67	-68.67
262	F772	765	244	1.44	93	1	1	29.3	41.7	S	1	4.53260	585225	2.0736	66.90	26.10	26.10
263	R13F	767	236	1.20	306	1	1	30.6	45.0	S	1	5.72359	588289	1.4400	241.19	64.81	64.81
264	R11	768	242	1.20	184	1	1	35.5	43.0	S	1	5.21494	599824	1.4400	186.02	-2.02	-2.02
265	R12	771	241	1.20	123	1	1	25.3	42.0	S	1	4.81218	594441	1.4400	7.03	115.97	115.97
266	GHF	773	229	1.35	247	1	1	30.2	44.9	S	1	5.50939	597529	1.8225	199.64	47.36	47.36
267	IMF	773	236	1.27	125	1	1	25.1	42.3	S	1	4.82831	597529	1.6129	9.58	115.42	115.42
268	R361	773	443	1.08	60	0	1	24.9	41.7	S	0	4.09434	597529	1.1664	-76.15	136.15	136.15
269	MMF	774	244	1.28	93	1	1	35.2	42.1	S	1	4.53260	599076	1.6384	104.06	-11.06	-11.06
270	F13	781	302	1.29	53	1	1	28.9	41.5	S	1	3.97029	609961	1.6641	-34.39	87.39	87.39
271	R341	782	404	1.16	66	0	1	25.0	39.0	S	0	4.18965	611524	1.3456	-264.34	330.34	330.34
272	R21	783	467	1.10	51	1	1	24.8	42.0	S	0	3.93183	613089	1.2100	-64.57	115.57	115.57
273	R311	783	389	1.28	101	0	1	30.4	46.1	S	0	4.61512	613089	1.6384	155.94	-54.94	-54.94
274	R351	783	468	1.00	83	0	1	25.2	38.7	S	0	4.41884	613089	1.0000	-283.32	366.32	366.32
275	R22	784	477	1.10	50	1	1	24.8	38.7	S	0	3.91202	614656	1.2100	-240.82	290.82	290.82

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

11:05 WEDNESDAY, JANUARY 11, 1984 45

OBS	RUNID	TEMP	SHEAR	SRTH	VISC	CT	CS	CC	TS	ST	SIZE	LV	TEMP2	SRTH2	PRED1	RESID1	RESID
276	AAHF	785	206	1.53	83	1	1	29.4	42.2	S	1	4.41884	616225	2.3409	-15.40	98.40	98.40
277	R6	795	263	1.40	59	1	1	30.4	45.0	S	1	4.07754	616225	1.9600	140.25	-81.25	-81.25
278	F12	787	282	1.44	54	1	1	30.7	42.0	S	1	3.98898	619369	2.0736	-23.02	77.02	77.02
279	R23	787	470	1.04	88	1	1	34.9	42.0	S	0	4.47734	619369	1.0816	22.82	65.18	65.18
280	R24	787	496	1.06	83	1	1	35.1	45.4	S	0	4.41884	619369	1.1236	200.75	-117.75	-117.75
281	R33I	789	415	1.17	49	0	1	29.9	39.1	S	0	3.99182	622521	1.3689	-245.77	294.77	294.77
282	EHF	790	252	1.29	91	1	1	30.7	42.8	S	1	4.51086	624100	1.6641	0.92	90.08	90.08

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

11:05 WEDNESDAY, JANUARY 11, 1984 48

PLOT OF RESID1*PRED1 SYMBOL USED IS *

NOTE: 33 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

11:05 WEDNESDAY, JANUARY 11, 1994 49

PLOT OF RESID1*TEMP SYMBOL USED IS *

NOTE: 18 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

11:05 WEDNESDAY, JANUARY 11, 1984 50

PLOT OF RESIDUALS SYMBOL USED IS *

NOTE: 97 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

11:05 WEDNESDAY, JANUARY 11, 1994 51

PLOT OF RESIDUALS SYMBOL USED IS *

NOTE: 107 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

11:05 WEDNESDAY, JANUARY 11, 1984 52

PLOT OF RESID1*SRTH SYMBOL USED IS *

NOTE: 64 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

11:05 WEDNESDAY, JANUARY 11, 1984 53

PLOT OF RESIDUALS vs SHEAR SYMBOL USED IS *

NOTE: 35 OBS HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

11:05 WEDNESDAY, JANUARY 11, 1984 54

PLOT OF RESIDUALS SYMBOL USED IS *

NOTE: 229 045 HIDDEN

SLURRY VISCOSITY DATA ANALYSIS
FINE COAL

11:05 WEDNESDAY, JANUARY 11, 1994 55

PLOT OF RESIDUAL*SIZE SYMBOL USED IS *

NOTE: 229 OBS HIDDEN

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APPENDIX G

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
 BOTH COAL TYPES INCLUDED
 BOTH COAL SIZES INCLUDED

11:52 TUESDAY, DECEMBER 13, 1983

VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAXIMUM
CUND	164	0.15310975	0.05533252	25.11000000	0.05000000	0.28000000
TEMP	164	590.32317073	132.28769596	96813.00000000	358.00000000	789.00000000
CC	164	28.98536585	3.39279720	4753.60000000	24.80000000	35.50000000
TS	164	42.80121951	2.69630485	7019.40000000	38.70000000	46.10000000
CT	164	0.60365854	0.49063503	99.00000000	0	1.00000000
CS	164	0.74390244	0.43781318	122.00000000	0	1.00000000
SHEAR	164	339.23170732	85.75759467	55634.00000000	182.00000000	524.00000000

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / N = 164

	CUND	TEMP	CC	TS	CT	CS	SHEAR
CUND	1.00000 0.0000	0.02138 0.7858	-0.02552 0.7456	-0.02397 0.7606	-0.09674 0.2178	-0.02518 0.7489	-0.13687 0.0805
TEMP	0.02138 0.7858	1.00000 0.0000	0.00205 0.9792	-0.04927 0.5310	0.05000 0.5249	-0.02833 0.7188	0.39658 0.0001
CC	-0.02552 0.7456	0.00205 0.7792	1.00000 0.0000	0.55175 0.0091	0.42622 0.0001	-0.42877 0.3001	-0.06885 0.3810
TS	-0.02397 0.7606	-0.04927 0.5310	0.55175 0.0091	1.00000 0.0000	0.43583 0.0001	-0.61818 0.3001	-0.20970 0.0070
CT	-0.09674 0.2178	0.05000 0.5249	0.42622 0.0001	0.43583 0.0001	1.00000 0.0000	-0.42543 0.3001	-0.12654 0.1064
CS	-0.02518 0.7489	-0.02833 0.7188	-0.42877 0.3001	-0.61818 0.3001	-0.42543 0.3001	1.00000 0.0000	-0.02847 0.7174
SHEAR	-0.13687 0.0805	0.39658 0.0001	-0.06885 0.3810	-0.20970 0.0070	-0.12654 0.1064	-0.02847 0.7174	1.00000 0.0000

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS

11:52 TUESDAY, DECEMBER 13, 1983 2

BOTH COAL TYPES INCLUDED

BOTH COAL SIZES INCLUDED

DBS	RUNID	TEMP	SHEAR	HOLDUP	SRTH	X	VSIC	COND	CT	CS	CC	TS	ST	SIZE	TC
1	R33I	358	323	0.59	0.00	9.2	56	0.08	0	1	29.9	39.1	S	0	YC
2	R36I	360	353	0.58	0.00	7.9	88	0.07	0	1	24.9	41.7	S	0	YC
3	R24	371	368	0.57	0.00	10.2	131	0.05	1	1	35.1	45.4	S	0	YC
4	R6	377	205	0.50	0.00	15.3	233	0.08	1	1	30.4	45.0	S	1	YC
5	R18	379	357	0.56	0.00	12.4	198	0.10	1	1	29.6	43.5	S	0	YC
6	R23	380	370	0.50	0.00	12.9	107	0.07	1	1	34.9	42.0	S	0	YC
7	R7	386	215	0.51	0.00	9.6	66	0.10	1	0	30.4	46.0	S	1	YC
8	R33I	394	316	0.57	0.00	11.2	129	0.08	0	1	29.9	39.1	S	0	YC
9	R36I	395	349	0.58	0.00	9.6	138	0.07	0	1	24.9	41.7	S	0	YC
10	R37I	398	297	0.50	0.00	19.7	310	0.08	0	1	25.6	44.6	S	0	YC
11	R34I	402	329	0.59	0.00	6.4	57	0.15	0	1	25.0	39.0	S	0	YC
12	R31I	403	282	0.54	0.00	19.5	381	0.08	0	1	30.4	46.1	S	0	YC
13	R35I	403	377	0.57	0.00	8.1	91	0.13	0	1	25.2	38.7	S	0	YC
14	R27	408	380	0.58	0.00	8.4	97	0.09	1	0	34.8	45.1	S	0	YC
15	R6	411	196	0.47	0.00	19.3	393	0.08	1	1	30.4	45.0	S	1	YC
16	R23	414	363	0.48	0.00	17.6	210	0.11	1	1	34.9	42.0	S	0	YC
17	R26	414	423	0.56	0.00	11.5	170	0.09	1	0	30.5	45.9	S	0	YC
18	R13C	417	197	0.53	0.00	12.8	212	0.11	1	0	30.9	45.0	S	1	YC
19	R7	419	213	0.51	0.00	19.3	98	0.13	1	0	30.4	46.0	S	1	YC
20	R22	422	393	0.52	0.00	9.4	59	0.10	1	1	24.8	38.7	S	0	YC
21	R10	423	193	0.51	0.00	16.5	382	0.11	1	1	30.4	43.0	S	1	YC
22	R12	425	182	0.48	0.00	18.3	390	0.09	1	1	25.3	42.0	S	1	YC
23	R33I	430	314	0.57	0.00	12.7	260	0.09	0	1	29.9	39.1	S	0	YC
24	R36I	430	352	0.57	0.00	10.4	170	0.08	0	1	24.9	41.7	S	0	YC
25	R37I	432	302	0.51	0.00	20.2	457	0.09	0	1	25.6	44.6	S	0	YC
26	R34I	437	330	0.59	0.00	7.9	120	0.13	0	1	25.0	39.0	S	0	YC
27	R35I	437	378	0.57	0.00	9.2	111	0.12	0	1	25.2	38.7	S	0	YC
28	R31I	438	282	0.53	0.00	20.6	697	0.09	0	1	30.4	46.1	S	0	YC
29	R27	440	370	0.56	0.00	12.5	223	0.09	1	0	34.8	45.1	S	0	YC
30	R24	441	353	0.54	0.00	19.0	509	0.16	1	1	35.1	45.4	S	0	YC
31	R26	445	416	0.55	0.00	13.6	251	0.11	1	0	30.5	45.9	S	0	YC
32	R6	445	193	0.46	0.00	23.5	614	0.10	1	1	30.4	45.0	S	1	YC
33	R7	451	212	0.50	0.15	11.4	129	0.14	1	0	30.4	46.0	S	1	YC
34	R18	452	352	0.54	0.10	17.5	448	0.15	1	1	29.6	43.5	S	0	YC
35	R22	455	391	0.50	0.10	15.0	151	0.16	1	1	24.8	38.7	S	0	YC
36	R5	456	230	0.55	0.10	14.8	429	0.12	1	1	30.4	42.0	S	1	YC
37	R25	459	426	0.56	0.10	10.0	126	0.15	1	0	30.6	45.8	S	0	YC
38	R13C	461	205	0.54	0.16	18.6	304	0.11	1	0	30.9	45.0	S	1	YC
39	R36I	464	353	0.57	0.12	12.2	251	0.10	0	1	24.9	41.7	S	0	YC
40	R33I	466	315	0.56	0.13	14.2	348	0.13	0	1	29.9	39.1	S	0	YC
41	R12	467	185	0.49	0.10	19.6	487	0.14	1	1	25.3	42.0	S	1	YC
42	R37I	467	308	0.51	0.13	19.4	450	0.14	0	1	25.6	44.6	S	0	YC
43	R10	469	191	0.50	0.10	20.6	648	0.16	1	1	30.4	43.0	S	1	YC
44	R27	471	366	0.56	0.11	14.0	299	0.15	1	0	34.8	45.1	S	0	YC
45	R34I	471	327	0.58	0.12	10.2	165	0.14	0	1	25.0	39.0	S	0	YC
46	R35I	471	379	0.56	0.11	11.1	172	0.14	0	1	25.2	38.7	S	0	YC
47	R31I	472	285	0.53	0.14	21.4	791	0.13	0	1	30.4	46.1	S	0	YC
48	R26	476	416	0.54	0.10	15.2	331	0.17	1	0	30.5	45.9	S	0	YC
49	R6	479	172	0.45	0.10	24.9	714	0.15	1	1	30.4	45.0	S	1	YC
50	R7	484	209	0.49	0.31	15.6	256	0.10	1	0	30.4	46.0	S	1	YC
51	R22	487	374	0.49	0.20	19.0	274	0.18	1	1	24.9	38.7	S	0	YC
52	R18	488	345	0.53	0.20	20.1	631	0.24	1	1	29.6	43.5	S	0	YC
53	R21	489	365	0.44	0.20	21.1	322	0.17	1	1	24.8	42.0	S	0	YC
54	R5	490	224	0.53	0.20	18.3	697	0.22	1	1	30.4	42.0	S	1	YC

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
 BOTH COAL TYPES INCLUDED
 BOTH COAL SIZES INCLUDED

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OBS	RUNID	TEMP	SHEAR	HOLDUP	SRTH	X	VISC	COND	CT	CS	CC	TS	ST	SIZE	TC
55	R25	491	421	0.55	0.19	13.5	249	0.19	1	0	30.6	45.8	S	0	YC
56	R36I	498	353	0.57	0.23	13.2	315	0.19	0	1	24.9	41.7	S	0	YC
57	R33I	502	317	0.56	0.26	14.3	380	0.26	0	1	29.9	39.1	S	0	YC
58	R37I	502	314	0.52	0.26	19.6	495	0.23	0	1	25.6	44.6	S	0	YC
59	R27	503	367	0.55	0.22	15.4	389	0.28	1	0	34.8	45.1	S	0	YC
60	R32I	504	305	0.55	0.27	18.2	616	0.21	0	1	30.1	42.0	S	0	YC
61	R34I	505	326	0.57	0.25	11.3	218	0.20	0	1	25.0	39.0	S	0	YC
62	R35I	505	378	0.56	0.22	12.8	247	0.21	0	1	25.2	39.7	S	0	YC
63	R31I	506	288	0.53	0.29	21.5	856	0.23	0	1	30.4	46.1	S	0	YC
64	R26	507	414	0.54	0.20	17.9	490	0.27	1	0	30.5	45.9	S	0	YC
65	R12	511	188	0.49	0.30	19.9	547	0.23	1	1	25.3	42.0	S	1	YC
66	R6	513	193	0.45	0.30	26.4	882	0.23	1	1	30.4	45.0	S	1	YC
67	R7	517	205	0.48	0.46	18.3	379	0.25	1	0	30.4	46.0	S	1	YC
68	R21	521	357	0.46	0.30	26.9	562	0.24	1	1	24.8	42.0	S	0	YC
69	R32I	540	309	0.55	0.40	18.3	679	0.28	0	1	30.1	42.0	S	0	YC
70	R6	547	193	0.45	0.50	27.7	1058	0.24	1	1	30.4	45.0	S	1	YC
71	R13C	551	193	0.50	0.49	17.7	536	0.28	1	0	30.9	45.0	S	1	YC
72	R33I	574	327	0.57	0.51	14.1	441	0.28	0	1	29.9	39.1	S	0	YC
73	R31I	575	294	0.54	0.56	22.1	1090	0.27	0	1	30.4	46.1	S	0	YC
74	R32I	576	314	0.55	0.53	17.6	689	0.23	0	1	30.1	42.0	S	0	YC
75	R7	584	200	0.46	0.79	23.0	709	0.24	1	0	30.4	46.0	S	1	YC
76	R13C	596	201	0.52	0.65	17.0	561	0.18	1	0	30.9	45.0	S	1	YC
77	R27	597	375	0.55	0.55	16.8	585	0.27	1	0	34.8	45.1	S	0	YC
78	R12	598	198	0.51	0.60	15.3	463	0.22	1	1	25.3	42.0	S	1	YC
79	R36I	601	364	0.57	0.57	14.0	463	0.22	0	1	24.9	41.7	S	0	YC
80	R37I	605	332	0.53	0.64	17.5	526	0.17	0	1	25.6	44.6	S	0	YC
81	R34I	609	338	0.58	0.62	10.8	263	0.20	0	1	25.0	39.0	S	0	YC
82	R35I	609	389	0.56	0.53	13.4	357	0.25	0	1	25.2	38.7	S	0	YC
83	R31I	610	300	0.54	0.70	20.2	1005	0.22	0	1	30.4	46.1	S	0	YC
84	R33I	610	336	0.58	0.63	12.4	384	0.21	0	1	29.9	39.1	S	0	YC
85	R7	617	205	0.47	0.94	19.2	549	0.21	1	0	30.4	46.0	S	1	YC
86	R21	619	379	0.47	0.60	20.3	429	0.23	1	1	24.8	42.0	S	0	YC
87	R18	622	371	0.54	0.60	16.1	570	0.22	1	1	29.6	43.5	S	0	YC
88	R5	625	240	0.55	0.80	13.7	555	0.24	1	1	30.4	42.0	S	1	YC
89	R27	628	381	0.56	0.66	15.9	580	0.20	1	0	34.8	45.1	S	0	YC
90	R36I	635	370	0.57	0.68	13.2	458	0.15	0	1	24.9	41.7	S	0	YC
91	R35I	643	400	0.57	0.64	11.2	279	0.18	0	1	25.2	38.7	S	0	YC
92	R34I	644	350	0.59	0.73	8.7	191	0.19	0	1	25.0	39.0	S	0	YC
93	R31I	645	313	0.56	0.83	15.9	693	0.20	0	1	30.4	46.1	S	0	YC
94	R33I	646	346	0.59	0.75	11.1	345	0.19	0	1	29.9	39.1	S	0	YC
95	R7	649	213	0.48	1.19	16.6	453	0.18	1	0	30.4	46.0	S	1	YC
96	R10	651	208	0.52	0.80	15.8	606	0.15	1	1	30.4	43.0	S	1	YC
97	R21	652	391	0.49	0.70	17.1	340	0.15	1	1	24.8	42.0	S	0	YC
98	R22	652	407	0.50	0.70	14.7	269	0.15	1	1	24.8	38.7	S	0	YC
99	R23	652	393	0.49	0.57	19.4	472	0.26	1	1	34.9	42.0	S	0	YC
100	R18	655	382	0.55	0.80	14.9	549	0.16	1	1	29.5	43.5	S	0	YC
101	R25	655	429	0.54	0.58	17.0	622	0.18	1	0	30.6	45.8	S	0	YC
102	R5	659	247	0.56	0.90	12.2	494	0.20	1	1	30.4	42.0	S	1	YC
103	R26	662	441	0.55	0.57	15.7	591	0.17	1	0	30.5	45.9	S	0	YC
104	R36I	670	379	0.58	0.79	11.7	406	0.17	0	1	24.9	41.7	S	0	YC
105	R37I	675	354	0.55	0.87	12.5	335	0.14	0	1	25.0	44.6	S	0	YC
106	R34I	679	364	0.60	0.85	7.0	137	0.21	0	1	25.0	39.0	S	0	YC
107	R35I	678	418	0.58	0.73	7.4	145	0.20	0	1	25.2	38.7	S	0	YC
108	R31I	680	332	0.58	0.95	10.9	370	0.18	0	1	30.4	46.1	S	0	YC

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
BOTH COAL TYPES INCLUDED
BOTH COAL SIZES INCLUDED

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OBS	RUNID	TEMP	SHEAR	HOLDUP	SRTII	X	VISC	COND	CT	CS	CC	TS	ST	SIZE	TC
107	R33I	682	359	0.60	0.86	8.7	239	0.21	0	1	29.9	39.1	S	0	YC
110	R7	682	222	0.50	1.24	12.1	270	0.17	1	0	30.4	46.0	S	1	YC
111	R32I	683	345	0.58	0.90	10.7	359	0.13	0	1	30.1	42.0	S	0	YC
112	R12	685	216	0.54	0.90	11.2	288	0.13	1	1	25.3	42.0	S	1	YC
113	R21	685	405	0.50	0.80	14.6	282	0.11	1	1	24.8	42.0	S	0	YC
114	R22	686	420	0.51	0.80	12.7	225	0.11	1	1	24.8	38.7	S	0	YC
115	R23	686	405	0.50	0.77	15.3	332	0.13	1	1	34.9	42.0	S	0	YC
116	R25	687	443	0.55	0.77	14.2	487	0.18	1	0	30.6	45.8	S	0	YC
117	R27	692	399	0.57	0.87	12.8	466	0.13	1	0	34.8	45.1	S	0	YC
118	R5	692	256	0.58	1.10	9.3	318	0.13	1	1	30.4	42.0	S	1	YC
119	R26	693	458	0.56	0.76	12.3	406	0.13	1	0	30.5	45.9	S	0	YC
120	R11	696	218	0.54	0.90	12.9	412	0.13	1	1	35.5	43.0	S	1	YC
121	R36I	705	370	0.60	0.89	7.8	201	0.17	0	1	24.9	41.7	S	0	YC
122	R37I	710	374	0.57	0.98	8.4	174	0.17	0	1	25.6	44.6	S	0	YC
123	R34I	713	378	0.61	0.95	5.6	102	0.21	0	1	25.0	39.0	S	0	YC
124	R35I	713	440	0.60	0.83	5.9	100	0.13	0	1	25.2	38.7	S	0	YC
125	R7	715	237	0.53	1.38	7.6	119	0.14	1	0	30.4	46.0	S	1	YC
126	R21	718	421	0.51	0.40	11.5	198	0.10	1	1	24.8	42.0	S	0	YC
127	R22	718	434	0.53	0.90	10.3	169	0.10	1	1	24.8	38.7	S	0	YC
128	R32I	718	368	0.61	1.01	6.6	152	0.18	0	1	30.1	42.0	S	0	YC
129	R33I	718	378	0.62	0.97	5.7	113	0.15	0	1	29.9	39.1	S	0	YC
130	R23	720	425	0.51	0.86	12.1	235	0.13	1	1	34.9	42.0	S	0	YC
131	R25	720	464	0.56	0.86	10.1	278	0.18	1	0	30.6	45.8	S	0	YC
132	R27	724	416	0.58	0.96	9.7	302	0.13	1	0	34.8	45.1	S	0	YC
133	R26	725	483	0.58	0.85	9.2	200	0.11	1	0	30.5	45.9	S	0	YC
134	R5	725	268	0.60	1.20	7.0	202	0.13	1	1	30.4	42.0	S	1	YC
135	R12	728	227	0.55	1.10	9.7	252	0.13	1	1	25.3	42.0	S	1	YC
136	R36I	739	421	0.62	0.99	5.7	122	0.14	0	1	24.9	41.7	S	0	YC
137	R34I	747	391	0.62	1.06	4.8	83	0.12	0	1	25.0	39.0	S	0	YC
138	R35I	748	454	0.61	0.92	5.5	99	0.11	0	1	25.2	38.7	S	0	YC
139	R7	748	250	0.56	1.51	6.1	99	0.12	1	0	30.4	46.0	S	1	YC
140	R31I	749	372	0.62	1.18	6.6	171	0.11	0	1	30.4	46.1	S	0	YC
141	R21	751	441	0.53	1.00	8.7	129	0.10	1	1	24.8	42.0	S	0	YC
142	R22	751	453	0.54	1.00	8.0	115	0.12	1	1	24.8	38.7	S	0	YC
143	R24	753	432	0.59	0.97	8.5	255	0.11	1	1	35.1	45.4	S	0	YC
144	R25	753	493	0.58	0.94	6.7	137	0.15	1	0	30.6	45.8	S	0	YC
145	R23	754	446	0.53	0.96	8.8	141	0.11	1	1	34.9	42.0	S	0	YC
146	R33I	754	398	0.63	1.07	4.5	83	0.14	0	1	29.9	39.1	S	0	YC
147	R26	755	506	0.60	0.93	7.2	172	0.12	1	0	30.5	45.9	S	0	YC
148	R27	756	439	0.60	1.06	6.9	170	0.11	1	0	34.9	45.1	S	0	YC
149	R11	768	242	0.57	1.20	7.6	184	0.07	1	1	35.5	43.0	S	1	YC
150	R12	771	241	0.57	1.20	6.3	123	0.10	1	1	25.3	42.0	S	1	YC
151	R13C	772	257	0.60	1.21	4.2	62	0.09	1	0	30.9	45.0	S	1	YC
152	R36I	773	443	0.63	1.08	3.8	60	0.12	0	1	24.9	41.7	S	0	YC
153	R7	781	258	0.57	1.63	4.7	59	0.10	1	0	30.4	46.0	S	1	YC
154	R34I	782	404	0.63	1.16	4.0	60	0.11	0	1	25.0	39.0	S	0	YC
155	R21	783	467	0.54	1.10	5.1	51	0.11	1	1	24.8	42.0	S	0	YC
156	R31I	783	389	0.63	1.28	4.8	101	0.13	0	1	30.4	46.1	S	0	YC
157	R35I	783	468	0.61	1.00	4.7	93	0.12	0	1	25.2	38.7	S	0	YC
158	R22	784	477	0.55	1.10	4.9	50	0.14	1	1	24.8	39.7	S	0	YC
159	R25	785	482	0.57	1.03	15.2	92	0.08	1	0	30.6	45.8	S	0	YC
160	R26	785	524	0.60	1.01	5.7	121	0.07	1	0	30.5	45.9	S	0	YC
161	R6	785	263	0.59	1.40	4.4	59	0.08	1	1	30.4	45.0	S	1	YC
162	R23	787	470	0.55	1.04	2.9	88	0.10	1	1	34.9	42.0	S	0	YC

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
 BOTH COAL TYPES INCLUDED
 BOTH COAL SIZES INCLUDED

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OBS	RUNID	TEMP	SHEAR	HOLDUP	SRTH	X	VISC	COND	CT	CS	CC	TS	ST	SIZE	TC
163	R24	787	496	0.61	1.06	4.6	93	0.13	1	1	35.1	45.4	S	0	YC
164	R331	789	415	0.64	1.17	3.3	49	0.17	0	1	29.9	39.1	S	0	YC

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
 BOTH COAL TYPES INCLUDED
 BOTH COAL SIZES INCLUDED

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PLOT OF COND*TEMP LEGEND: A = 1 OBS, B = 2 OBS, ETC.

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
BOTH COAL TYPES INCLUDED
FINE SIZE

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DEP VARIABLE: LC

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	2	11.047079	5.523539	118.610	0.0001
ERROR	119	5.541695	0.046569		
C TOTAL	121	16.588774			
ROOT MSE		0.215798	R-SQUARE	0.6659	
DEP MEAN		-1.947934	ADJ R-SQ	0.6603	
C.V.		-11.0783			

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB > T	TYPE I SS	TYPE II SS
INTERCEP	1	-2.943907	0.072371	-40.678	0.0001	462.922	77.057711
T	1	1.099740	0.071452	15.391	0.0001	0.317261	11.031678
T2	1	-0.218894	0.014421	-15.179	0.0001	10.729817	10.729817

OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	CONM'S D
190							
1	-2.526	-2.753	0.061316	0.227318	0.206904	1.099	0.035
2	-2.408	-2.733	0.060165	0.324770	0.207242	1.567	0.069
3	-2.996	-2.624	0.054118	-0.371709	0.208902	-1.779	0.071
4	-2.526	-2.567	0.051034	0.041242	0.209677	0.197	0.001
5	-2.303	-2.549	0.050040	0.245718	0.209916	1.171	0.026
6	-2.659	-2.539	0.049550	-0.120226	0.210032	-0.572	0.006
7	-2.526	-2.414	0.043173	-0.111851	0.211435	-0.529	0.004
8	-2.659	-2.405	0.042754	-0.253994	0.211521	-1.201	0.020
9	-2.526	-2.380	0.041525	-0.146034	0.211765	-0.690	0.006
10	-1.897	-2.346	0.039958	0.449092	0.212067	2.118	0.053
11	-2.526	-2.338	0.039579	-0.187778	0.212138	-0.885	0.009
12	-2.040	-2.338	0.039579	0.297730	0.212138	1.403	0.023
13	-2.526	-2.273	0.036742	-0.252292	0.212647	-1.186	0.014
14	-2.207	-2.250	0.035769	0.042692	0.212813	0.201	0.000
15	-2.303	-2.189	0.033425	-0.113280	0.213194	-0.531	0.002
16	-2.207	-2.182	0.033159	-0.025355	0.213235	-0.119	0.009
17	-2.408	-2.167	0.032643	-0.240666	0.213315	-1.129	0.010
18	-2.408	-2.131	0.031458	-0.276500	0.213493	-1.295	0.012
19	-2.526	-2.131	0.031458	-0.394283	0.213493	-1.947	0.025
20	-2.408	-2.117	0.031026	-0.290527	0.213556	-1.360	0.013
21	-2.040	-2.083	0.030051	0.042897	0.213696	0.201	0.000
22	-2.120	-2.083	0.030051	-0.037146	0.213696	-0.174	0.000
23	-2.408	-2.076	0.029874	-0.331557	0.213720	-1.551	0.016
24	-1.813	-2.056	0.029379	0.223883	0.213789	1.047	0.007
25	-2.303	-2.031	0.028801	-0.272074	0.213868	-1.272	0.010
26	-1.897	-1.987	0.028010	0.039660	0.213973	0.410	0.001
27	-1.833	-1.969	0.027754	0.116113	0.214006	0.635	0.002
28	-2.120	-1.963	0.027679	-0.157510	0.214016	-0.736	0.002
29	-2.303	-1.917	0.027258	-0.395733	0.214070	-1.802	0.018

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
BOTH COAL TYPES INCLUDED
FINE SIZE

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ORS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
30	-2.040	-1.906	0.027200	-.134469	0.214077	-0.628	*	0.002
31	-1.966	-1.900	0.027177	-.065820	0.214080	-0.307		0.001
32	-1.966	-1.900	0.027177	-.065820	0.214080	-0.307		0.001
33	-1.833	-1.890	0.027144	0.056924	0.214084	0.266		0.000
34	-1.966	-1.879	0.027127	-.087220	0.214086	-0.407		0.001
35	-1.966	-1.879	0.027127	-.087220	0.214086	-0.407		0.001
36	-2.040	-1.874	0.027124	-.166568	0.214087	-0.778	*	0.003
37	-1.897	-1.838	0.027203	-.058925	0.214077	-0.275		0.000
38	-1.715	-1.800	0.027470	0.085500	0.214043	0.399		0.001
39	-1.427	-1.796	0.027514	0.368642	0.214037	1.722	***	0.016
40	-1.772	-1.791	0.027561	0.019306	0.214031	0.090		0.000
41	-1.514	-1.787	0.027609	0.272682	0.214025	1.274	**	0.009
42	-1.661	-1.753	0.028057	0.092035	0.213967	0.430		0.001
43	-1.347	-1.737	0.028312	0.389722	0.213933	1.822	***	0.019
44	-1.470	-1.737	0.028312	0.267119	0.213933	1.249	**	0.009
45	-1.561	-1.729	0.028446	0.168425	0.213915	0.787	*	0.004
46	-1.609	-1.725	0.028514	0.115839	0.213906	0.542	*	0.002
47	-1.561	-1.725	0.028514	0.164629	0.213906	0.770	*	0.004
48	-1.470	-1.722	0.028582	0.251849	0.213897	1.177	**	0.008
49	-1.470	-1.703	0.028931	0.233745	0.213850	1.093	**	0.007
50	-1.470	-1.696	0.029073	0.226811	0.213831	1.061	**	0.007
51	-1.427	-1.670	0.029641	0.243392	0.213753	1.139	**	0.008
52	-1.273	-1.620	0.030868	0.347040	0.213579	1.625	***	0.018
53	-1.427	-1.605	0.031238	0.178270	0.213525	0.835	*	0.005
54	-1.273	-1.567	0.032046	0.296129	0.213406	1.388	**	0.014
55	-1.309	-1.568	0.032055	0.259030	0.213404	1.214	**	0.011
56	-1.470	-1.568	0.032062	0.098000	0.213403	0.459		0.002
57	-1.514	-1.564	0.031816	0.049500	0.213440	0.232		0.000
58	-1.514	-1.565	0.031723	0.050589	0.213454	0.237		0.000
59	-1.772	-1.567	0.031577	-.205174	0.213475	-0.961	*	0.007
60	-1.609	-1.570	0.031408	-.039889	0.213500	-0.187		0.000
61	-1.386	-1.570	0.031408	0.183255	0.213500	0.858	*	0.005
62	-1.514	-1.570	0.031363	0.056222	0.213507	0.263		0.000
63	-1.561	-1.570	0.031363	0.009702	0.213507	0.045		0.000
64	-1.470	-1.580	0.030888	0.109853	0.213576	0.514	*	0.002
65	-1.514	-1.583	0.030707	0.069249	0.213602	0.324		0.001
66	-1.427	-1.588	0.030516	0.160502	0.213630	0.751	*	0.004
67	-1.833	-1.605	0.029811	-.227978	0.213729	-1.067	**	0.007
68	-1.715	-1.621	0.029190	-.093455	0.213815	-0.437		0.001
69	-1.661	-1.624	0.029111	-.037098	0.213826	-0.173		0.000
70	-1.609	-1.626	0.029030	0.016528	0.213837	0.077		0.000
71	-1.661	-1.629	0.028950	-.032398	0.213848	-0.151		0.000
72	-1.897	-1.641	0.028544	-.256235	0.213902	-1.198	**	0.009
73	-1.833	-1.644	0.028463	-.189056	0.213913	-0.984	*	0.005
74	-1.715	-1.644	0.028463	-.071273	0.213913	-0.333		0.001
75	-1.347	-1.644	0.028463	0.296451	0.213913	1.386	**	0.011
76	-1.833	-1.652	0.028219	-.180975	0.213945	-0.945	*	0.004
77	-1.609	-1.663	0.027899	0.051791	0.213987	0.251		0.000
78	-1.772	-1.699	0.027079	-.073431	0.214093	-0.343		0.001
79	-1.966	-1.716	0.026757	-.249791	0.214133	-1.167	**	0.007
80	-1.561	-1.728	0.026597	0.166876	0.214154	0.779	*	0.003
81	-1.609	-1.724	0.026587	0.118086	0.214154	0.551	*	0.002

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
BOTH COAL TYPES INCLUDED
FINE SIZE

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OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
82	-1.715	-1.735	0.026484	0.020413	0.214167	0.095		0.000
83	-1.561	-1.743	0.026391	0.182426	0.214178	0.852	*	0.004
84	-2.040	-1.747	0.026349	-0.293150	0.214184	-1.369	**	0.009
85	-2.040	-1.755	0.026272	-0.285025	0.214193	-1.331	**	0.009
86	-2.207	-1.755	0.026272	-0.452079	0.214193	-2.111	***	0.022
87	-2.207	-1.759	0.026239	-0.447951	0.214191	-2.091	***	0.022
88	-2.040	-1.759	0.026239	-0.280897	0.214197	-1.311	**	0.009
89	-2.040	-1.785	0.026104	-0.255208	0.214214	-1.191	**	0.007
90	-2.040	-1.803	0.026088	-0.237207	0.214215	-1.107	**	0.006
91	-1.772	-1.845	0.026308	0.074121	0.214185	0.346		0.001
92	-1.772	-1.872	0.026603	0.099578	0.214152	0.465		0.001
93	-1.561	-1.887	0.026846	0.326686	0.214122	1.526	***	0.012
94	-2.040	-1.887	0.026846	-0.152887	0.214122	-0.714	*	0.003
95	-2.303	-1.915	0.027365	-0.388043	0.214056	-1.813	***	0.018
96	-2.303	-1.915	0.027365	-0.388043	0.214056	-1.813	***	0.018
97	-1.715	-1.915	0.027365	0.199744	0.214056	0.933	*	0.005
98	-1.833	-1.915	0.027365	0.081961	0.214056	0.383		0.001
99	-2.040	-1.926	0.027614	-0.114489	0.214024	-0.535	*	0.002
100	-2.040	-1.954	0.028343	-0.095749	0.213929	-0.401		0.001
101	-2.040	-1.972	0.028855	-0.067980	0.213860	-0.318		0.001
102	-1.966	-2.041	0.031214	0.074654	0.213529	0.350		0.001
103	-2.120	-2.094	0.033398	-0.026333	0.213198	-0.124		0.000
104	-2.207	-2.101	0.033698	-0.106502	0.213151	-0.500		0.002
105	-2.207	-2.108	0.034004	-0.099615	0.213102	-0.467		0.002
106	-2.303	-2.122	0.034633	-0.181022	0.213001	-0.850	*	0.006
107	-2.120	-2.122	0.034633	0.001300	0.213001	0.006		0.000
108	-2.207	-2.136	0.035286	-0.071633	0.212894	-0.336		0.001
109	-2.207	-2.143	0.035621	-0.064527	0.212838	-0.303		0.001
110	-1.966	-2.143	0.035621	0.176635	0.212838	0.830	*	0.006
111	-2.659	-2.247	0.040884	-0.412443	0.211890	-1.946	***	0.047
112	-2.303	-2.270	0.042145	-0.032351	0.211643	-0.153		0.000
113	-2.120	-2.286	0.043011	0.165800	0.211468	0.784	*	0.008
114	-2.207	-2.359	0.047144	0.152192	0.210586	0.723	*	0.009
115	-2.207	-2.368	0.047627	0.160566	0.210477	0.763	*	0.010
116	-2.040	-2.368	0.047627	0.327620	0.210477	1.557	***	0.041
117	-2.120	-2.358	0.047627	0.247578	0.210477	1.176	**	0.024
118	-1.966	-2.376	0.048114	0.410147	0.210366	1.950	***	0.066
119	-2.526	-2.385	0.049605	-0.141005	0.210253	-0.571	*	0.003
120	-2.303	-2.402	0.049601	0.099193	0.210020	0.472		0.004
121	-2.040	-2.402	0.049601	0.361557	0.210020	1.722	***	0.055
122	-2.303	-2.419	0.050615	0.116424	0.209778	0.555	*	0.006

SUM OF RESIDUALS -4.86056E-13
SUM OF SQUARED RESIDUALS 5.541695

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
 BOTH COAL TYPES INCLUDED
 FINE SIZE

11:52 TUESDAY, DECEMBER 13, 1993 10

PLOT OF LC+T
 PLOT OF PRECI+T

LEGEND: A = 1 OBS, B = 2 OBS, ETC.
 SYMBOL USED IS *

NOTE: 47 OBS HIDDEN

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
 BOTH COAL TYPES INCLUDED
 FINE SIZE

11:52 TUESDAY, DECEMBER 13, 1983 14

PLOT OF COND*TEMP
 PLOT OF CONDCI*TEMP
 LEGEND: A = 1 OBS, B = 2 OBS, ETC.
 SYMBOL USED IS *

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
BOTH COAL TYPES INCLUDED
FINE SIZE

11:52 TUESDAY, DECEMBER 13, 1983 16

PLOT OF RESIDUAL = PREDICTED SYMBOL USED IS *

NOTE: 8 OBS HIDDEN

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
BOTH COAL TYPES INCLUDED
FINE SIZE

11:52 TUESDAY, DECEMBER 13, 1983 17

PLOT OF RESIDUALS vs TEMP SYMBOL USED IS *

NOTE: 6 OBS HIDDEN

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
BOTH COAL TYPES INCLUDED
FINE SIZE

11:52 TUESDAY, DECEMBER 13, 1983 18

PLOT OF RESID1*TEMP SYMBOL USED IS *

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
 BOTH COAL TYPES INCLUDED
 COARSE SIZE

11:52 TUESDAY, DECEMBER 13, 1983 19

OBS	RUNID	TEMP	SHEAR	HOLDUP	SRTH	X	VISC	COND	CT	CS	CC	TS	ST	SIZE	TC	LC	T	T2
1	R7	386	215	0.51	0.00	8.6	66	0.10	1	0	30.4	46.0	S	1	YC	-2.3026	0.46	0.2116
2	R27	408	380	0.58	0.00	8.4	97	0.09	1	0	34.8	45.1	S	0	YC	-2.4079	0.68	0.4624
3	R26	414	423	0.56	0.00	11.5	170	0.09	1	0	30.5	45.9	S	0	YC	-2.4079	0.74	0.5476
4	R13C	417	197	0.53	0.00	12.8	212	0.11	1	0	30.9	45.0	S	1	YC	-2.2073	0.77	0.5929
5	R7	419	213	0.51	0.00	10.3	98	0.13	1	0	30.4	46.0	S	1	YC	-2.0402	0.79	0.6241
6	R27	440	370	0.56	0.00	12.5	223	0.09	1	0	34.8	45.1	S	0	YC	-2.4079	1.00	1.0000
7	R26	445	416	0.55	0.00	13.6	251	0.11	1	0	30.5	45.9	S	0	YC	-2.2073	1.05	1.1025
8	R7	451	212	0.50	0.15	11.4	129	0.14	1	0	30.4	46.0	S	1	YC	-1.9661	1.11	1.2321
9	R25	459	426	0.56	0.10	10.0	126	0.15	1	0	30.6	45.8	S	0	YC	-1.8971	1.19	1.4161
10	R13C	461	205	0.54	0.16	18.6	304	0.11	1	0	30.9	45.0	S	1	YC	-2.2073	1.21	1.4641
11	R27	471	366	0.56	0.11	14.0	299	0.15	1	0	34.8	45.1	S	0	YC	-1.8971	1.31	1.7161
12	R26	476	416	0.54	0.10	15.2	331	0.17	1	0	30.5	45.9	S	0	YC	-1.7720	1.36	1.8496
13	R7	484	209	0.49	0.31	15.6	256	0.18	1	0	30.4	46.0	S	1	YC	-1.7148	1.44	2.0736
14	R25	491	421	0.55	0.19	13.5	249	0.18	1	0	30.6	45.8	S	0	YC	-1.7148	1.51	2.2801
15	R27	503	367	0.55	0.22	15.4	389	0.28	1	0	34.8	45.1	S	0	YC	-1.2730	1.63	2.6569
16	R26	507	414	0.54	0.20	17.9	490	0.27	1	0	30.5	45.9	S	0	YC	-1.3093	1.67	2.7889
17	R7	517	205	0.48	0.46	18.3	379	0.25	1	0	30.4	46.0	S	1	YC	-1.3863	1.77	3.1329
18	R13C	551	193	0.50	0.49	17.7	536	0.28	1	0	30.9	45.0	S	1	YC	-1.2730	2.11	4.4521
19	R7	584	200	0.46	0.79	23.0	709	0.24	1	0	30.4	46.0	S	1	YC	-1.4271	2.44	5.9536
20	R13C	596	201	0.52	0.65	17.0	561	0.18	1	0	30.9	45.0	S	1	YC	-1.7148	2.56	6.5536
21	R27	597	375	0.55	0.55	16.8	586	0.27	1	0	34.8	45.1	S	0	YC	-1.3093	2.57	6.6049
22	R7	617	205	0.47	0.94	19.2	549	0.21	1	0	30.4	46.0	S	1	YC	-1.5606	2.77	7.6729
23	R27	628	331	0.56	0.66	15.9	580	0.20	1	0	34.8	45.1	S	0	YC	-1.6094	2.88	8.2944
24	R7	649	213	0.48	1.10	16.6	453	0.18	1	0	30.4	46.0	S	1	YC	-1.7148	3.09	9.5481
25	R25	655	429	0.54	0.68	17.0	622	0.18	1	0	30.6	45.8	S	0	YC	-1.7148	3.15	9.9225
26	R26	662	441	0.55	0.67	15.7	591	0.17	1	0	30.5	45.9	S	0	YC	-1.7720	3.22	10.3684
27	R7	682	222	0.50	1.24	12.1	270	0.17	1	0	30.4	46.0	S	1	YC	-1.7720	3.42	11.6964
28	R25	687	443	0.55	0.77	14.2	487	0.18	1	0	30.6	45.8	S	0	YC	-1.7148	3.47	12.0409
29	R27	692	399	0.57	0.87	12.8	466	0.13	1	0	34.8	45.1	S	0	YC	-2.0402	3.52	12.3904
30	R26	693	458	0.56	0.76	12.3	406	0.13	1	0	30.5	45.9	S	0	YC	-2.0402	3.53	12.4609
31	R7	715	237	0.53	1.38	7.6	119	0.14	1	0	30.4	46.0	S	1	YC	-1.9661	3.75	14.0625
32	R25	720	464	0.56	0.86	10.1	278	0.18	1	0	30.6	45.8	S	0	YC	-1.7148	3.80	14.4400
33	R27	724	416	0.58	0.96	9.7	302	0.13	1	0	34.8	45.1	S	0	YC	-2.0402	3.84	14.7456
34	R26	725	483	0.58	0.85	8.2	200	0.11	1	0	30.5	45.9	S	0	YC	-2.2073	3.85	14.8225
35	R7	748	250	0.56	1.51	6.1	89	0.12	1	0	30.4	46.0	S	1	YC	-2.1203	4.08	16.6464
36	R25	753	493	0.58	0.94	6.7	137	0.16	1	0	30.6	45.8	S	0	YC	-1.8326	4.13	17.0569
37	R26	755	506	0.60	0.93	7.2	172	0.12	1	0	30.5	45.9	S	0	YC	-2.1203	4.15	17.2225
38	R27	756	439	0.60	1.06	6.9	170	0.11	1	0	34.8	45.1	S	0	YC	-2.2073	4.16	17.3056
39	R13C	772	257	0.50	1.21	4.2	62	0.07	1	0	30.9	45.0	S	1	YC	-2.4079	4.32	18.6624
40	R7	781	258	0.57	1.63	4.7	59	0.10	1	0	30.4	46.0	S	1	YC	-2.3026	4.41	19.4481
41	R25	785	482	0.57	1.03	15.2	92	0.08	1	0	30.6	45.9	S	0	YC	-2.5257	4.45	19.8025
42	R26	785	524	0.60	1.01	5.7	121	0.07	1	0	30.5	45.9	S	0	YC	-2.6593	4.45	19.8025

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
BOTH COAL TYPES INCLUDED
COARSE SIZE

11:52 TUESDAY, DECEMBER 13, 1983 20

PLOT OF COND*TEMP LEGEND: A = 1 OBS, B = 2 OBS, ETC.

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
 BJT-1 COAL TYPES INCLUDED
 COARSE SIZE

11:52 TUESDAY, DECEMBER 13, 1983 21

DEP VARIABLE: LC

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	2	4.046082	2.023041	57.524	0.0001
ERROR	39	1.371589	0.035169		
C. TOTAL	41	5.417671			
ROOT MSE		0.187534	R-SQUARE	0.7458	
DEP MEAN		-1.925865	ADJ R-SQ	0.7338	
C.V.		-9.73764			

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB > T	TYPE I SS	TYPE II SS
INTERCEP	1	-3.040848	0.130226	-23.351	0.0001	155.776	19.175801
T	1	1.258188	0.123756	10.167	0.0001	0.081901	3.635089
T2	1	-0.255859	0.024099	-10.617	0.0001	3.964181	3.964181

OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
200 1	-2.303	-2.516	0.083342	0.211637	0.167997	1.272	0.133
2	-2.408	-2.304	0.065956	-0.104356	0.175553	-0.594	0.017
3	-2.408	-2.250	0.061880	-0.158048	0.177030	-0.893	0.032
4	-2.207	-2.224	0.059959	0.016468	0.177690	0.093	0.000
5	-2.040	-2.207	0.058723	0.166341	0.178103	0.934	0.032
6	-2.408	-2.039	0.048050	-0.369426	0.181274	-2.038	0.097
7	-2.207	-2.002	0.046170	-0.205439	0.181761	-1.130	0.027
8	-1.966	-1.960	0.044266	-0.006609	0.182235	-0.036	0.000
9	-1.897	-1.906	0.042321	0.008907	0.182696	0.048	0.000
10	-2.207	-1.893	0.041939	-0.314230	0.182784	-1.719	0.052
11	-1.897	-1.832	0.040620	-0.065418	0.183082	-0.357	0.002
12	-1.772	-1.803	0.040304	0.030993	0.183152	0.169	0.000
13	-1.715	-1.760	0.040209	0.044809	0.183173	0.245	0.001
14	-1.715	-1.724	0.040476	0.009571	0.183114	0.052	0.000
15	-1.273	-1.670	0.041491	0.396829	0.182886	2.170	0.081
16	-1.309	-1.653	0.041940	0.343907	0.182784	1.881	0.062
17	-1.386	-1.615	0.043202	0.229143	0.182490	1.256	0.029
18	-1.273	-1.525	0.047511	0.252217	0.181416	1.390	0.044
19	-1.427	-1.494	0.049657	0.067037	0.180840	0.371	0.003
20	-1.715	-1.497	0.049696	-0.218112	0.180829	-1.206	0.037
21	-1.309	-1.497	0.049680	0.187897	0.180834	1.039	0.027
22	-1.561	-1.519	0.048766	-0.041797	0.181082	-0.231	0.001
23	-1.609	-1.539	0.047803	-0.069972	0.181339	-0.386	0.003
24	-1.715	-1.596	0.045239	-0.118781	0.181996	-0.653	0.009
25	-1.715	-1.616	0.044385	-0.098479	0.182206	-0.540	0.006
26	-1.772	-1.642	0.043360	-0.129623	0.182452	-0.710	0.010
27	-1.772	-1.730	0.040596	-0.041479	0.183087	-0.227	0.001
28	-1.715	-1.756	0.040039	0.044913	0.183210	0.223	0.001
29	-2.040	-1.782	0.039579	-0.257996	0.183310	-1.407	0.011

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
 BOTH COAL TYPES INCLUDED
 COARSE SIZE

11:52 TUESDAY, DECEMBER 13, 1983 22

OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
30	-2.040	-1.788	0.039501	-.252539	0.183327	-1.378	**	0.029
31	-1.966	-1.921	0.039435	-.045449	0.183341	-0.248		0.001
32	-1.715	-1.954	0.039984	0.239543	0.183222	1.307	**	0.027
33	-2.040	-1.982	0.040603	-.058016	0.183086	-0.317		0.002
34	-2.207	-1.989	0.040784	-.217976	0.183045	-1.191	**	0.023
35	-2.120	-2.167	0.047942	0.046313	0.181302	0.255		0.002
36	-1.833	-2.209	0.050254	0.376116	0.180675	2.082	***	0.112
37	-2.120	-2.226	0.051250	0.105641	0.180395	0.586	*	0.009
38	-2.207	-2.235	0.051764	0.027309	0.180248	0.152		0.001
39	-2.408	-2.380	0.061281	-.027522	0.177239	-0.155		0.001
40	-2.303	-2.468	0.067633	0.165630	0.174913	0.947	*	0.045
41	-2.526	-2.509	0.070667	-.017164	0.173710	-0.099		0.001
42	-2.659	-2.509	0.070667	-.150696	0.173710	-0.868	*	0.042

SUM OF RESIDUALS -5.95080E-14
 SUM OF SQUARED RESIDUALS. 1.371589

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
 BOTH COAL TYPES INCLUDED
 COARSE SIZE

11:52 TUESDAY, DECEMBER 13, 1983 23

PLOT OF LC#T
 PLOT OF PREOC#T
 LEGEND: A = 1 OBS, B = 2 OBS, ETC.
 SYMBOL USED IS *

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
BOTH COAL TYPES INCLUDED
COARSE SIZE

11:52 TUESDAY, DECEMBER 13, 1983 25

PLOT OF COND*TEMP
PLOT OF CONDC3*TEMP

LEGEND: A = 1 OBS, B = 2 OBS, ETC.
SYMBOL USED IS *

NOTE: 3 OBS HIDDEN

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
 BOTH COAL TYPES INCLUDED
 COARSE SIZE

11:52 TUESDAY, DECEMBER 13, 1983 26

PLOT OF RESIDC3#PREDC3 SYMBOL USED IS *

NOTE: 1 OBS HIDDEN

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
BOTH COAL TYPES INCLUDED
COARSE SIZE

11:52 TUESDAY, DECEMBER 13, 1983 27

PLOT OF RESIDC3*TEMP SYMBOL USED IS *

NOTE: 1 OBS HIDDEN

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
BOTH COAL TYPES INCLUDED
COARSE SIZE

11:52 TUESDAY, DECEMBER 13, 1983 28

PLOT OF RESIDUE*TEMP SYMBOL USED IS *

NOTE: 1 OPS HIDDEN

FT. LEWIS SLURRY PREHEATER DATA ANALYSIS
 BOTH COAL TYPES INCLUDED
 COARSE SIZE

11:52 TUESDAY, DECEMBER 13, 1983 25

PLOT OF RES103*CONDC3 SYMBOL USED IS *

NOTE: 1 DRS HIDDEN

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