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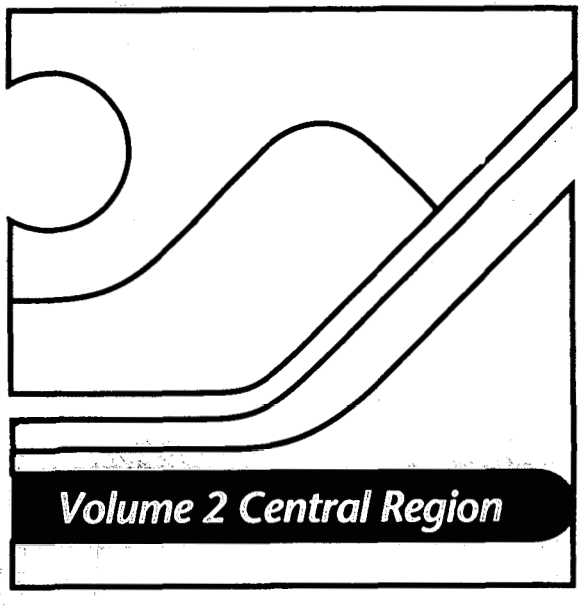
Sulfur and Ash Reduction Potential and Selected Chemical and Physical Properties of United States Coals



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

Volume II---Central Region

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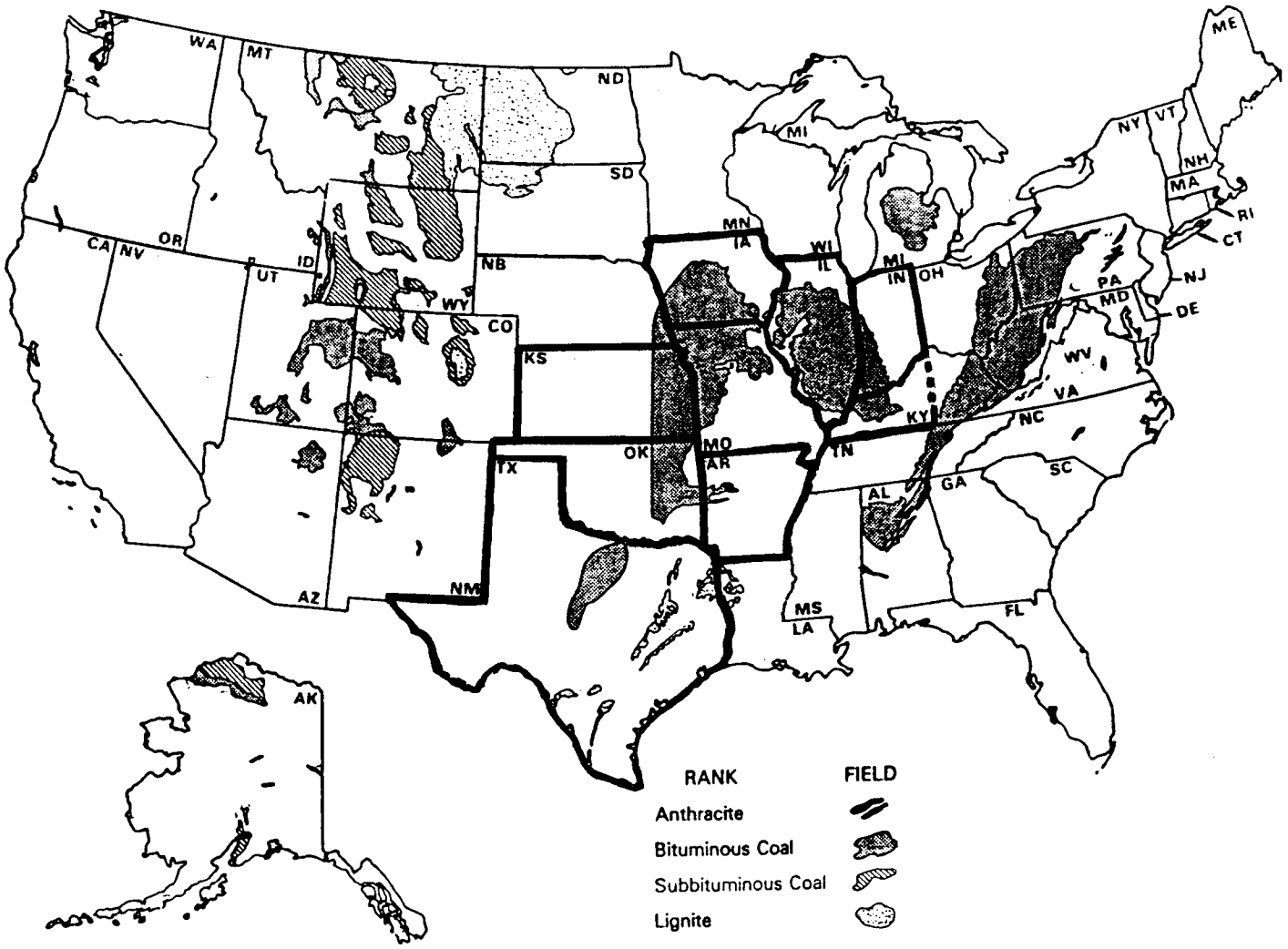

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Sulfur and Ash Reduction Potential and An In-Depth Characterization of U.S. Coals

Volume II - Central Region

ABSTRACT

This report presents the washability and comprehensive characterization results of 184 raw coal channel samples, including anthracite, bituminous and lignite coals, collected from the Central Region of the United States. This is the second of a three volume report on the coals of the United States. All the data are presented in six appendices.

Statistical techniques and definitions are presented in Appendix A, and a glossary of terms is presented in Appendix B. The complete washability data and an in-depth characterization of each sample are presented alphabetically by state in Appendix C. In Appendix D, a statistical evaluation is given for the composited washability data, selected chemical and physical properties and washability data interpolated at various levels of Btu recovery. This presentation is shown by state, section, and region where four or more samples were collected. Appendix E presents coalbed codes and names for the Central Region coals. Graphical summations are presented by state, section, and region showing the effects of crushing on impurity reductions, and the distribution of raw and clean coal samples meeting various levels of SO_2 emissions.

The 166 raw bituminous coal samples from the Central Region contained an average of 14.8 percent ash, 2.68 percent pyritic sulfur, 4.20 percent total sulfur, 12204 Btu/pound and would emit 7.1 pounds SO_2/mBtu. Crushing the coal to 14-mesh top size and cleaning at 1.30 specific gravity would provide reductions of 76 percent ash, 77 percent pyritic sulfur, 46 percent total sulfur, and 55 percent in SO_2 emissions at a Btu recovery of 44 percent. Crushing to 14 mesh top size and cleaning at 1.60 specific gravity would provide reductions of 49 percent ash, 56 percent pyritic sulfur, 34 percent total sulfur, and 41 percent in SO_2 emissions at a Btu recovery of 94 percent.

In 1989, the Central Region produced 143 mm tons of bituminous coal, which would emit 11.3 million tons of SO_2 if burned raw. Cleaning the coal crushed to 14-mesh top size at a Btu recovery of 90 percent and burning on an equivalent Btu basis as the raw coal, would reduce the SO_2 emissions 41 percent to 6.7 million tons SO_2/year. Thus, crushing these coals to liberate impurities and then cleaning the resultant coal would provide significant reductions in mineral matter, SO_2 emissions, and acid rain, although secondary markets would be needed for all or a portion of the reject material.

INTRODUCTION

Background

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

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

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

In 1965, the National Air Pollution Control Administration (now the Environmental Protection Agency), funded a study by the United States Bureau of Mines to determine the content and forms of sulfur in the major sources of utility steam coals and to perform washability evaluations of these coals. The data from this work are covered in two reports, RI 7633[1], published in 1972, and its updated version RI 8118[2], published in 1976. To accelerate this program, the USBM contracted Commercial Testing and Engineering Company to assist in the study. In RI 8118, the washability potential of 455 raw coal samples collected from the largest producing coal companies across the United States was evaluated. However, due to the energy crisis in the '70s, DOE decided to assess the number of samples that had been collected in each state and look at a broader range of coals by obtaining additional samples for washability testing with emphasis given to those coalbeds containing the largest coal reserves. These included samples from Alaska, and the Eastern, Central, and Western regions of the U.S., thus increasing the number of total samples to 975. These studies were carried out for DOE under contract by the University of Alaska, Conti Testing Laboratory, and Warner Laboratories. Part of the additional washability data obtained from the work was covered in two separate reports published on the coals of Pennsylvania (DOE/PETC/TR-82/15[3]) in 1982, and Ohio (DOE/PETC/TR-83/7[4]) in 1983. The remaining washability data and the data on a wide range of characteristics of United States coals such as proximate and ultimate analyses, sulfur forms, calorific value, ash fusion temperatures, and analyses of ash were not published.

This database describing the 975 samples contains the largest collection of washability and raw coal information on 600-pound samples crushed to 1 1/2-inch, 3/8-inch, and 14-mesh top size. It is stored in the PETC Coal Technology Data Bank and has proven useful to coal mining, preparation, and utility officials; federal, state, and local governments; various industrial research groups; and academia. In addition, it can be helpful in (1) developing SO_2 emission standards and determining compliance coals to meet them; (2) providing specification coals for the emerging synthetic fuels program; and (3) providing valuable information on U.S. coals in relation to the impending acid rain legislation. This report is the second in a series in which the complete characterization and washability data for all 975 samples will be presented in three volumes: Volume I -- Eastern Region, Volume II -- Central Region, and Volume III -- Western Region.

New Source Performance Standards and Acid Rain Legislation

In 1971, the Environmental Protection Agency (EPA) issued an SO_2 emission standard of 1.2 pounds/MM Btu (1.2 lb/MM Btu). In 1979, EPA issued New Source Performance Standards[5] for new stationary sources stating that all coals burned by electric utilities must limit SO_2 emissions by using what the regulations refer to as "best available control technology." This is assumed to mean scrubbing; however, credit is given for sulfur removal during coal washing, since the requirements are based on the sulfur content of the coal as mined. Thus, utilities may use a combination of coal washing and scrubbing to achieve the required reduction in SO_2 emissions. The new regulations classify as-mined coals into four categories of SO_2 emission, each subject to a different level of SO_2 reduction, as shown in Table 1. The washability data from U.S.B.M. reports 7633 and 8188 showing sulfur reduction potential of U.S. coals were used by EPA as a guide in setting SO_2 emission standards and by coal operators to determine the potential of cleaning to meet the standards.

Table 1. New Source Performance Standards -- 1979

Category	SO_2 emission lb/MM Btu	SO_2 reduction required, %	Ceiling limit, lb SO_2/MM Btu
1	<2	70	0.6
2	>2 to 6	70 to 90	0.6
3	>6 to 12	90	1.2
4	>12	>90	1.2

Both houses of Congress are addressing (1990) nearly a dozen acid rain bills, some of which call for substantial reductions of up to 50% of SO_2 emissions in the United States by 1995. These bills would require an annual reduction of SO_2 emissions ranging from 8-14 million tons per year below those of 1980 levels. The SO_2 emissions would be achieved in phases by the year 2000 and would take place in the acid deposition impact region consisting of 33 states, most of which are east of the Mississippi River, and the District of Columbia. Generally, each state would have to achieve an average state SO_2 emission rate ranging from 0.8 to 1.2 lb/MM Btu for all utility and non-utility fossil-fuel-fired major source boilers that were in operation in 1980. The states would have about two years after enactment to submit plans to EPA to meet the requirements. Provisions of the various bills would provide up to $2.5 billion (to be matched by private funds) for a five-year retrofit control technology demonstration program. The washability data in this report could be vital in determining the SO_2 emission reduction possible for those states in the Eastern and Central Regions.

Sulfur in Coal

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

1. The physical removal (coal cleaning) of pyritic sulfur prior to combustion

2. The use of fluidized-bed combustion with limestone additives

3. The removal of sulfur oxides from the combustion flue gas

4. The conversion of coal to a clean fuel (low sulfur) by such processes as gasification, liquefaction, and chemical extraction

5. The use of fuel switching and coal blending using low-sulfur coals.

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

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

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

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

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

prepared. These washability data in this report include ash, pyritic and total sulfur, and calorific content of the coal.

This report is the second of a three-volume series and presents the washability evaluation and a comprehensive characterization of 184 samples collected from the Central Region (Figure 1) of the United States. We have divided the region into the Eastern and Western sections in order to reflect the difference in characteristics between the coals of these two areas. This region includes the Eastern Section states of Illinois, Indiana, and Kentucky (West), and the Western Section states of Arkansas, Iowa, Kansas, Missouri, Oklahoma, and Texas. Statistics showing the demonstrated reserve base and the production for 1989, and the preparation data for 1983 are presented in Table 2.

Table 2. Statistics Showing Demonstrated Reserve Base, Production, and Preparation for the Central Region Coals by State.[1]
(Thousand Short Tons)

	1989		1983
State	Demonstrated Coal Reserve Base[2]	Coal Produced[3]	Coal Cleaned
Arkansas	417,100	94	0
Illinois	78,434,900	59,737	52,754
Indiana	10,243,100	33,677	21,688
Iowa	2,191,600	424	190
Kansas	979,300	1,062	595
Kentucky (West)	20,487,400	42,277	20,960
Missouri	6,011,500	3,206	2,604
Oklahoma	1,593,300	2,003	0
Texas	13,469,000	53,961	278
Total	133,827,200	199,441	99,069

[1]Energy Information Administration, Washington, D.C.
[2]Demonstrated Reserve Base as of January, 1989.
[3]Preliminary Production Figures for 1989.

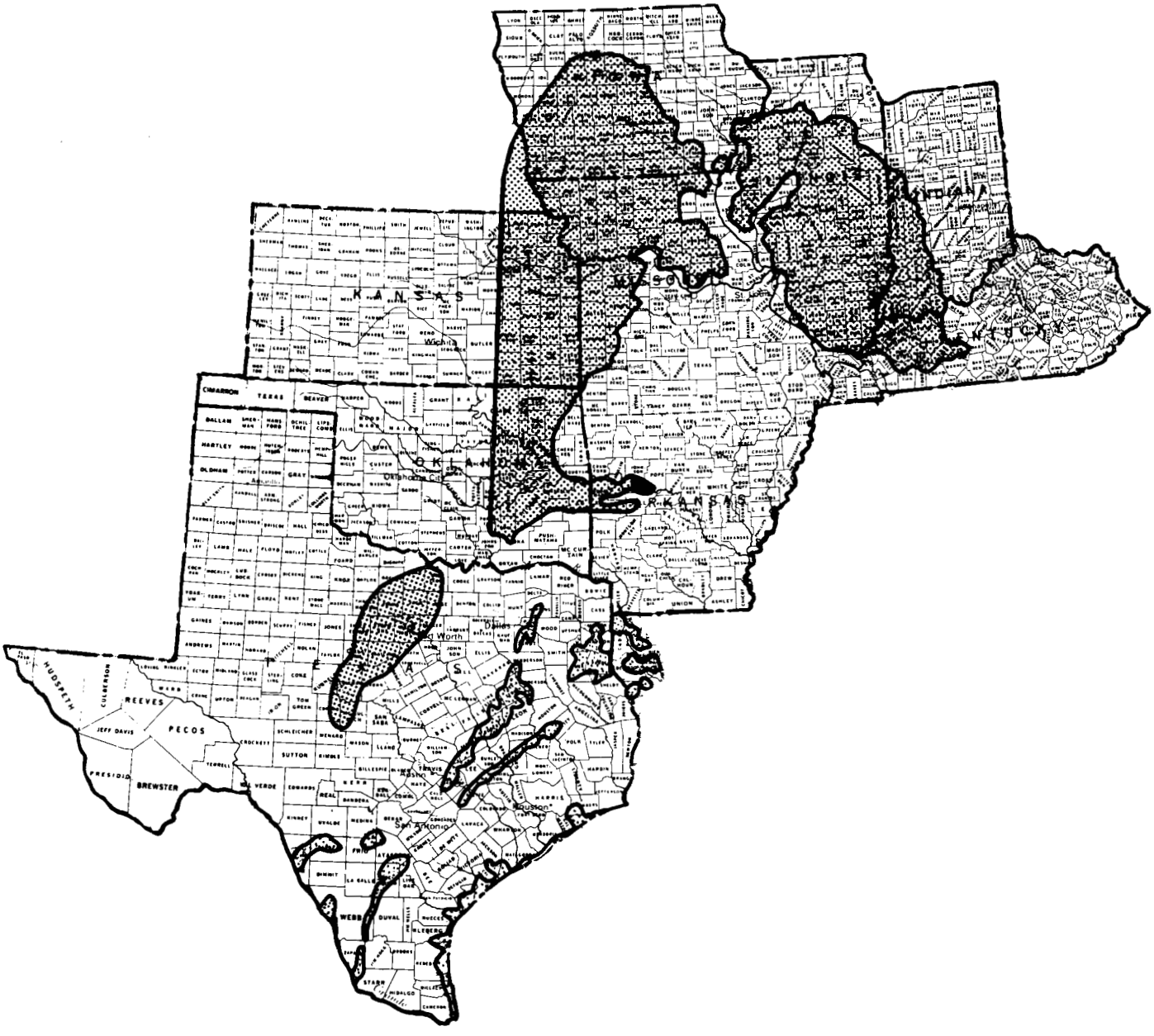

FIGURE 1. MAP OF THE CENTRAL REGION COALFIELDS

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TEST PROCEDURE

Collection of Samples

Channel samples were collected from surface and deep mines that were producing coal primarily for consumption by electric utilities. In general, an attempt was made to sample the largest utility coal producing mines in the United States; therefore, the 184 raw coal samples reported in this publication represent mines that provide more than 50 percent of the annual utility coal production from the Central Region.

Face samples were collected according to the procedure recommended by Fieldner and Selvig[6] and Holmes[7], except that the dimensions of each sample cut were expanded to permit 600 pounds of coal to be taken from the face. Partings and impurities were not removed from the samples unless otherwise noted. The face was cleared of loose coal or dirt for a width of approximately five feet. Loose pieces of roof were also taken down to prevent their falling into the sample while it was being obtained. Within the cleaned off area on the face, the coal was cut from the roof to the floor in a channel one inch deep and about three feet wide to remove any altered or

otherwise inferior coal. The floor was cleared and smoothed and a sampling cloth was spread prior to collecting the sample.

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

The 137 samples collected by Commercial Testing & Engineering Co. were run-of-mine samples from the raw coal belt. These samples are easily detected in this report because they were separated at an additional specific gravity of 1.90.

Sample Preparation

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

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

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

For the two coarser sizes, the separation was made in a screen bottom container that was immersed in 10-gallon-capacity vessels containing the organic liquid. The sample was placed in the 1.30 specific gravity bath in

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

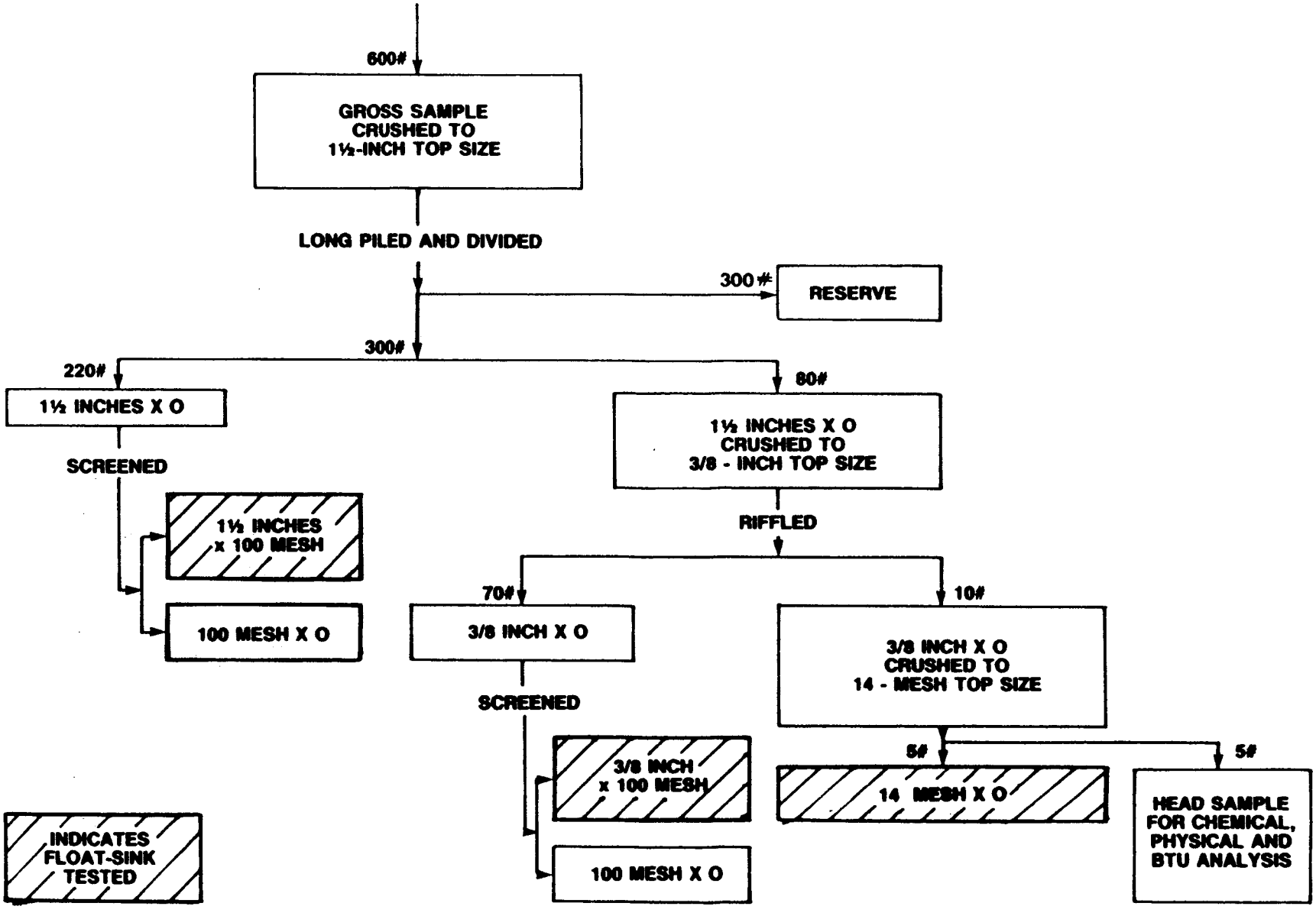

Figure 2
FLOW DIAGRAM SHOWING PREPARATION OF CHANNEL SAMPLES

small quantities. This mixture was then stirred to prevent entrapment and allowed to remain quiescent for a while during which the products separated. The lighter specific gravity coal fraction was removed from the surface of the bath with a screen wire strainer; the heavier specific gravity material settled to the container bottom and was then raised above the liquid level and drained. The container with the heavier specific gravity material was then placed in the 1.40 specific gravity solution, and the process repeated. This was continued until the sample was separated into the desired number of specific gravity fractions.

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

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

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

DESCRIPTION OF APPENDICES

Data for 184 sets of individual washability tests have been compiled to show what effect size reduction and specific gravity fractionation have on the liberation and subsequent removal of pyritic sulfur and other impurities for Central Region coals. Because of the large amount of data generated, the statistical techniques and definitions, the glossary of terms, the complete washability and characterization data, the various statistical summations, and the coalbed codes and names are presented as appendices.

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

Appendix C is a complete tabulation of the washability data for the 184 samples from the Central Region. The data are presented alphabetically by state, county, and coalbed, in two tables for each sample. Each sample was collected from a different mine. The analyses presented in the first table in this appendix show cumulative weight and Btu recoveries, percent ash, percent pyritic sulfur, percent total sulfur, calorific content in Btu per pound, and SO_2 emissions in pounds of SO_2 per million Btu. In addition, the raw coal size distribution and moisture analysis are presented. Ash, pyritic sulfur, total sulfur and Btu/lb are reported on a moisture-free basis according to ASTM standards.[8] Appendix C also shows the analyses of the raw coal sample crushed to pass 14-mesh for each channel and run-of-mine sample tested. The analyses presented for each sample are the following: proximate, Btu, ultimate, and sulfur forms on an as-received, moisture-free, and moisture-and-ash-free basis; and also mineral analyses of ash, fusibility of ash, miscellaneous data, coal utilization ratios, and physical parameters. About half of the calorific values were measured in the laboratory, and the other half were calculated from an equation. The equation was derived using the ash/Btu values of the raw coal sample and the float-sink 1.60 specific gravity products, as discussed in Appendix B. The mineral matter was determined by the Parr formula, where mineral matter = (1.08)(ash) + (0.55)(total sulfur). The SO_2 emission values, in pounds of SO_2 per million Btu, were calculated by the formula lb SO_2/MM Btu = (% sulfur) x (20,000)/(Btu/lb). This assumes that all of the sulfur in the coal exits the stack as SO_2. Actual emissions may vary because as-fired coals will contain some moisture, and not all sulfur is converted into SO_2, and may remain in the ash [see Appendix D for sulfites (SO_3)].

Appendix D represents a statistical summary of the data given in Appendix C for states from which four or more samples were collected for the Eastern and Western Sections of the Central Region.

1. The Eastern Section includes the States of Illinois, Indiana, and Kentucky (West).

2. The Western Section includes the States of Arkansas, Iowa, Kansas, Missouri, Oklahoma, and Texas.

This appendix shows coal characteristics such as the percent ash, sulfur, weight and Btu recovery values, heating values, proximate and ultimate analyses, sulfur forms, and analysis of ash for coals of numerous beds in the Eastern and Western sections. These appendices also illustrate the manner in which the characteristic values of these coals change when the coals are crushed to a given top size and then float-sink tested at certain established specific gravity values. The three top size ranges, as

previously mentioned in the sample preparation section of this report, are 1 1/2 inches, 3/8 inch, and 14 mesh. The specific gravity fractions of the float-sink test are Float 1.30, Float 1.40, Float 1.60, and total coal.

The float-sink data from the channel samples are not to be construed as representing the quality of the product loaded at the mine where the sample was taken but rather as indicating the quality of the bed in that particular geographical location excluding any roof or floor material. Float-sink data are based upon theoretically perfect specific gravity separations that are approached but not equaled in commercial practice.

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

DISCUSSION OF RESULTS

Eastern Section States

A total of 98 coalbed samples were collected from the Eastern Section states of Illinois (40), Indiana (21), and Kentucky (West) (37) and evaluated gravimetrically.

Illinois

The average raw coal samples in Illinois (40) contained 15.4 percent ash, 2.21 percent pyritic sulfur, 3.86 percent total sulfur, and 11806 Btu per pound, and would emit 6.6 pounds SO_2/MMBtu fired at the power plant (Appendix D). This appendix also shows that crushing the coal to 14-mesh top size and cleaning at 1.60 specific gravity would provide a product analyzing 7.6 percent ash, 0.83 percent pyritic sulfur, 2.58 percent total sulfur, 13103 Btu per pound, and would emit 3.9 pounds SO_2/MMBtu if burned. Thus, as shown by this data and Figure 4, preparation techniques would provide an average ash reduction of 51 percent, an average pyritic sulfur reduction of 63 percent, a total sulfur reduction of 33 percent, and an SO_2 emission reduction of 41 percent.

The selected chemical and physical properties showed that the raw coal samples contained on the average 69.6 percent total carbon and 0.08 percent chlorine. The initial deformation temperature (ID) was 2062°F. The softening temperature (ST) was 2112°F. The fluid temperature (FT) was 2205°. The Hardgrove Grindability Index (HGI) was 56, indicating a hard-to-grind coal, and the FSI was 3½ indicating a caking coal. Cleaning the coal crushed to 14-mesh top size at 1.60 specific gravity increased the total carbon content to 74.5 percent, the ID temperature to 2159°F, the ST to 2234°F, and the FT to 2375°F. There was little or no change in the HGI and FSI.

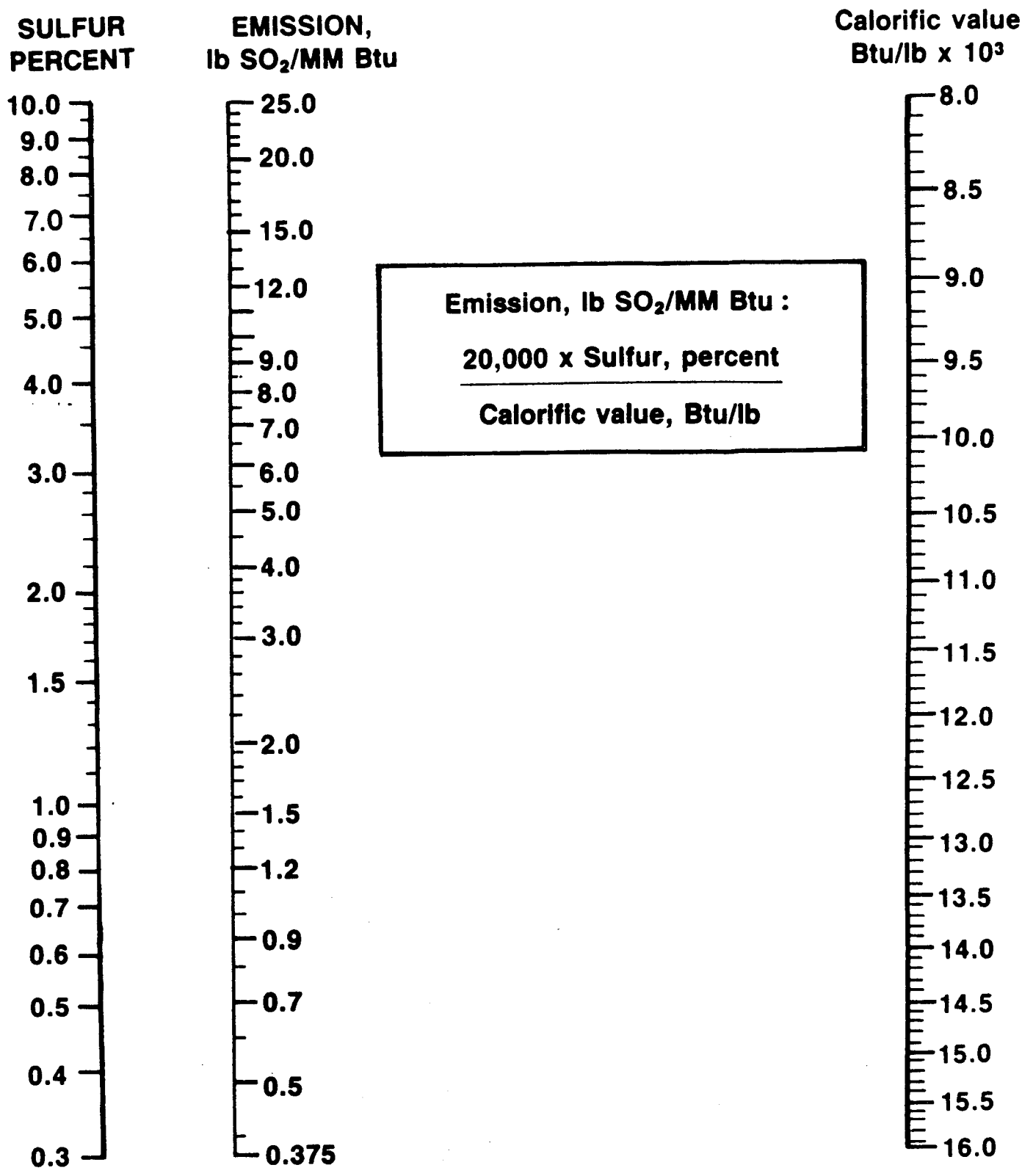

Figure 3
NOMOGRAPH RELATING SULFUR CONTENT AND CALORIFIC VALUE IN COALS TO POUNDS SO_2 EMISSION PER MILLION BTU

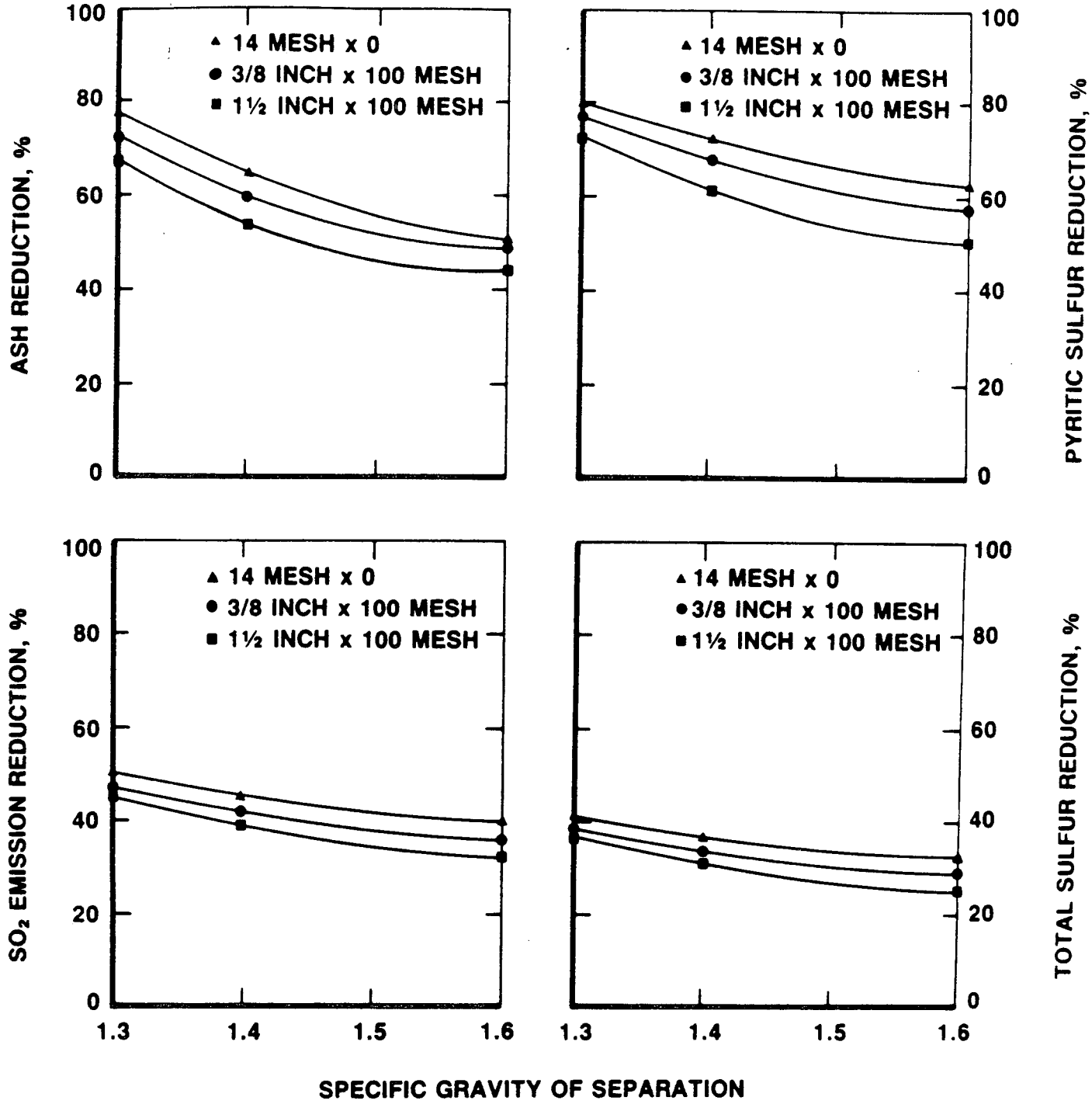

Figure 4 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

A distribution of the samples meeting various SO_2 emissions is depicted in Figure 5, and shows that if 100% of the raw coal samples were fired, they would emit 14.3 pounds or less of SO_2/MMBtu if burned. However, using coal cleaning techniques of crushing to 1 1/2-inch top size and cleaning at 1.60 specific gravity would upgrade them to 7.1 pounds SO_2/MMBtu or less and crushing to 14-mesh top size and washing at 1.30 specific gravity would improve the quality to 6.0 pounds SO_2/MMBtu. This figure also shows that 0 percent of the raw coal samples, 0 percent of the samples crushed to 1 1/2-inch top size, and 5 percent of the samples crushed to 14 mesh top size would meet a level of 1.2 pounds SO_2/MMBtu.

Illinois produced 60 MM tons of coal in 1989 which would emit an average of 4.7 MM tons of SO_2/year if fired in utility plant boilers. However, preparing the coal at 14-mesh top size and 90 percent Btu recovery and burning on an equivalent Btu basis would provide a product that would emit 2.7 MM tons of SO_2, thus reducing the SO_2 emissions by 2.0 MM tons or 43 percent per year. Therefore, cleaning coals before burning would provide significant reductions in the SO_2 emissions and the resulting acid rain.

Indiana

The raw coal samples (21) contained an average of 12.0 percent ash, 2.22 percent pyritic sulfur, 3.69 percent total sulfur, 12472 Btu/pound, and would emit 6.0 pounds SO_2/MMBtu if burned at the power plant (Appendix D). Crushing the coals to 14-mesh top size and cleaning the coal at 1.60 specific gravity would provide a product containing 7.5 percent ash, 1.01 percent pyritic sulfur, 2.54 percent total sulfur, 13241 Btu/pound at a Btu recovery of 96 percent and emit 3.8 pounds SO_2/MMBtu if fired. Therefore, this data and Figure 6 show that coal preparation techniques would provide an ash reduction of 38 percent, pyritic sulfur reduction of 54 percent, total sulfur reduction of 31 percent, and an SO_2 emission reduction of 36 percent.

The composite data for the various chemical and physical properties show that the raw coal samples contained an average of 73.7 percent total carbon. The initial deformation temperature (ID) was 2097°F, the ST 2153°F, and the FT 2262°F. The HGI was 54, indicating a relatively hard-to-grind coal and the FSI was $3\frac{1}{2}$, indicating a caking coal. No analysis of ash was obtained other than sodium oxide, which was 0.93 percent. Cleaning the coal crushed to 14-mesh top size at 1.60 specific gravity would provide a product analyzing 75.2 percent total carbon, 2190°F ID, 2286°F ST, and 2367°F FT. There was little or no change in the HGI and the FSI.

Figure 7 presents a distribution of the samples meeting various SO_2 emission levels and shows that 100 percent of the raw coal samples would emit 11.9 pounds SO_2/MMBtu or less if burned. However, crushing these coals to 1 1/2-inch top size and cleaning at a specific gravity of 1.60 would upgrade the samples to 6.7 pounds SO_2/MMBtu. Crushing to 14-mesh top size and washing the coal at 1.30 specific gravity would improve the quality of the coals to 4.8 pounds SO_2/MMBtu. This figure also shows that 6 percent of the raw coal samples, 8 percent of the samples cleaned at 1 1/2-inch top size, and 21 percent of the samples prepared at 14-mesh top size would meet a level of 1.2 pounds SO_2/MMBtu.

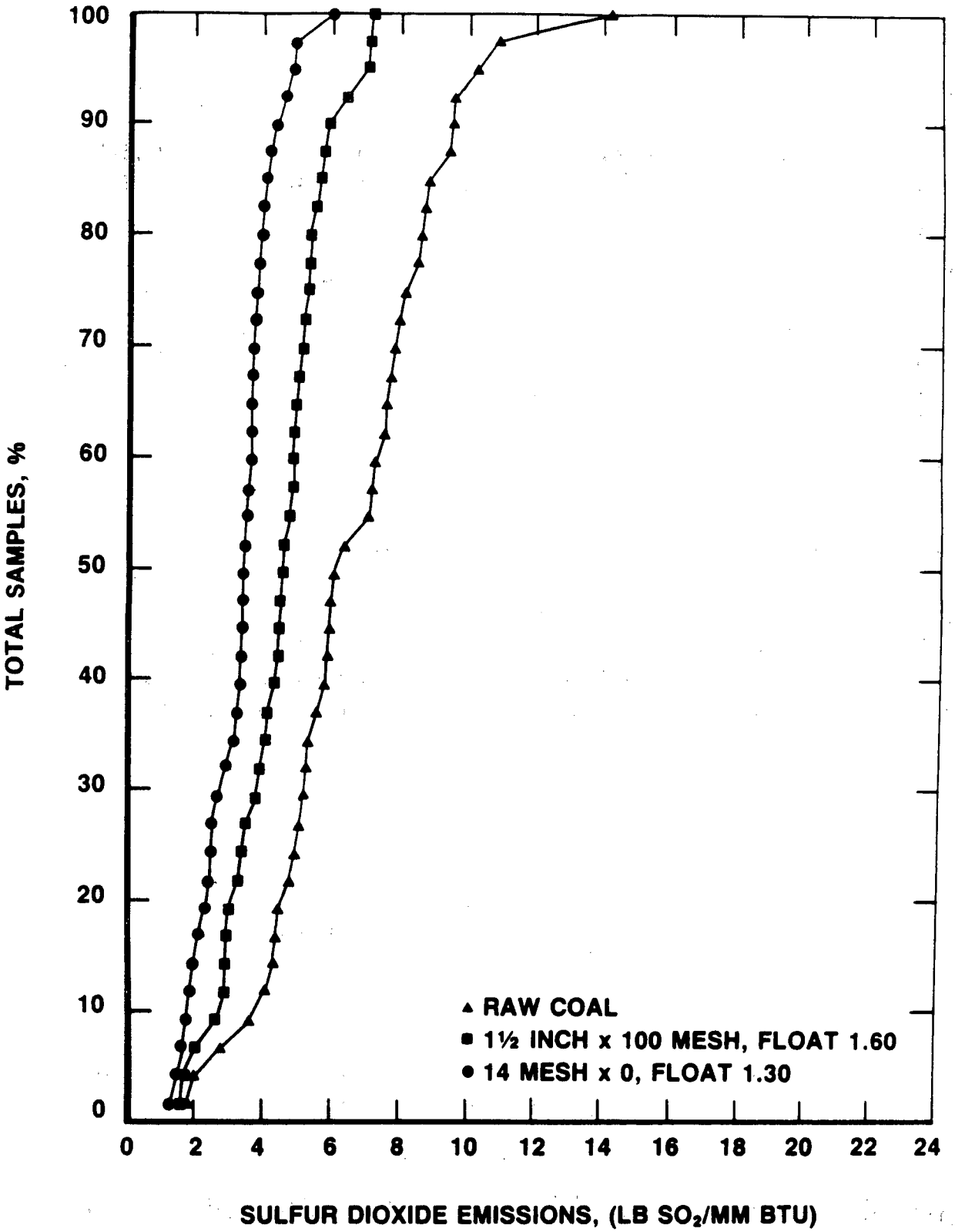

Figure 5 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

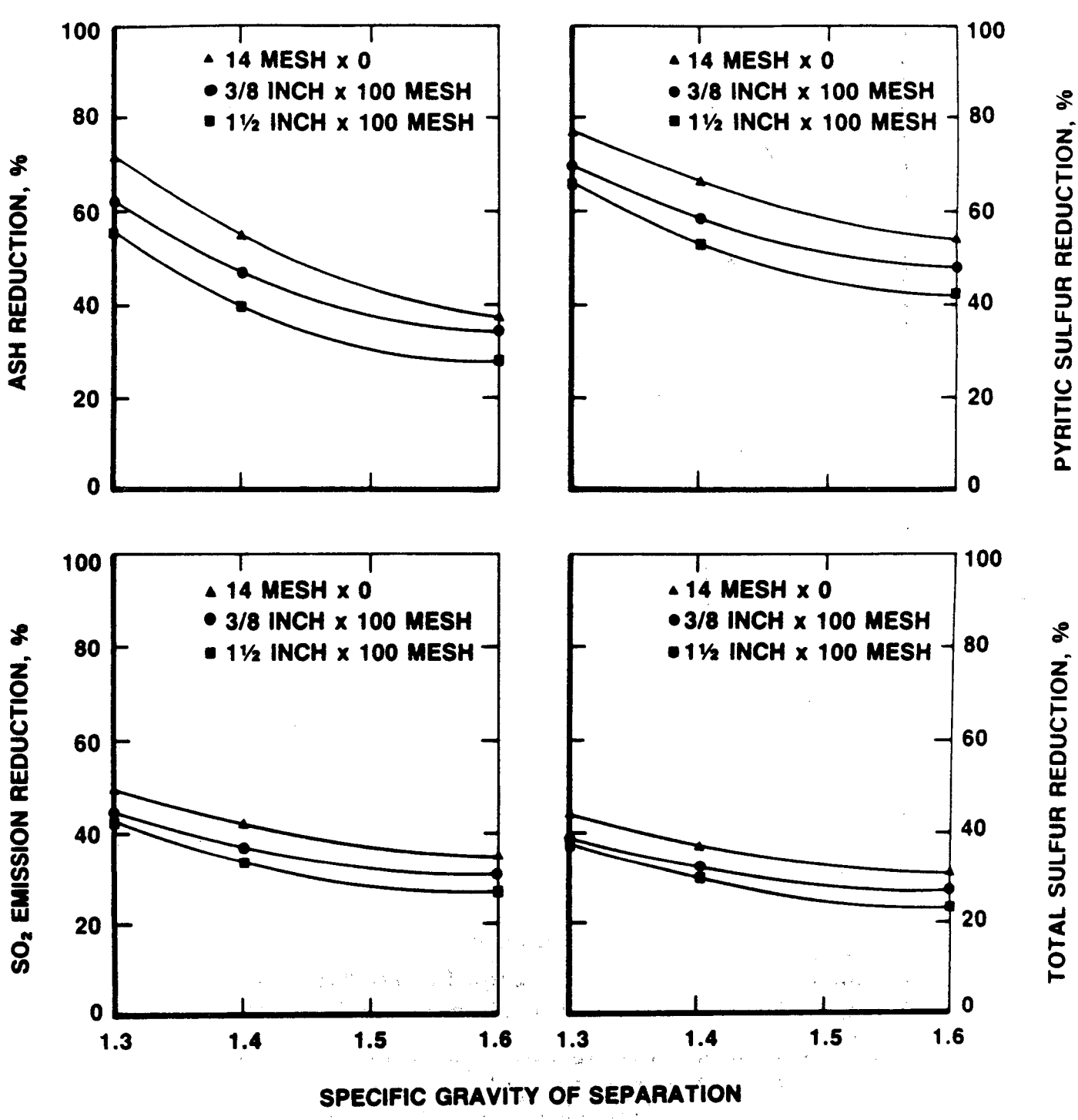

Figure 6 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

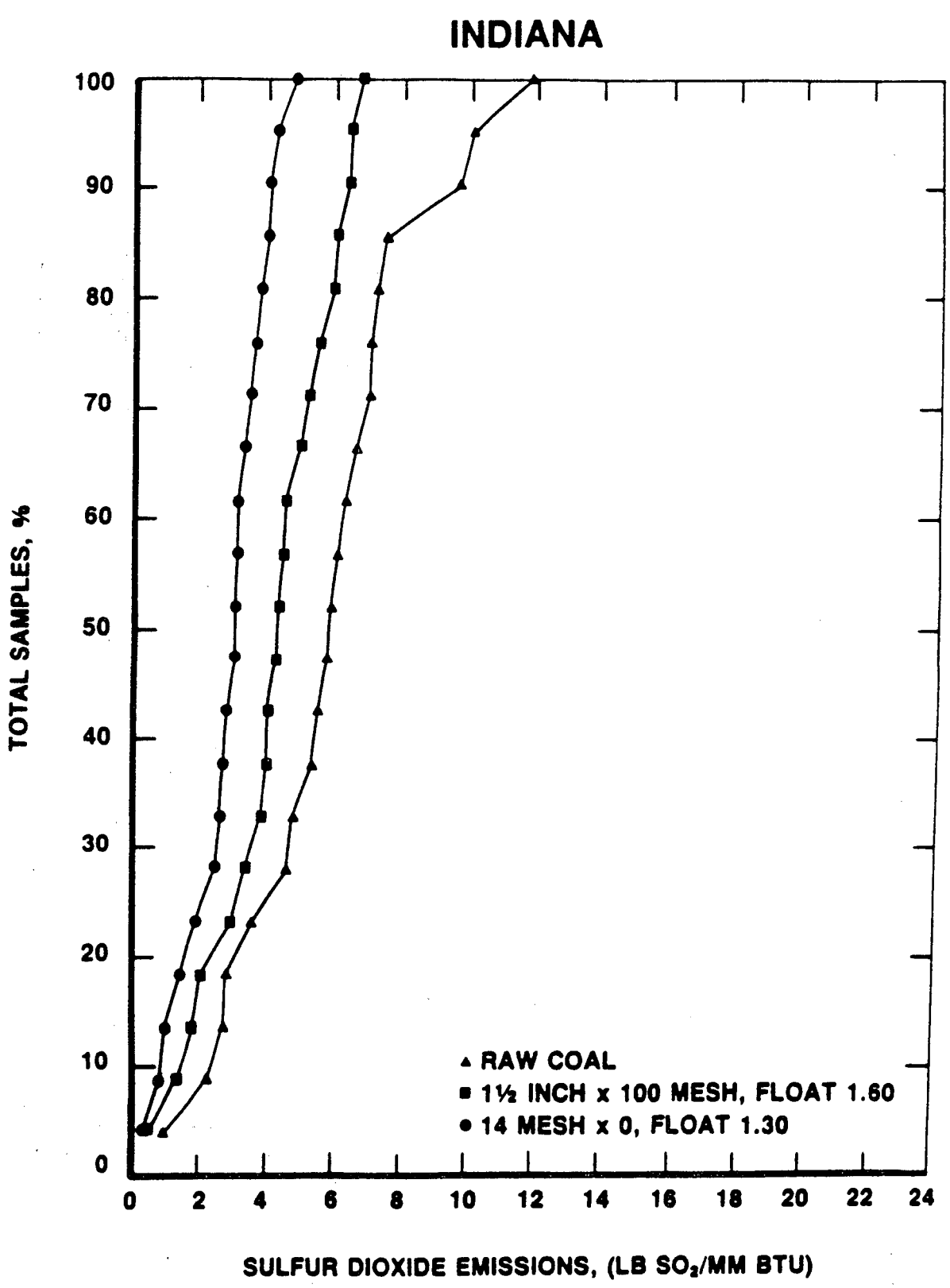

Figure 7 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

In 1989, Indiana produced 34 MM tons of coal, which would emit an average of 2.5 MM tons of SO_2 per year if burned in utility plant boilers. If the coal were cleaned at a 14-mesh top size and a 90 percent Btu recovery, and burned at an equivalent Btu basis, the SO_2 emissions would be reduced by 36 percent to 1.6 MM tons per year. Therefore cleaning the coal would provide substantial benefits in regards to SO_2 emissions and acid rain.

Kentucky (West)

The raw coal samples (37) contained an average of 13.9 percent ash, 2.43 percent pyritic sulfur, 4.06 percent total sulfur, and 12,316 Btu/pound which would emit 6.6 pounds SO_2/MMBtu if burned at the utilities (Appendix D). Crushing the coals to 3/8-inch top size and washing them at 1.60 specific gravity would provide a product containing 6.9 percent ash, 0.98 percent pyritic sulfur, 2.69 percent total sulfur, 13,429 Btu/pound at a Btu recovery of 95 percent, and emit 4.0 pounds SO_2/MMBtu if fired. These data and Figure 8 show that laboratory coal cleaning techniques would provide an ash reduction of 50 percent, a pyritic sulfur reduction of 59 percent, a total sulfur reduction of 34 percent, and an SO_2 emission reduction of 39 percent. Thus, crushing to liberate impurities and cleaning to remove them is very effective.

The data show that on the average the raw coal samples contained an average of 73.5 percent total carbon. The ID temperature was 2036°F, the ST temperature was 2099°F, FT temperature was 2215°F. The HGI was 53, indicating a hard-to-grind coal while the FSI was 4-1/2 indicating a caking coal. No analysis of ash was obtained except sodium oxide which was 0.56 percent. Upgrading the coal crushed to 14-mesh top size at 1.60 specific gravity would increase the total carbon content to 76.3 percent, the ID temperature to 2121°F, the ST temperature to 2190°F, and the FT to 2309°F. There was little or no change in the HGI and FSI.

A distribution of the samples meeting various SO_2 emission levels is presented in Figure 9 and shows that 100 percent of the raw coal samples would emit 8.8 pounds SO_2/MMBtu or less. Utilizing laboratory coal cleaning practices of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would improve the quality of the samples to 5.5 pounds SO_2/MMBtu or less, while crushing to 14-mesh top size and cleaning at 1.30 specific gravity would upgrade the sample to 4.2 pounds SO_2/MMBtu or less. This figure also shows that 0 percent of the raw samples, 0 percent of the samples prepared at 1 1/2-inch top size, and 8 percent of the samples cleaned at 14-mesh top size would meet a level of 1.2 pounds SO_2/MMBtu.

In 1989, Kentucky (West) produced 42 MM tons of coal, which would emit an average of 3.4 MM tons of SO_2 per year if fired at the power plant. The data show that if these coals were burned at a comparable Btu basis, the samples cleaned at 14-mesh top size and 90 percent Btu recovery would reduce SO_2 emissions by 41 percent to 2.0 MM tons of SO_2 per year. This would substantially lower the SO_2 emissions and acid rain.

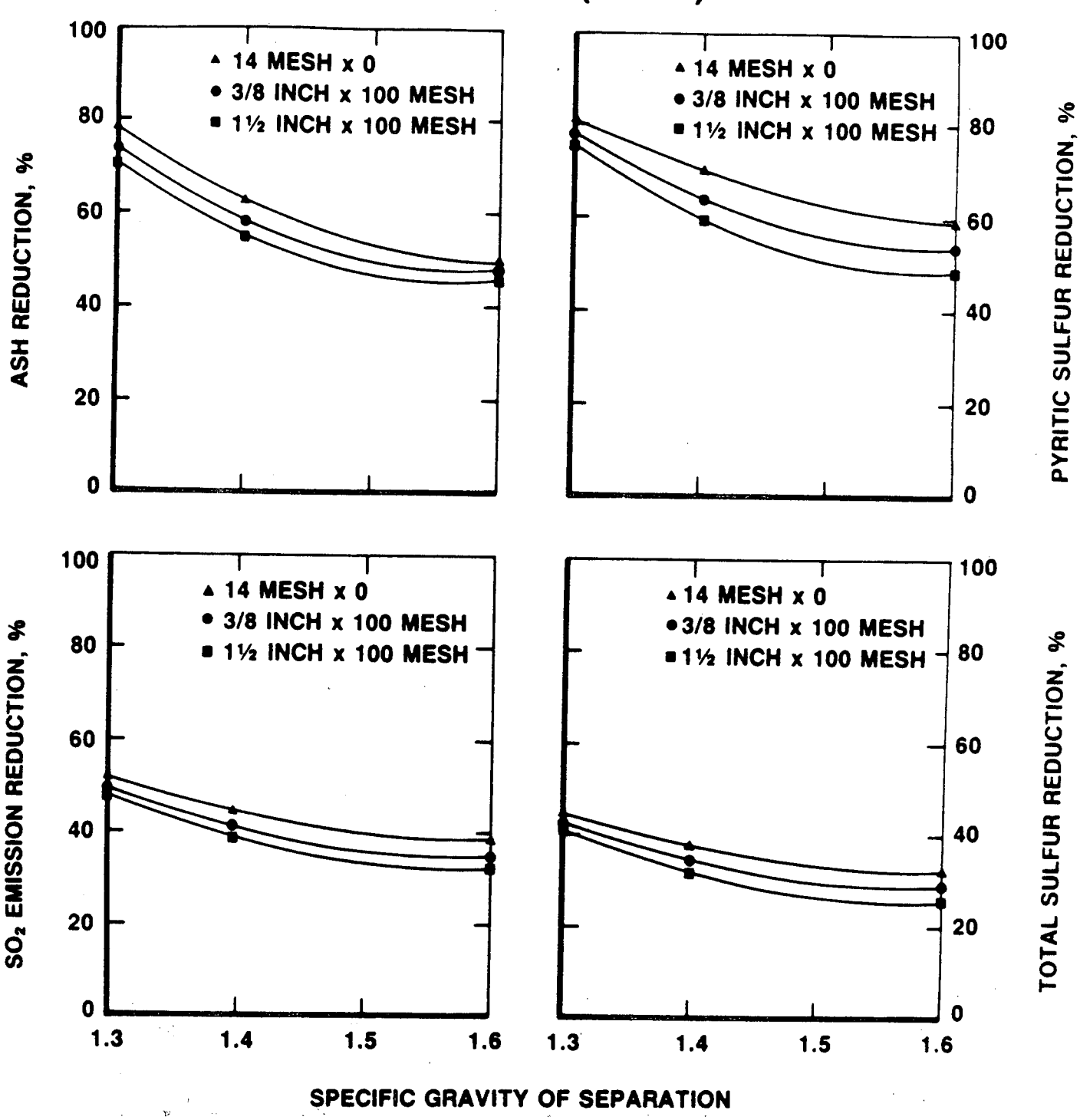

Figure 8 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

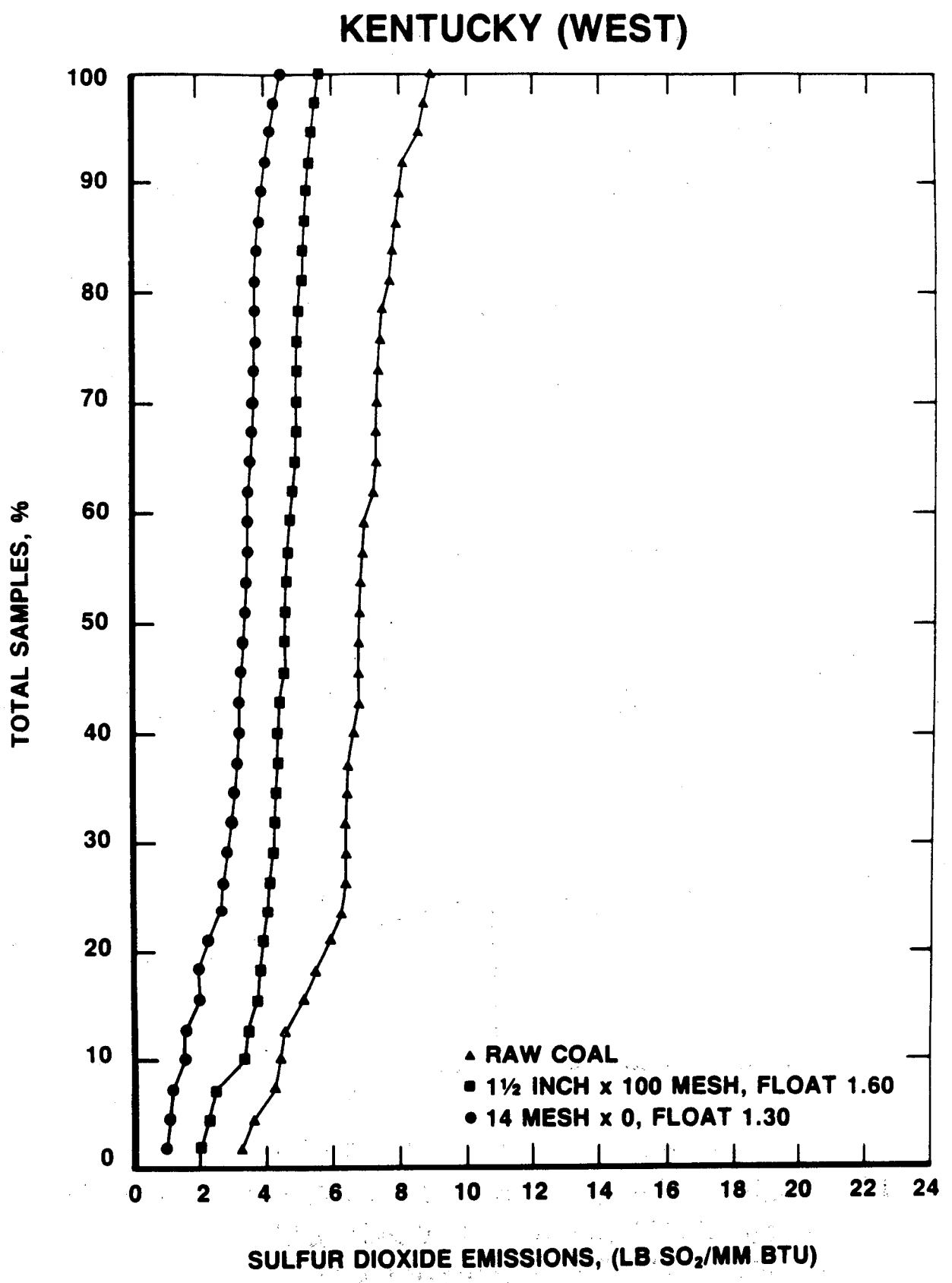

Figure 9 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

Western Section States

A total of 86 coalbed samples were collected from the Western Section states of Arkansas (16), Iowa (16), Kansas (10), Missouri (18), Oklahoma (13), and Texas (13) and evaluated gravimetrically.

Arkansas (Anthracite)

The average raw coal samples (5) contained 8.7 percent ash, 1.32 percent pyritic sulfur, 2.07 percent total sulfur, and 14,118 Btu/pound, which would emit 2.9 pounds SO_2/MMBtu if burned. Appendix D shows that crushing the coal to 14-mesh top size and cleaning at 1.60 specific gravity would provide a product analyzing 6.0 percent ash, 0.64 percent pyritic sulfur, 1.33 percent total sulfur, 14,575 Btu/pound, and emit 1.8 pounds SO_2/MMBtu if fired. These data and Figure 10 show that these laboratory coal preparation techniques would provide reductions of 31 percent in ash, 51 percent in pyritic sulfur, 36 percent in total sulfur and 38 percent in SO_2 emissions.

The selected chemical and physical properties showed that the raw coal samples (5) on the average analyzed 82.2 percent total carbon and 0.03 percent chlorine, and had 2290°F ID temperature, 2407°F ST temperature, and 2607°F FT temperature. The HGI was 76, indicating a relatively hard coal to grind and the FSI was 1/2, which indicates it is weakly caking. The analysis of ash showed an SiO_2 content of 39.14 percent, an Al_2O_3 content of 31.56 percent, and an Fe_2O_3 content of 23.26 percent. Cleaning the coal at 1.60 specific gravity would increase the total carbon content to 84.8 percent, and decrease the ID temperature to 2280°F, the softening temperature to 2347°F, and the fluid temperature to 2517°F. The HGI decreased slightly to 74 while the FSI remained 1/2. The analysis of ash showed that the SiO_2 increased to 37.08 percent, the Al_2O_3 increased to 33.29 percent, and the Fe_2O_3 decreased to 14.09 percent.

A distribution of the SO_2 emission is presented in Figure 11 and shows that 100 percent of the raw coal samples would emit 5.6 pounds SO_2/MM Btu or less. Using coal preparation techniques of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would improve the samples to 4.6 pounds SO_2/MMBtu, while crushing to 14-mesh top size and washing at 1.30 specific gravity would improve the quality to 1.8 pounds SO_2/MMBtu or less. The figure also shows that 23 percent of the raw coal samples, 31 percent of the samples crushed to 1-1/2 inch top size, and 50 percent of the samples crushed to 14-mesh top size would meet an SO_2 emission level of 1.2 pound/MMBtu.

Arkansas did not produce any anthracite coal in 1989.

Arkansas (Bituminous)

The raw coal samples (7) contained an average of 8.2 percent ash, 1.04 percent pyritic sulfur, 1.59 percent total sulfur, and 14,252 Btu/pound, which would emit 2.2 pounds SO_2/MMBtu if burned. Appendix D shows that crushing the coal to 14-mesh top size and cleaning at 1.60 specific gravity

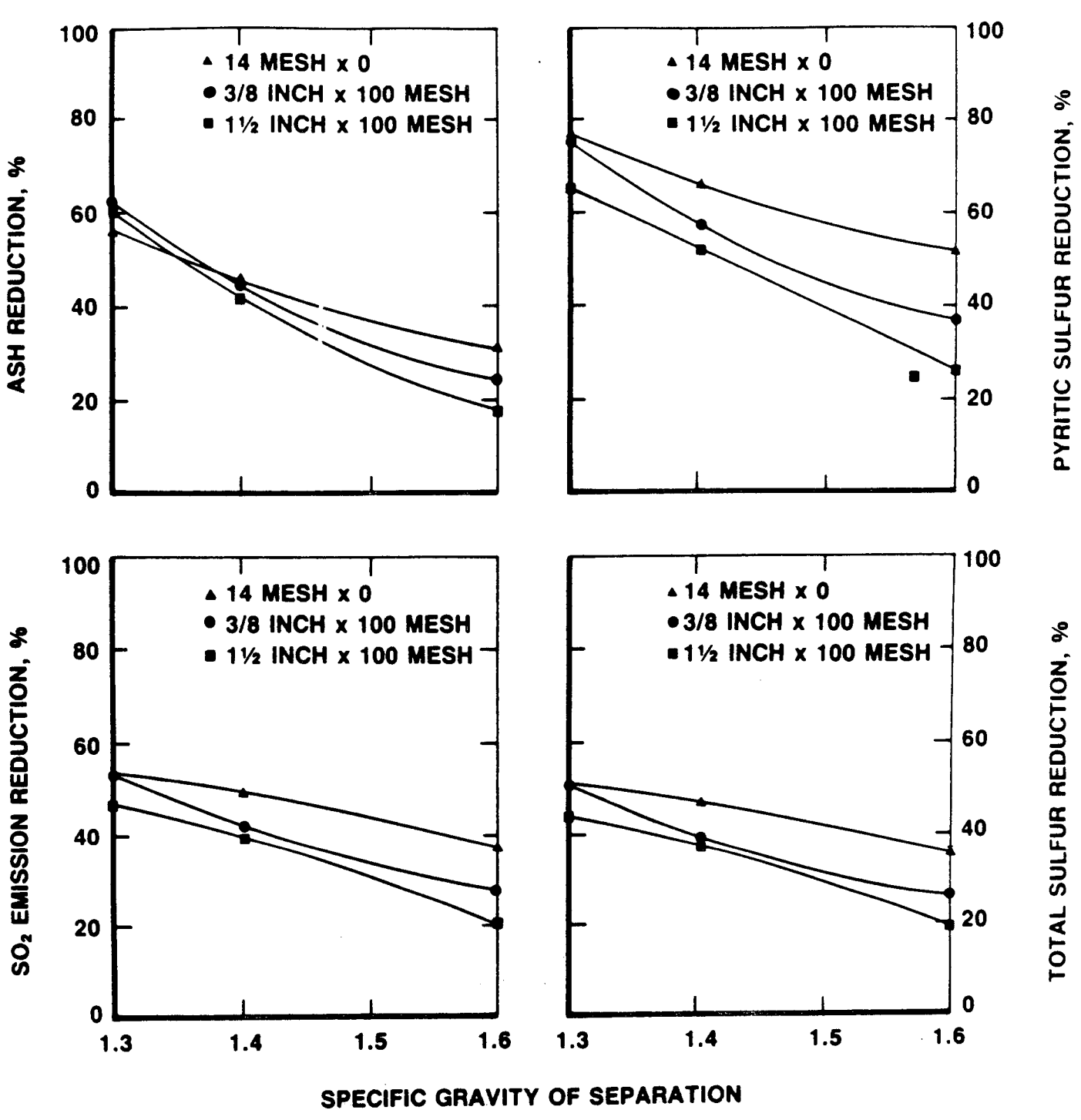

Figure 10 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

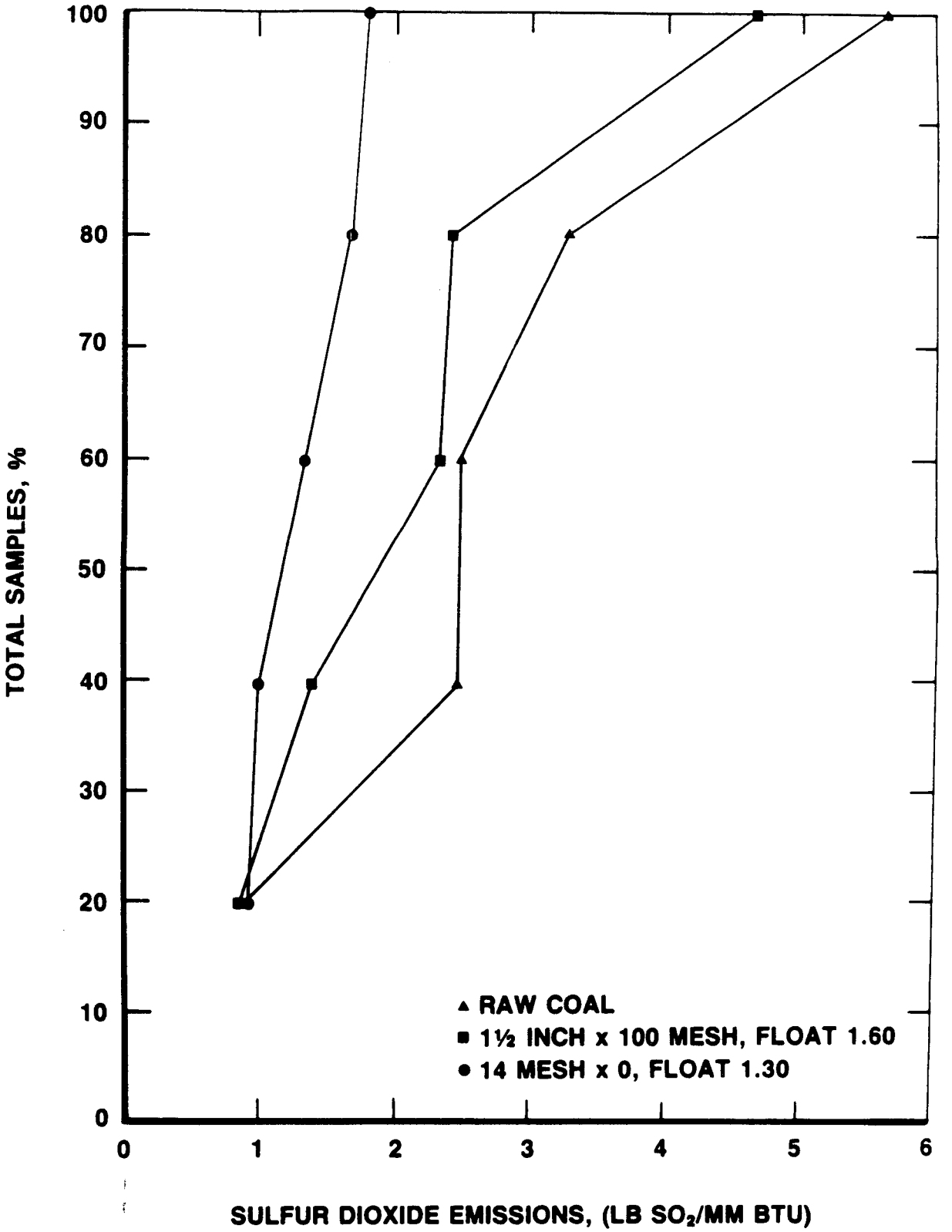

Figure 11 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

would provide a product analyzing 4.2 percent ash, 0.78 percent pyritic sulfur, 1.37 percent total sulfur, 15,003 Btu/pound and emit 1.8 pounds SO_2/MMBtu if fired. These data and Figure 12 show that these laboratory coal preparation techniques would provide reductions of 50 percent in ash, 25 percent in pyritic sulfur, 15 percent in total sulfur and 19 percent in SO_2 emissions.

The selected chemical and physical properties showed that the raw coal samples (7) on the average analyzed 81.9 percent total carbon and 0.04 percent chlorine and had 2068°F ID temperature, 2156°F ST temperature, and 2243°F FT temperature. The HGI was 111, indicating a relatively soft coal to grind and the FSI was 8-1/2, which is good caking quality. The analysis of ash showed an SiO_2 content of 29.46 percent, an Al_2O_3 content of 17.38 percent, and an Fe_2O_3 content of 31.70 percent. Cleaning the coal at 1.60 specific gravity would increase the total carbon content to 86.4 percent, the ID temperature to 2085°F, and lower the softening temperature to 2147°F, and the fluid temperature to 2211°F. The HGI increased slightly to 113 while the FSI decreased to 8. The analysis of ash showed that the SiO_2 decreased to 27.96 percent, the Al_2O_3 increased to 20.14 percent, and the Fe_2O_3 decreased to 24.64 percent.

A distribution of the SO_2 emission is presented in Figure 13 and shows that 100 percent of the raw coal samples would emit 5.4 pounds SO_2/MM Btu or less. Using coal preparation techniques of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would improve the samples to 4.6 pounds SO_2/MMBtu, while crushing to 14-mesh top size and washing at 1.30 specific gravity would improve the quality to 2.4 pounds SO_2/MMBtu or less. The figure also shows that 46 percent of the raw coal samples, 57 percent of the samples crushed to 1 1/2-inch top size, and 60 percent of the samples crushed to 14-mesh top size would meet an SO_2 emission level of 1.2 pound/MMBtu.

In 1989, Arkansas produced 0.09 MM tons of raw bituminous coal, which would emit 0.0028 million tons of SO_2 per year if consumed at the utilities. Cleaning the coal crushed to 14-mesh top size and burning on a comparable Btu basis at a Btu recovery of 90 percent would reduce the SO_2 emissions by 29 percent to 0.0020 million tons of SO_2 per year. Thus, cleaning these coals would have significant impact on the SO_2 emissions and acid rain.

Arkansas (Lignite)

The average raw coal samples (4) contained 21.3 percent ash, 0.35 percent pyritic sulfur, 1.06 percent total sulfur, and 9649 Btu/pound, which would emit 2.3 pounds SO_2/MMBtu if burned. Appendix D shows that crushing the coal to 14-mesh top size and cleaning at 1.60 specific gravity would provide a product analyzing 17.1 percent ash, 0.14 percent pyritic sulfur, 0.95 percent total sulfur, 10,253 Btu/pound and emit 1.9 pounds SO_2/MMBtu if fired. These data and Figure 14 show that these laboratory coal preparation techniques would provide reductions of 20 percent in ash, 60 percent in pyritic sulfur, 10 percent in total sulfur, and 17 percent in SO_2 emissions.

ARKANSAS (BITUMINOUS)

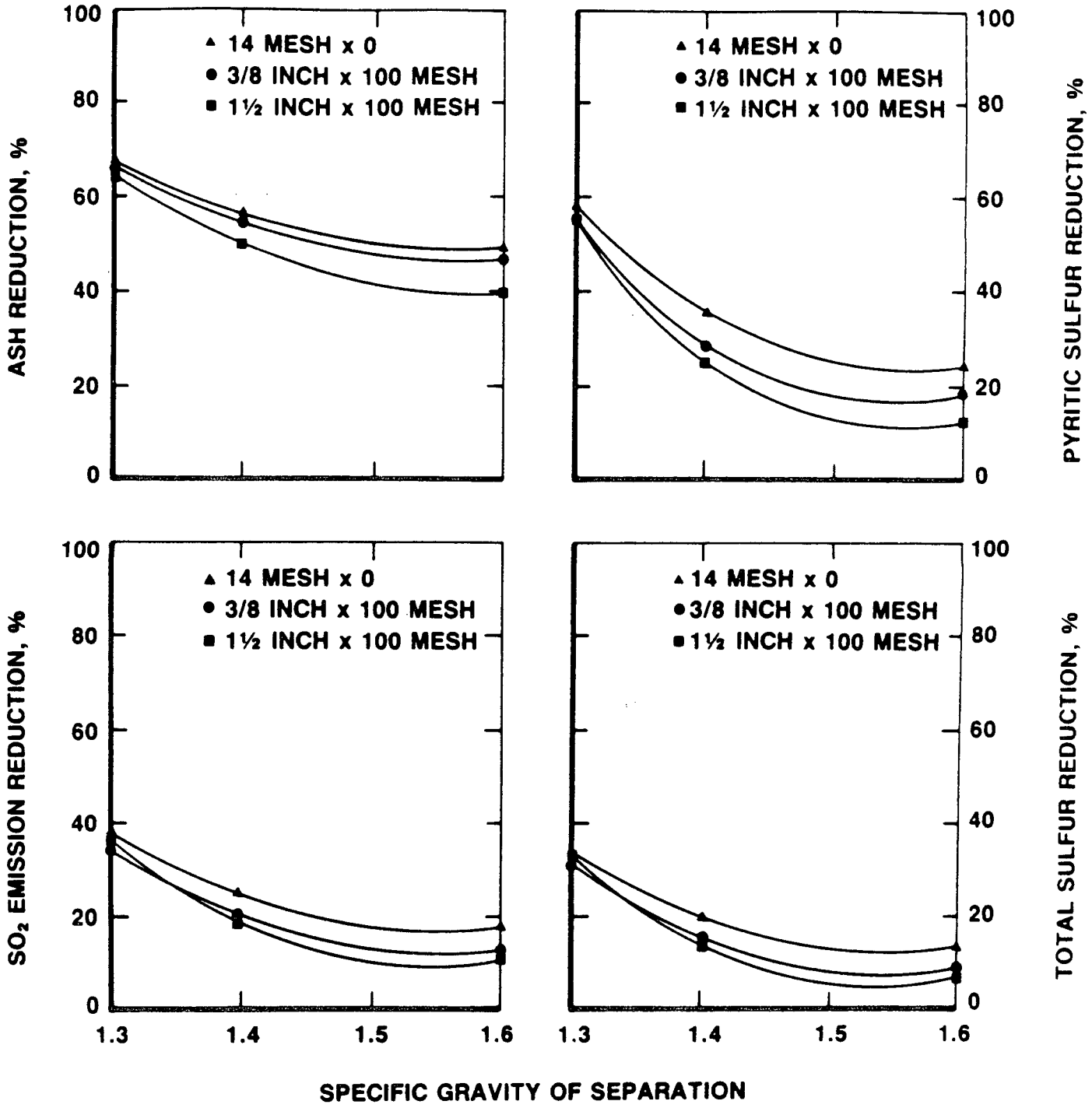

Figure 12 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

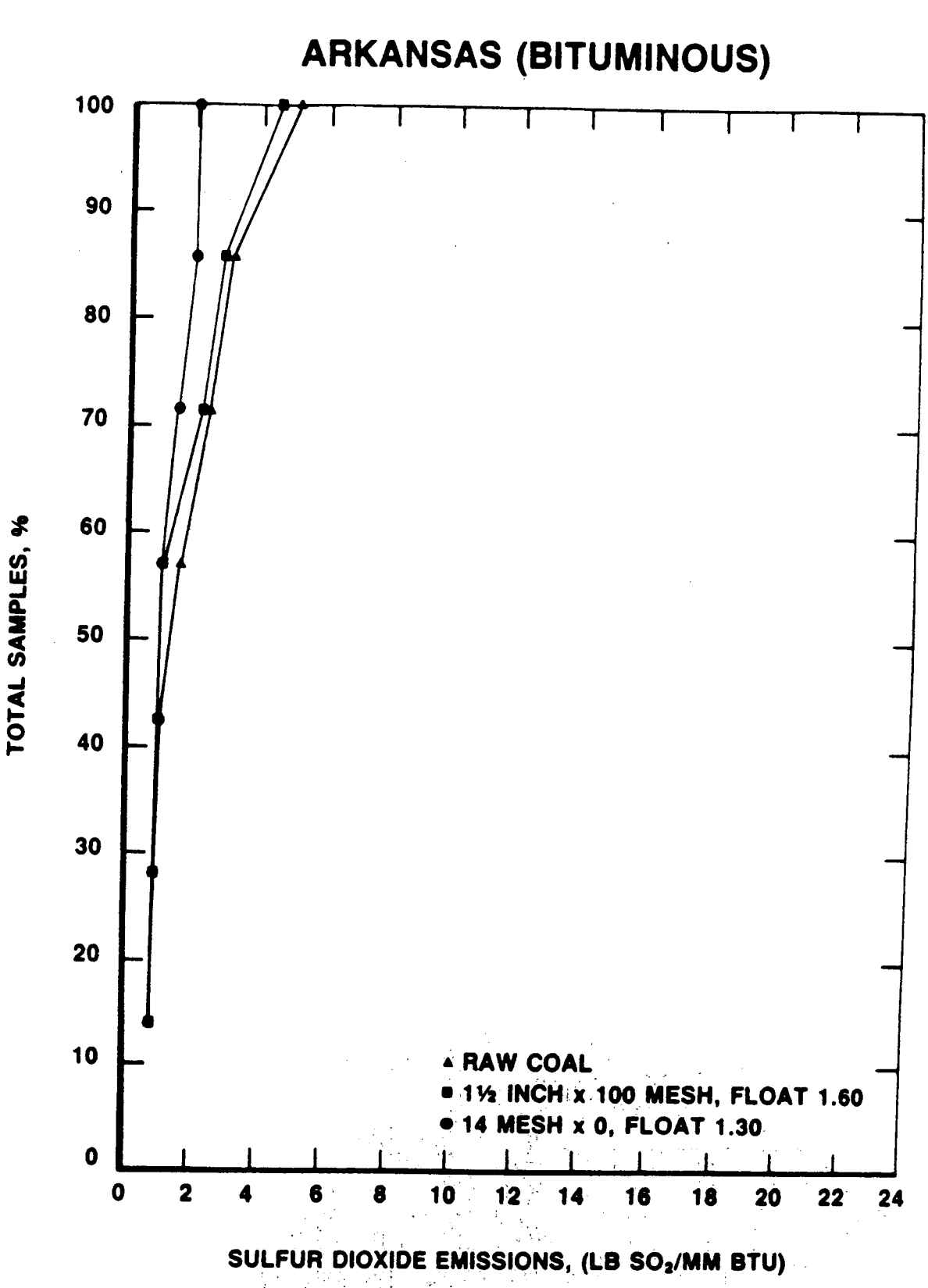

Figure 13 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

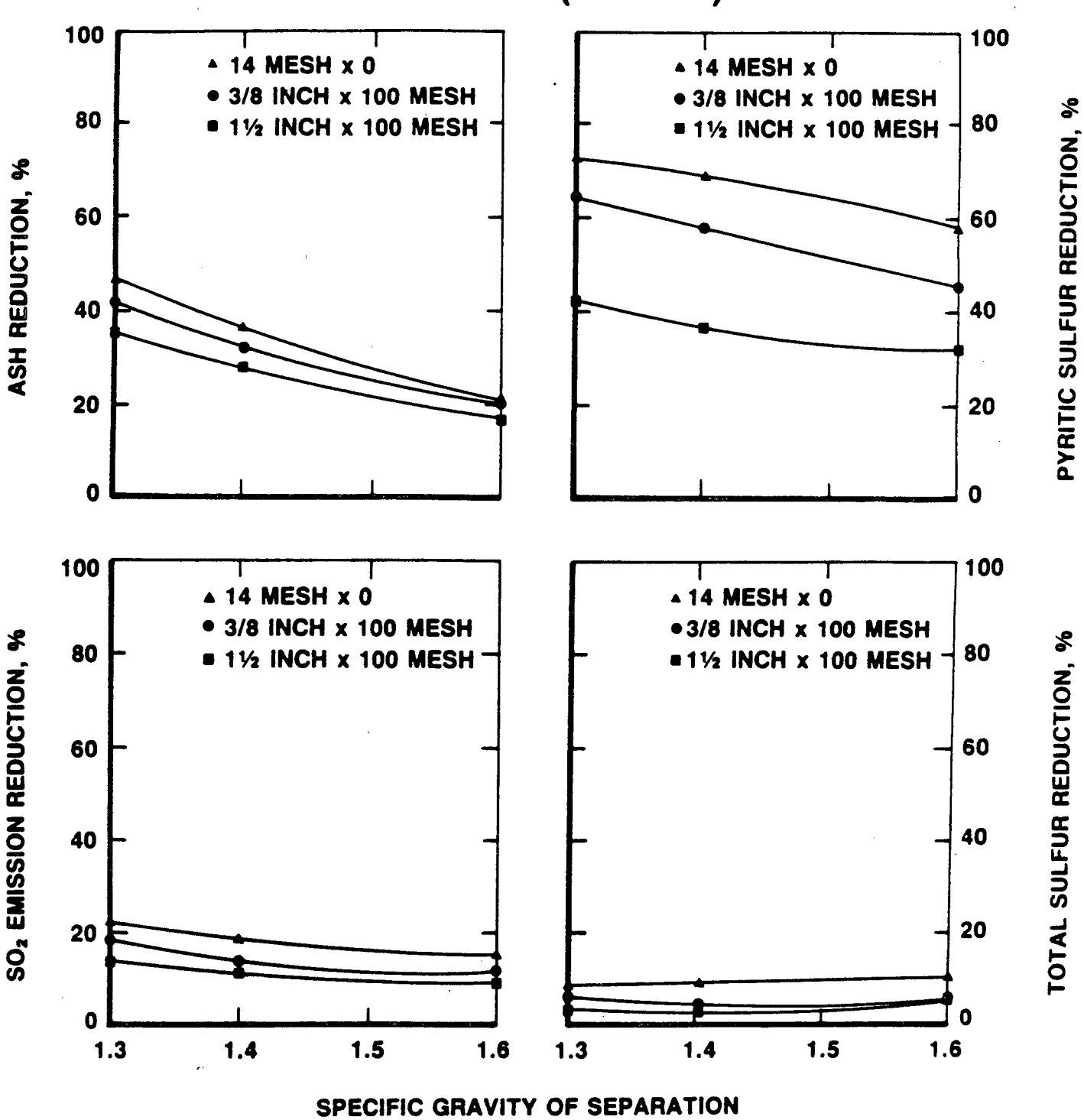

Figure 14 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

The selected chemical and physical properties showed that the raw coal samples (4) on the average analyzed 55.1 percent total carbon and 0.01 percent chlorine and had 2493°F ID temperature, 2543°F ST temperature, and 2598°F FT temperature. The HGI was 72, indicating a relatively hard coal to grind and the FSI was 0, indicating a non-caking coal. The analysis of ash showed an SiO_2 content of 50.82 percent, an Al_2O_3 content of 25.83 percent, and an Fe_2O_3 content of 8.33 percent. Cleaning the coal at 1.60 specific gravity would increase the total carbon content to 58.3 percent, the ID temperature to 2530°F, the softening temperature to 2585°F, and the fluid temperature to 2670°F. The HGI decreased slightly to 57 while the FSI remained 0. The analysis of ash showed that the SiO_2 decreased to 46.45 percent, the Al_2O_3 increased to 30.36 percent, and the Fe_2O_3 decreased to 5.51 percent.

A distribution of the SO_2 emission is presented in Figure 15 and shows that 100 percent of the raw coal samples would emit 3.6 pounds SO_2/MM Btu or less. Using coal preparation techniques of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would improve the quality of the samples to 3.3 pounds SO_2/MMBtu, while crushing to 14-mesh top size and washing at 1.30 specific gravity would improve the quality to 3.0 pounds SO_2/MMBtu or less. The figure also shows that 0 percent of the raw coal samples, 0 percent of the samples crushed to 1 1/2-inch top size, and 50 percent of the samples crushed to 14-mesh top size would meet an SO_2 emission level of 1.2 pound/MMBtu.

Arkansas did not produce any lignite coal in 1989.

Iowa

The raw coal samples contained an average of 16.3 percent ash, 4.64 percent pyritic sulfur, 6.79 percent total sulfur, 11,528 Btu/pound, and would emit 12.1 pounds SO_2/MMBtu if burned (Appendix D). The data show that crushing to 14-mesh top size and cleaning the coal at 1.60 specific gravity would produce a product analyzing 7.9 percent ash, 1.71 percent pyritic sulfur, 4.05 percent total sulfur, 12,994 Btu/pound, and emit 6.3 pounds SO_2/MMBtu if burned. These data and Figure 16 show that these coal cleaning techniques would provide reductions of 52 percent ash, 63 percent pyritic sulfur, 40 percent total suflur, and 48 percent in SO_2 emissions.

The data show that on the average the raw coal samples (16) analyzed 63.6 percent total carbon, 0.03 percent chlorine, 2025°F initial deformation temperature, 2074°F softening temperature and 2143°F fluid temperature. The HGI was 52 and thus a hard-to-grind coal and the FSI was 2 1/2, indicating a caking coal. The analysis of ash was not performed on these coals. Upgrading the coal at 1.60 specific gravity would increase the total carbon content to 71.7 and increase the ID temperature to 2047°F, the ST to 2102°F, and the FT to 2176°F. The HGI and FSI showed little change.

A distribution of the SO_2 emission for the samples tested is presented in Figure 17 and shows that 100 percent of the raw coal samples would emit 24 pounds or less of SO_2/MMBtu. Utilizing coal preparation methods of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity

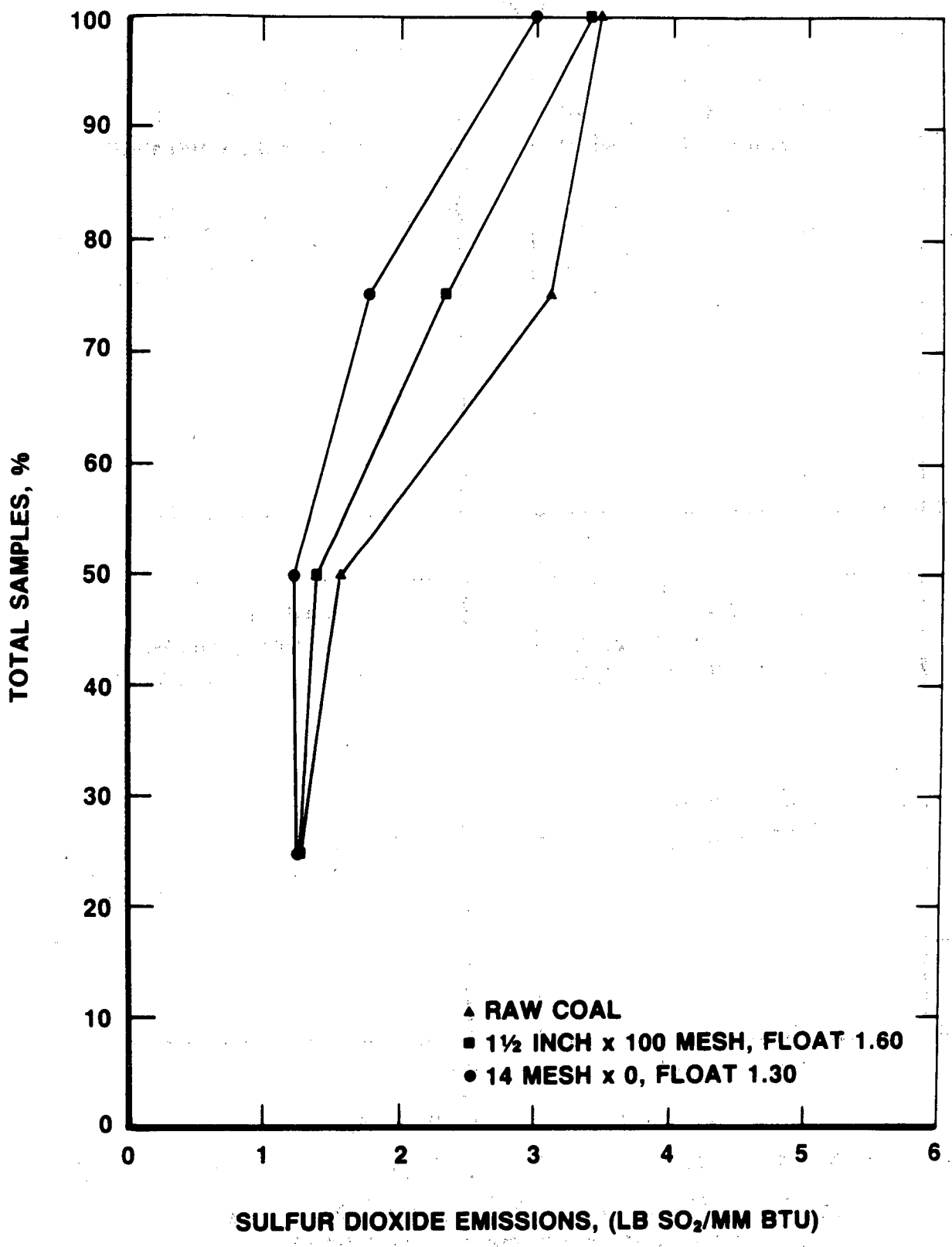

Figure 15 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

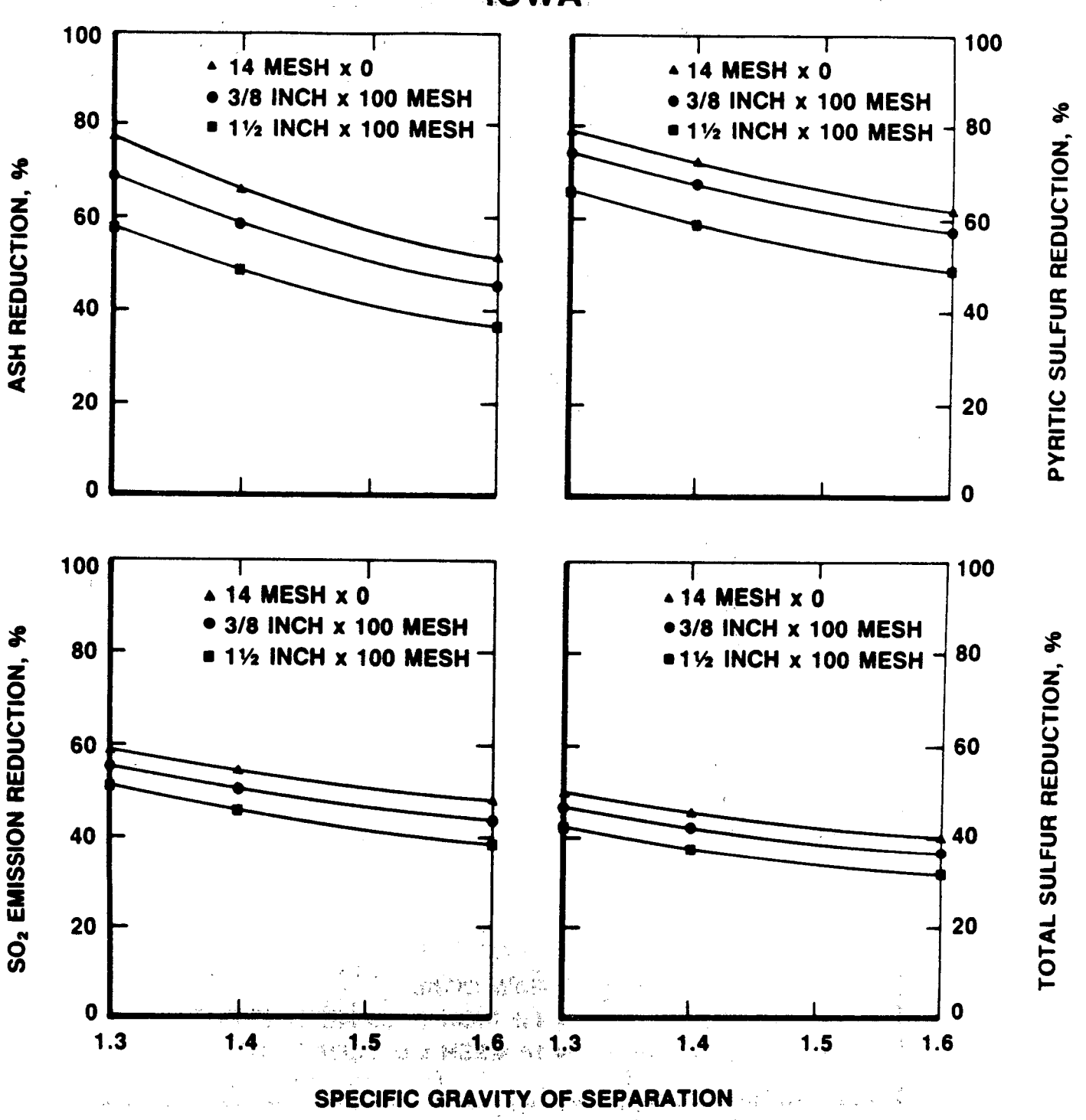

Figure 16 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

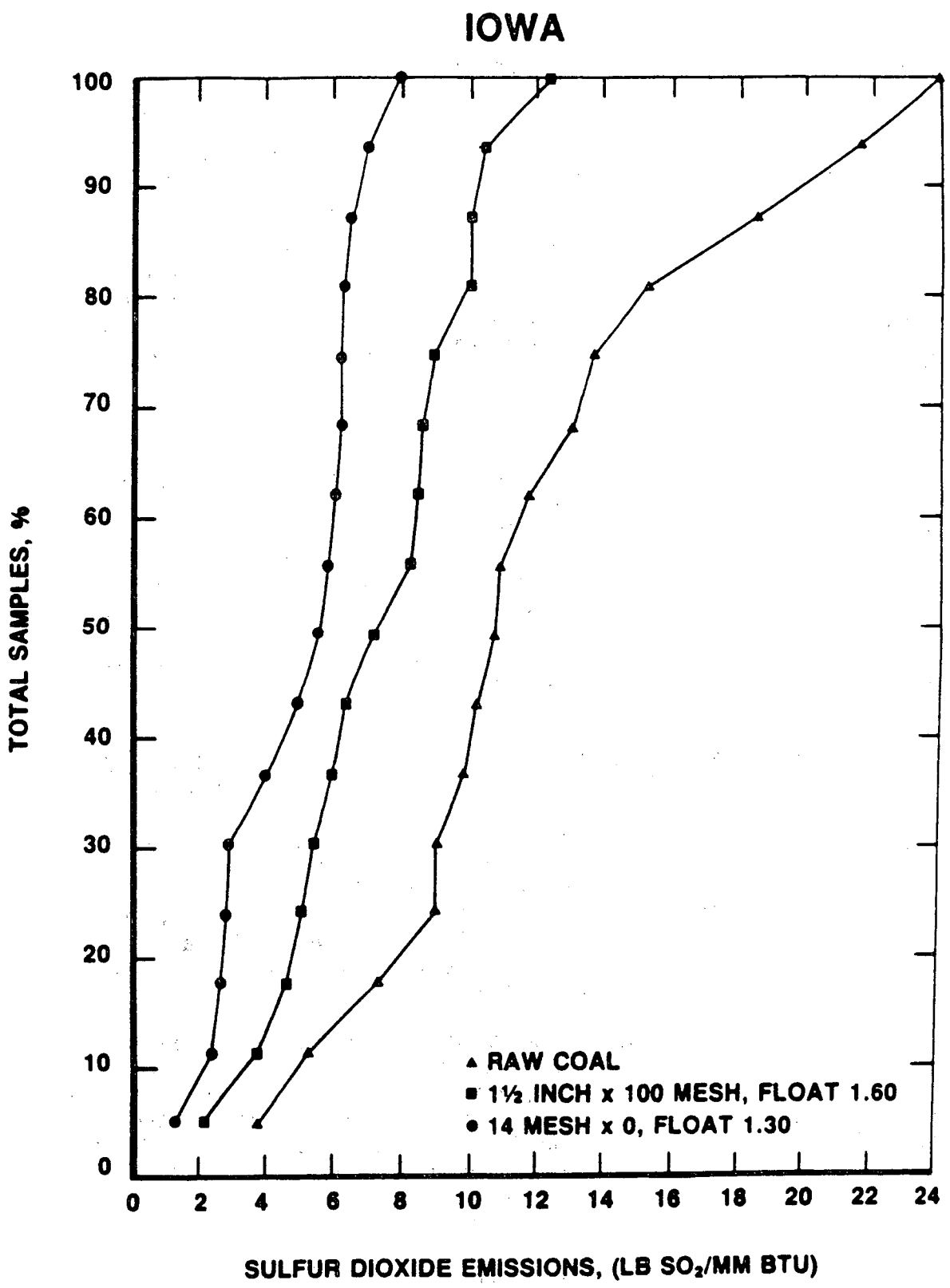

Figure 17 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

would improve the quality of the samples to 12.3 pounds SO_2/MMBtu, and crushing to 14-mesh top size and washing the samples at 1.30 specific gravity would upgrade the samples to 8 pounds SO_2/MMBtu. The figure also shows that 0 percent of the raw coal samples, 0 percent of the samples crushed to 1 1/2-inch top size, and 7 percent of the samples crushed to 14-mesh top size would meet an SO_2 emission level of 1.2.

In 1989, Iowa produced 0.424 MM tons of raw coal, which would emit 0.06 million tons of SO_2/year if burned. Washing the coal crushed to 14-mesh size and burning at an equivalent Btu basis at a Btu recovery of 90 percent would reduce the SO_2 emissions by 50 percent to 0.03 million tons of SO_2 per year. Therefore, cleaning these coals would moderately reduce SO_2 emissions and acid rain.

Kansas

The data in Appendix D show that the raw coal sample contained an average of 20.4 percent ash, 3.71 percent pyritic sulfur, 5.03 percent total sulfur, 11,692 Btu/pound, and would emit 8.7 pounds SO_2/MMBtu if burned. The data show that crushing the coal to 14-mesh top size and cleaning at 1.60 specific gravity would provide a product containing 10.3 percent ash, 2.06 percent pyritic sulfur, 3.43 percent total sulfur, 13,480 Btu/pound, and emit 5.1 pounds SO_2/MMBtu if fired. These data and Figure 18 show that these laboratory coal preparation techniques would provide reductions of 50 percent ash, 45 percent pyritic sulfur, 32 percent total sulfur, and 42 percent in SO_2 emissions.

The composite data show that the raw coal samples (10) analyzed 38.91 percent total carbon and 0.27 percent chlorine, the ID temperature was 1970°F, the ST was 2033°F while the FT was 2101°F. The HGI was 55, indicating a hard-to-grind coal while the FSI was 7 1/2, indicating a good caking coal. The analysis of ash showed 38.91 percent SiO_2, 13.14 Al_2O_3, and 28.14 Fe_2O_3. Cleaning the coal at 1.60 specific gravity would increase the total carbon content to 46.88 and increase the ID to 1983°F, the ST to 2045°F, and the FT to 2128°F. There was little change in HGI and FSI. The SiO_2 in the ash would increase to 46.88 percent and the Al_2O_3 to 16.03 percent while the Fe_2O_3 decreased to 26.46 percent.

A distribution of the samples meeting various SO_2 emission levels is depicted in Figure 19 and shows that 100 percent of the raw coal samples would emit 12.8 pounds or less of SO_2/MMBtu if burned. Using coal cleaning techniques of crushing to 1 1/2-inch top size and fractionating the coal at 1.60 specific gravity would upgrade the samples to 8.0 pounds SO_2/MMBtu, while crushing to 14-mesh top size and separating at 1.30 specific gravity would improve the quality to 4.6 pounds SO_2/MMBtu. This figure also shows that 0 percent of the raw coal samples, 0 percent of the samples crushed to 1 1/2-inch top size, and 0 percent of the samples crushed to 14-mesh top size would meet a level of 1.2 pounds SO_2/MMBtu.

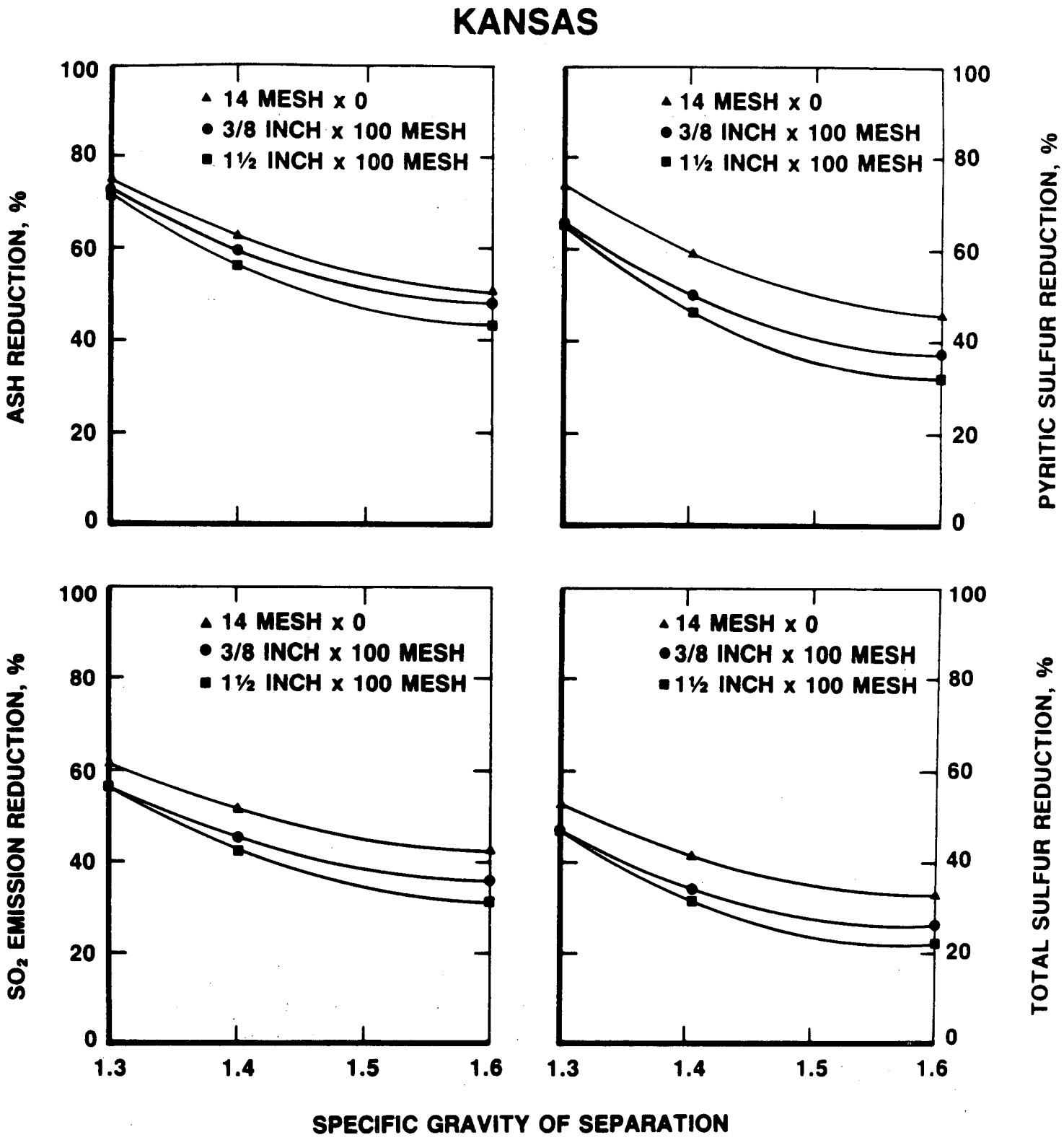

Figure 18 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

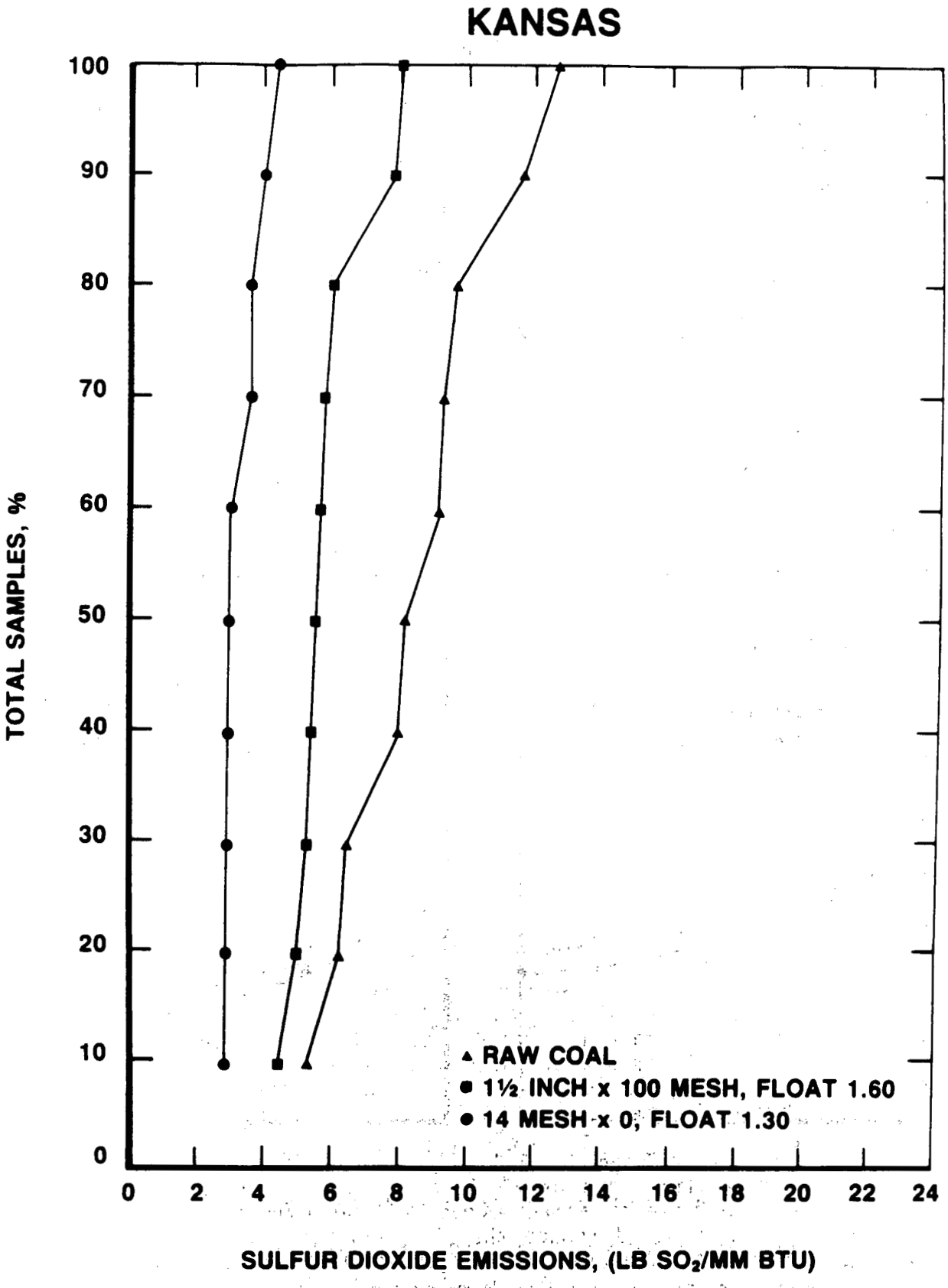

Figure 19 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

In 1989, Kansas produced 1.1 MM tons of coal, which would emit an average of 0.11 million tons of SO_2/year if burned. Cleaning the coal crushed to 14-mesh top size at a Btu recovery of 90 percent and burned at an equivalent Btu basis would reduce the SO_2 emissions by 36 percent to 0.07 million tons SO_2/year. Therefore, cleaning the coal prior to burning would provide significant reductions in SO_2 emissions and acid rain.

Missouri

The data in Appendix D show that the raw coal samples analyzed on the average 18.6 percent ash, 3.96 percent pyritic sulfur, 5.53 percent total sulfur, 11,943 Btu/pound, and would emit 9.3 pounds SO_2/MMBtu if burned. The data show that crushing the coal to 14-mesh top size and washing at 1.60 specific gravity would provide a product containing 9.2 percent ash, 2.05 percent pyritic sulfur, 3.61 percent total sulfur, 13,536 Btu/pound, and emit 5.3 pounds SO_2/MMBtu if fired at the power plant. Further crushing would be of minimal benefit. These data and Figure 20 show that these coal cleaning techniques would provide reductions of 50 percent ash, 49 percent pyritic sulfur, 35 percent total sulfur, and 43 percent in SO_2 emissions.

The average data for the selected chemical and physical properties of the raw coal samples (18) analyzed 66.4 percent total carbon and 0.18 percent chlorine and had ID temperature of 1975°F, ST of 2037°F, and FT of 2151°F. The analysis of ash showed an SiO_2 content of 30.64, an Al_2O_3 content of 12.22, and an Fe_2O_3 content of 35.48. The HGI was 55, indicating hard coal to grind, and the FSI was 6-1/2, indicating a good caking coal. Upgrading the coal at 1.60 specific gravity would increase the total carbon to 74.0, and decrease the ash fusion temperatures to an ID temperature of 1933°F, an ST of 2025°F, and an FT of 2139°F. The upgrading would have minimal effect on the HGI (52) and FSI (7). The analysis of ash for the clean coal product showed that the SiO_2 content increased to 42.67 percent, the Al_2O_3 content increased to 16.74 percent, and the Fe_2O_3 content decreased to 31.21.

A distribution of the samples meeting various levels of SO_2 emissions is presented in Figure 21. The data show that 100 percent of the raw coal samples would emit 18.0 pounds or less SO_2/MMBtu if burned. Coal beneficiation techniques of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would improve the quality of the coals to 9.5 pounds SO_2/MMBtu, and crushing to 14-mesh top size and cleaning at 1.30 specific gravity would upgrade the samples to 6.5 pounds SO_2/MMBtu. This figure also shows that 0 percent of the raw coal samples, 0 percent of the samples crushed to 1 1/2-inch top size, and 0 percent of the samples crushed to 14-mesh top size would meet a level of 1.2 pounds SO_2/MMBtu.

In 1989, Missouri produced 3.2 million tons of coal, which would emit an average of 0.36 million tons of SO_2/year if burned. Washing the coal crushed to 14-mesh top size at a Btu recovery of 90 percent and burning on an equivalent Btu basis would reduce the SO_2 emissions 44 percent to 0.20 million tons of SO_2/year. Thus, cleaning the coal prior to burning would provide significant reductions in SO_2 emissions and acid rain.

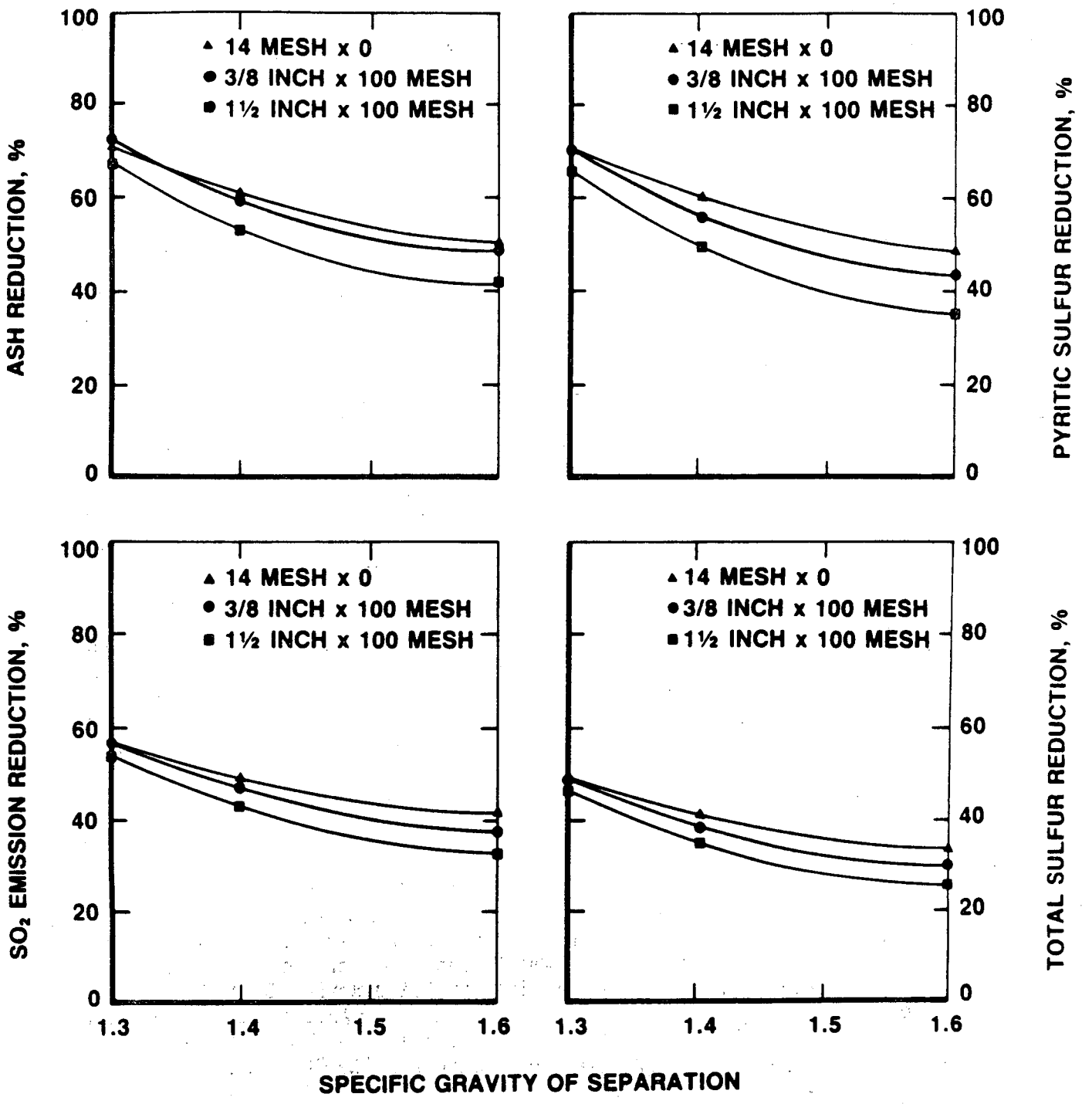

Figure 20 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

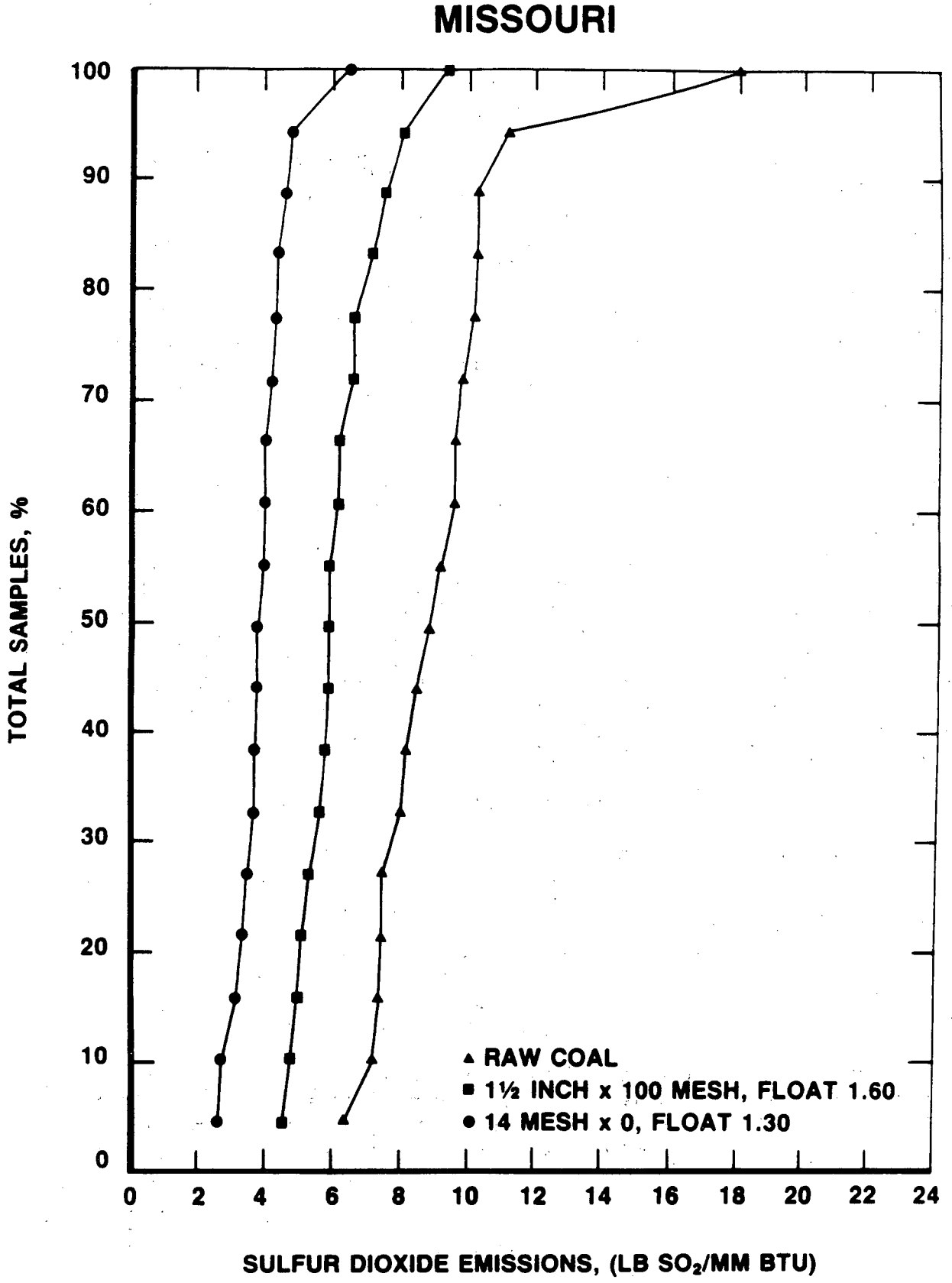

Figure 21 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

Oklahoma

The data in Appendix D show that the raw coal samples contained on the average 9.2 percent ash, 1.76 percent pyritic sulfur, 2.71 percent total sulfur, 13,653 Btu/pound, and would emit 4.1 pounds SO_2/MMBtu if burned at the power plant. The data show that crushing to 3/8-inch top size and cleaning the samples at 1.60 specific gravity would provide a product containing 5.1 percent ash, 1.26 percent pyritic sulfur, 2.22 percent total sulfur, 14,420 Btu/pound, and emit 3.1 pound SO_2/MMBtu if fired. Further crushing would be of minimal benefit. These data and Figure 22 show that these coal cleaning techniques would provide reductions of 43 percent ash, 27 percent pyritic sulfur, 17 percent total sulfur, and 22 percent in SO_2 emissions.

The average data for the selected chemical and physical properties showed that the raw coal samples (13) contained 76.3 percent total carbon and 0.25 percent chlorine, and had 2030°F initial deformation temperature, 2121°F softening temperature, and 2176°F fluid temperature. The analysis of ash showed that the SiO_2 content was 27.53 percent, the Al_2O_3 content was 13.24 percent, and the Fe_2O_3 content was 26.14 percent. The HGI was 62, indicating a hard coal to grind and the FSI was 7, indicating a good caking coal. Cleaning the coal at 1.60 specific gravity would increase the total carbon to 79.9 percent and the ash fusion temperature to 2088°F (ID), 2160°F (ST), and 2239°F (FT). The upgrading reduced the HGI to 53 but had no effect on the FSI. The analysis of ash for the clean coal product showed that the SiO_2 content increased to 32.63, the Al_2O_3 content increased to 19.20, and the Fe_2O_3 decreased to 25.16.

Figure 23 presents a distribution of the samples meeting various levels of SO_2 emissions. The data show that 100 percent of the raw coal samples would emit 9.8 pounds SO_2/MMBtu or less if burned. Coal cleaning techniques of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would improve the quality of the coals to 7.8 pounds SO_2/MMBtu or less, and crushing to 14-mesh top size and washing the coals at 1.30 specific gravity would upgrade the samples to 4.5 pounds SO_2/MMBtu or less. This figure also shows that 35 percent of the raw coal samples, 38 percent of the samples crushed to 1 1/2-inch top size, and 48 percent of the samples crushed to 14 mesh top size would meet a level of 1.2 pounds SO_2/MMBtu.

In 1989, Oklahoma produced 2 million tons of coal, which would emit an average of 0.11 million tons of SO_2 per year if fired. Cleaning the coal crushed to 1 1/2-inch top size to a Btu recovery of 90 percent and burning on a comparable Btu basis would reduce the SO_2 emissions 27 percent to 0.08 million tons SO_2/year. Cleaning the coal prior to burning would reduce SO_2 emissions and acid rain.

Texas (Bituminous)

The data in Appendix D show that the raw coal samples analyzed on the average 24.9 percent ash, 1.89 percent pyritic sulfur, 2.67 percent total sulfur, 10,622 Btu/pound, and would emit 4.9 pounds SO_2/MMBtu if burned. The data show that crushing the samples to 14-mesh top size and washing the

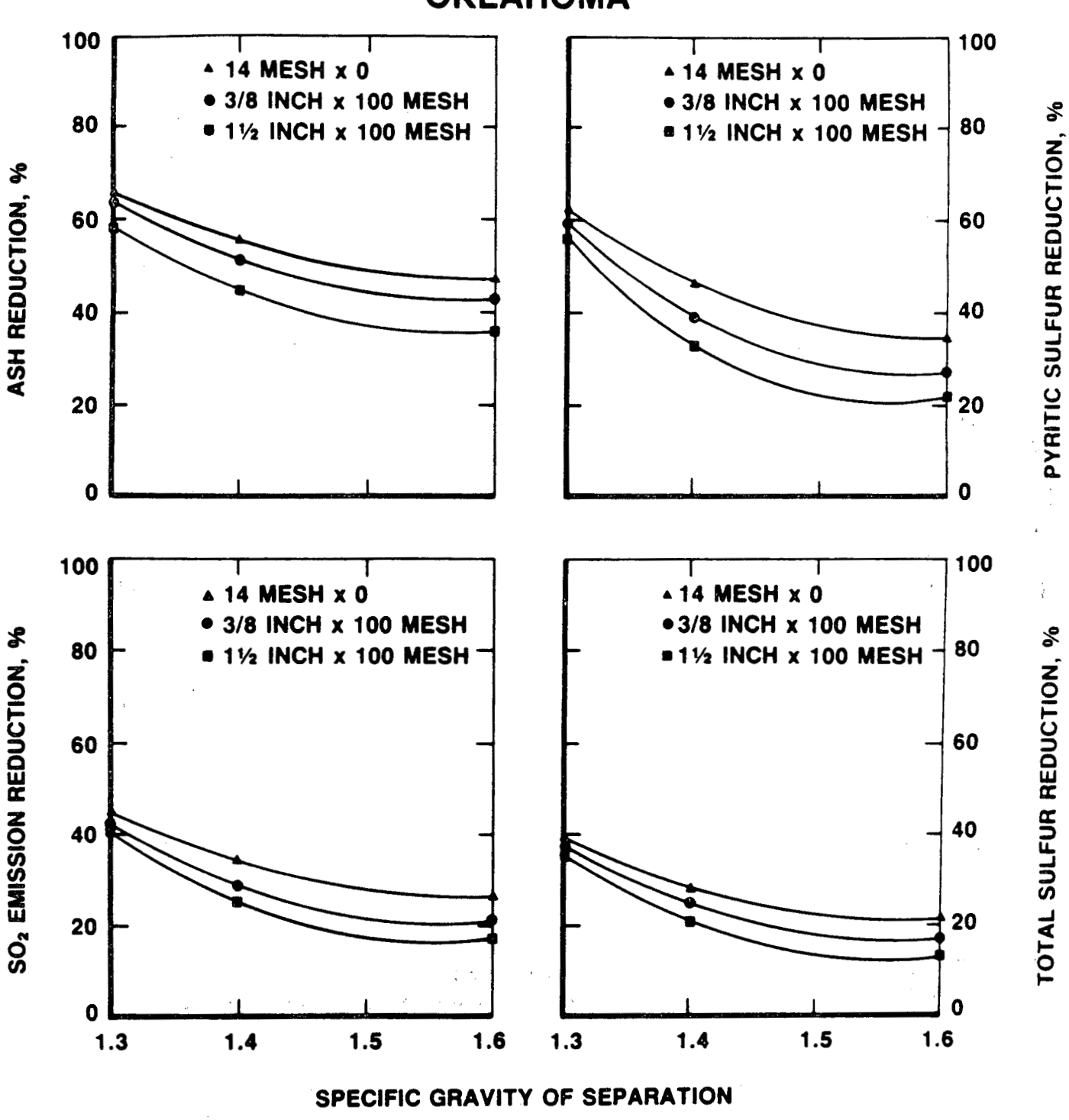

Figure 22 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

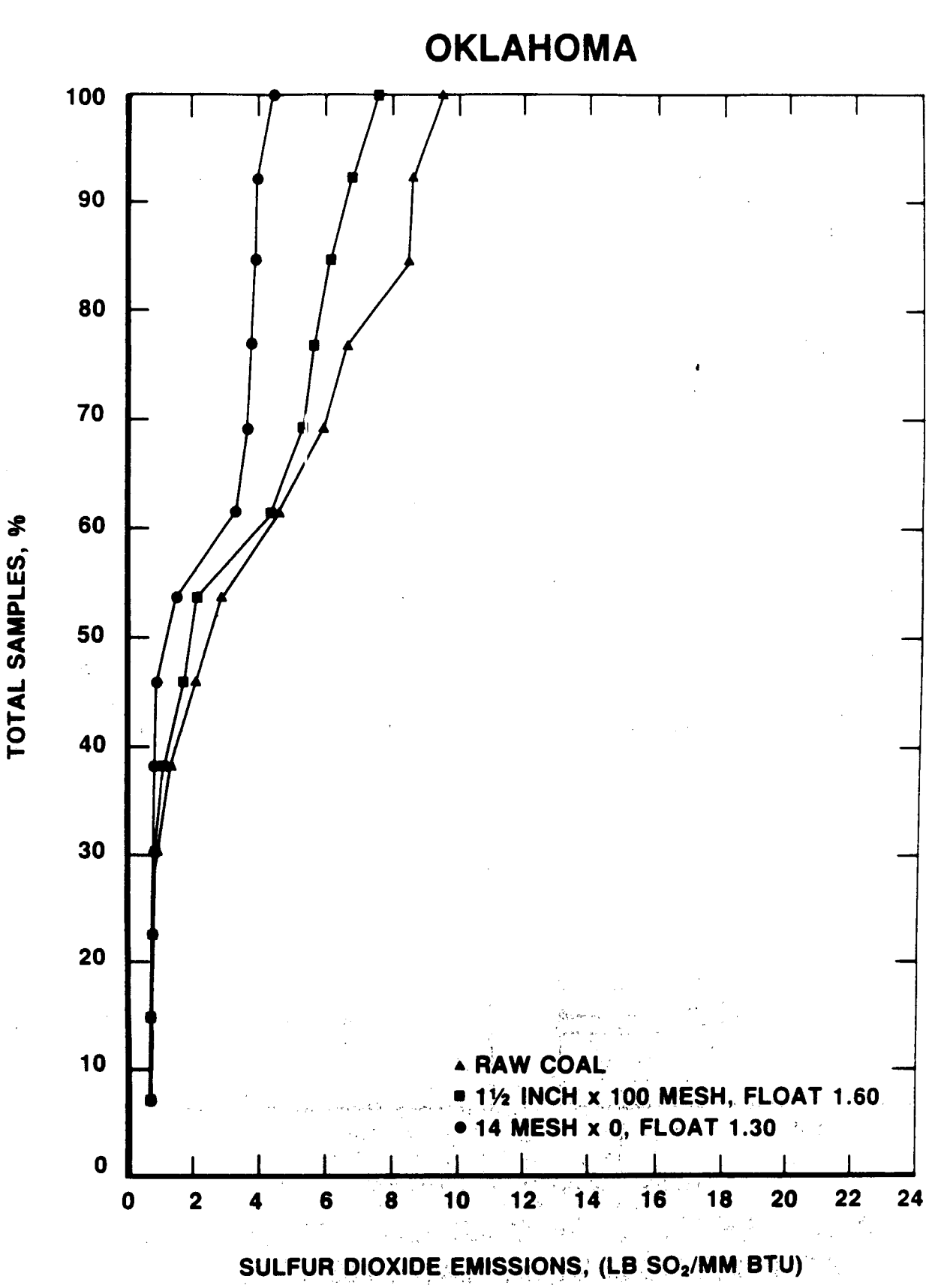

Figure 23 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

samples at 1.60 specific gravity would provide products containing 13.3 percent ash, 0.78 percent pyritic sulfur, 1.54 percent total sulfur, 12,553 Btu/pounds, and emit 2.4 pounds SO_2/MMBtu if fired. These data and Figure 24 show that these coal cleaning methods would provide reductions of 47 percent ash, 58 percent pyritic sulfur, 42 percent total sulfur, and 50 percent in SO_2 emissions.

The composited data for the selected chemical and physical data for the raw coal samples (4) analyzed 58.5 percent total carbon, 0.10 percent chlorine and had 2515°F ID temperature, 2303°F ST, and 2590°F FT. The analysis of ash showed 48.36 percent SiO_2, 21.84 percent Al_2O_3, and 14.70 percent Fe_2O_3. The HGI, was 44 and the FSI was 2. Upgrading the coal at 1.60 specific gravity would increase the total carbon content to 68.9 percent, the SiO_2 content in the ash to 58.16 percent, the Al_2O_3 to 24.51 percent, and decrease the Fe_2O_3 to 7.01. The clean coal product showed an ID temperature of 2380°F, a ST of 2448°F, and a FT of 2520°F. Cleaning reduced the HGI to 37 and had no effect on the FSI.

Figure 25 presents a sample distribution at various SO_2 levels. The figure shows that 100 percent of the raw coal samples would emit 8.2 pounds SO_2/MMBtu or less if burned. Laboratory coal preparation methods of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would upgrade the samples to 5 pounds SO_2/MMBtu, while crushing to 14-mesh top size and cleaning the coals at 1.30 specific gravity would improve the quality to 2.8 pounds SO_2/MMBtu or less. This figure also shows that 0 percent of the raw coal samples, 25 percent of the coals crushed to 1 1/2-inch top size, and 28 percent of the coals crushed to 14-mesh top size would meet a level of 1.2 pounds SO_2/MMBtu.

Texas mined 0.324 million tons of bituminous coal in 1989 which would emit an average of 0.017 million tons of SO_2/year if burned. Washing the coal crushed to 14-mesh top size and a Btu recovery of 90 percent and burning on an equivalent Btu basis would reduce the SO_2 emissions 53 percent to 0.008 million tons SO_2/year. Thus, cleaning the coal prior to burning would slightly reduce SO_2 emissions and acid rain.

Texas (Lignite)

The data in Appendix D show that the raw coal samples analyzed on the average 15.0 percent ash, 0.16 percent pyritic sulfur, 1.06 percent total sulfur, 10,525 Btu/pound, and would emit 2.0 pounds SO_2/MMBtu if burned. The data show that crushing the samples to 3/8-inch top size and washing the samples at 1.60 specific gravity would provide products containing 12.5 percent ash, 0.07 percent pyritic sulfur, 0.99 percent total sulfur, 10,866 Btu/pounds, and emit 1.8 pounds SO_2/MMBtu if fired. These data and Figure 26 show that these coal cleaning methods would provide reductions of 14 percent ash, 56 percent pyritic sulfur, 7 percent total sulfur and 10 percent in SO_2 emissions.

The composited data for the selected chemical and physical data for the raw coal samples (9) analyzed 61.1 percent total carbon, 0.01 percent chlorine, and had 2186°F ID temperature, 2239°F ST, and 2296°F FT. The

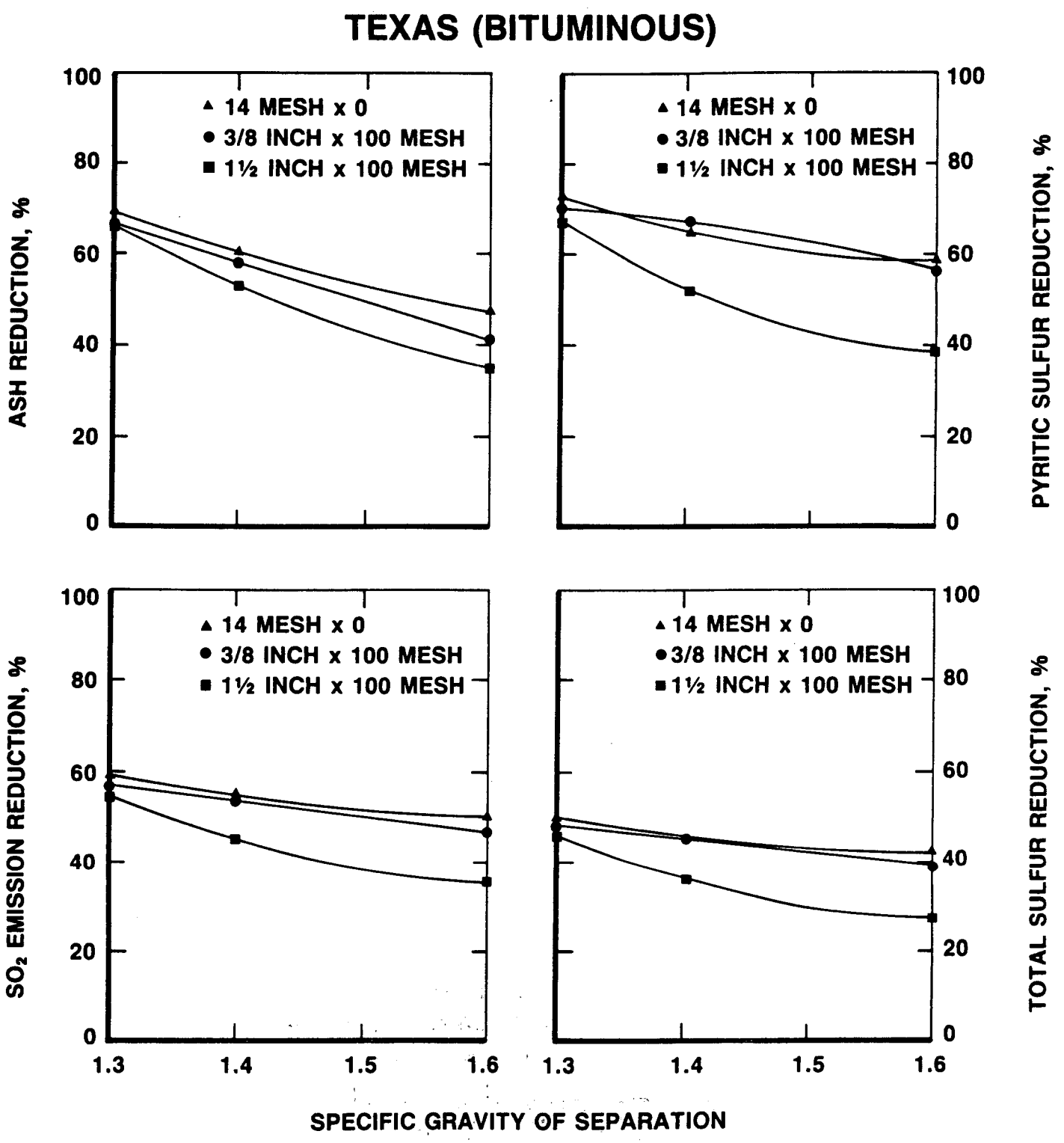

Figure 24 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

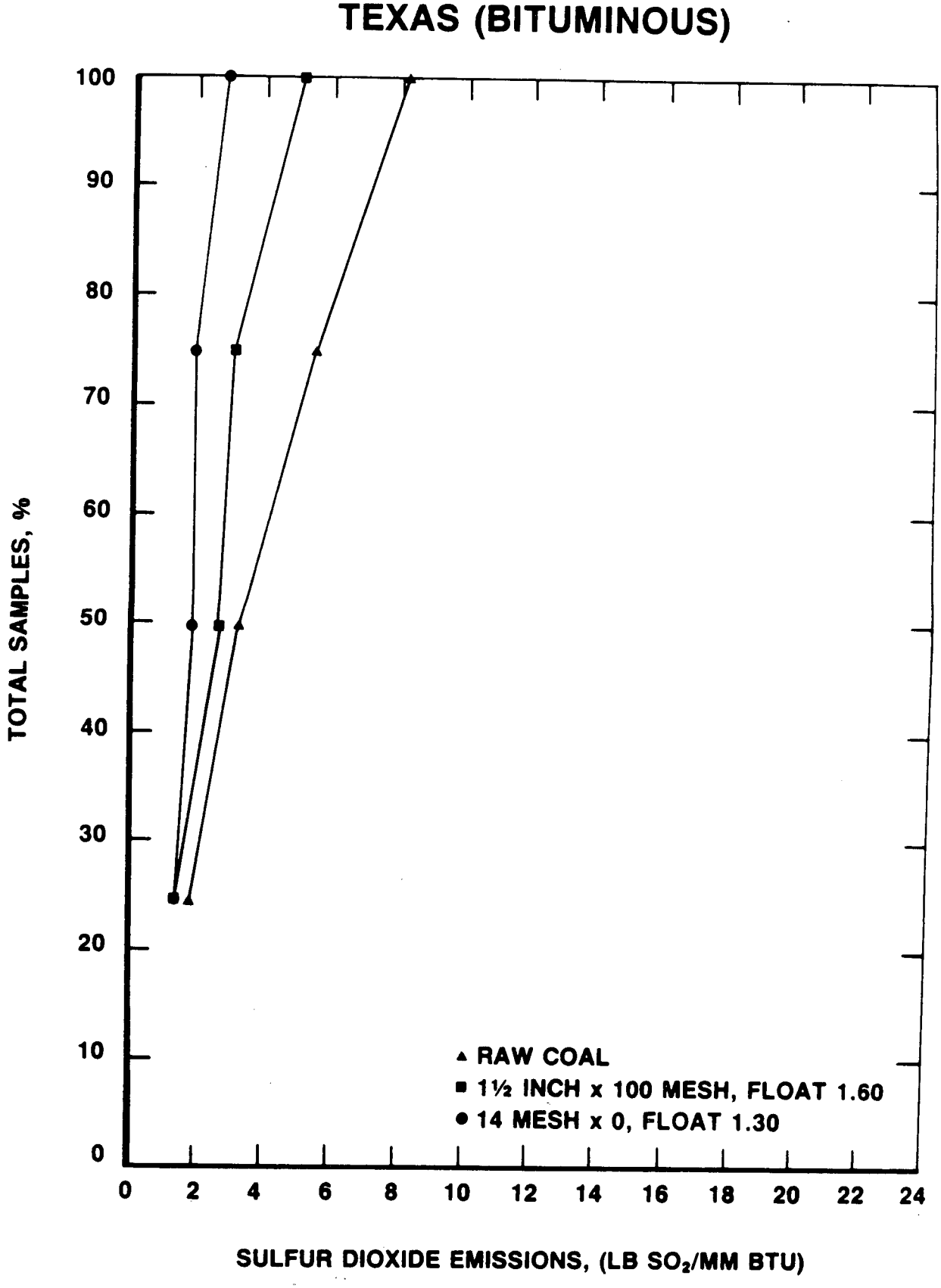

Figure 25 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

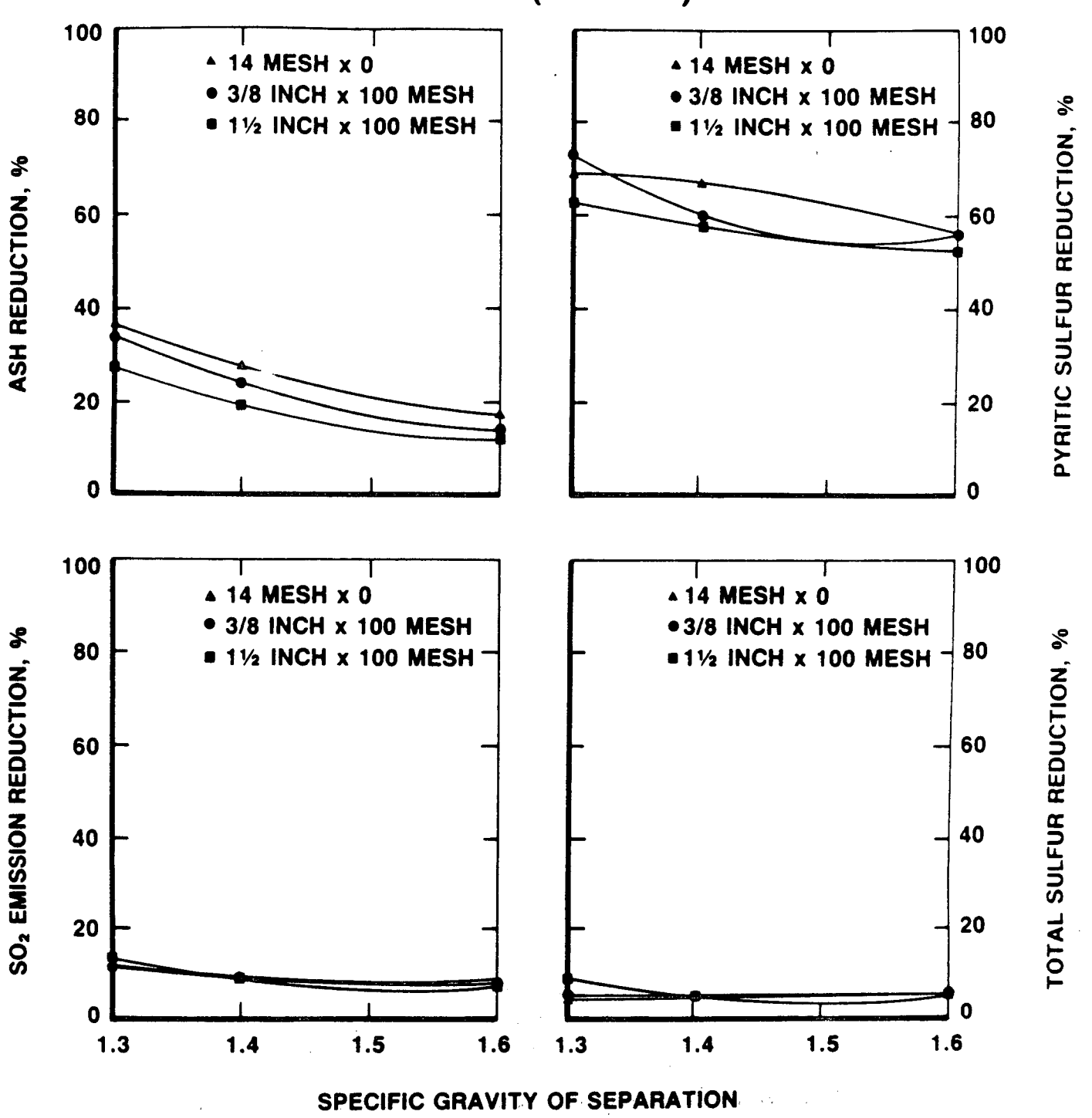

Figure 26 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

analysis of ash showed 41.33 percent SiO_2, 18.81 percent Al_2O_3, and 5.04 percent Fe_2O_3. The HGI was 56 while the FSI was 0. Upgrading the coal at 1.60 specific gravity would increase the total carbon content to 63.5 percent and decrease the ID temperature to 2138°F, the ST to 2199°F, and the FT to 2268°F. The analysis of ash of the clean coal product showed that the SiO_2 increased to 42.46, the Al_2O_3 decreased to 18.66, the Fe_2O_3 decreased to 4.65. Cleaning reduced the HGI to (48) and had no effect on the FSI.

Figure 27 presents a sample distribution at various SO_2 levels. The figure shows that 100 percent of the raw coal samples would emit 2.8 pounds SO_2/MMBtu or less if burned. Laboratory coal preparation methods of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would upgrade the samples to 2.6 pounds SO_2/MMBtu, while crushing to 14-mesh top size and cleaning the coals at 1.30 specific gravity would improve the quality to 2.3 pounds SO_2/MMBtu or less. This figure also shows that 0 percent of the raw coal samples, 0 percent of the coals crushed to 1 1/2-inch top size, and 0 percent of the coals crushed to 14-mesh top size would meet a level of 1.2 pounds SO_2/MMBtu.

In 1989, Texas mined 54 million tons of lignite coal, which would emit an average of 1.14 million tons of SO_2/year if burned. Washing the coal crushed to 3/8-inch top size to a Btu recovery of 90 percent and burning on an equivalent Btu basis to that of the raw coal would reduce the SO_2 emissions 15 percent to 0.97 million tons SO_2/year. Thus, cleaning the coal prior to burning would slightly reduce SO_2 emissions and acid rain.

Eastern Section (Bituminous)

The data in Appendix D show that the 98 raw bituminous coal samples collected from the Eastern Section contained an average of 14.1 percent ash, 2.29 percent pyritic sulfur, 3.90 percent total sulfur, 12,141 Btu/pound, and would emit 6.5 pounds SO_2/MMBtu if burned. The data also show that crushing the coals to 14-mesh top size and cleaning the samples at 1.60 specific gravity would provide a product containing 7.3 percent ash, 0.93 percent pyritic sulfur, 2.61 percent total sulfur, 13,256 Btu/pound, and emit 3.9 pounds SO_2/MMBtu if fired. These data and Figure 28 show that these laboratory coal preparation techniques would provide reductions of 48 percent ash, 60 percent pyritic sulfur, 33 percent total sulfur, and 39 percent in SO_2 emissions.

The average data for the selected chemical and physical properties of the Eastern Section showed that the raw coal samples contained 72.0 percent total carbon and 0.03 percent chlorine. The ash fusion temperatures were ID 2061°F, ST 2118°F, and FT 2224°F, while the HGI was 54 indicating relatively hard-to-grind coals, and the FSI was 4, indicating good caking coals. No analysis of ash was performed on these coals. Cleaning these coals at 14-mesh top size coals and 1.60 specific gravity would increase the total carbon content to 7.54, and the ash fusion temperatures to 2152°F ID, 2230°F ST, and 2346°F FT. There was no change in the HGI and the FSI.

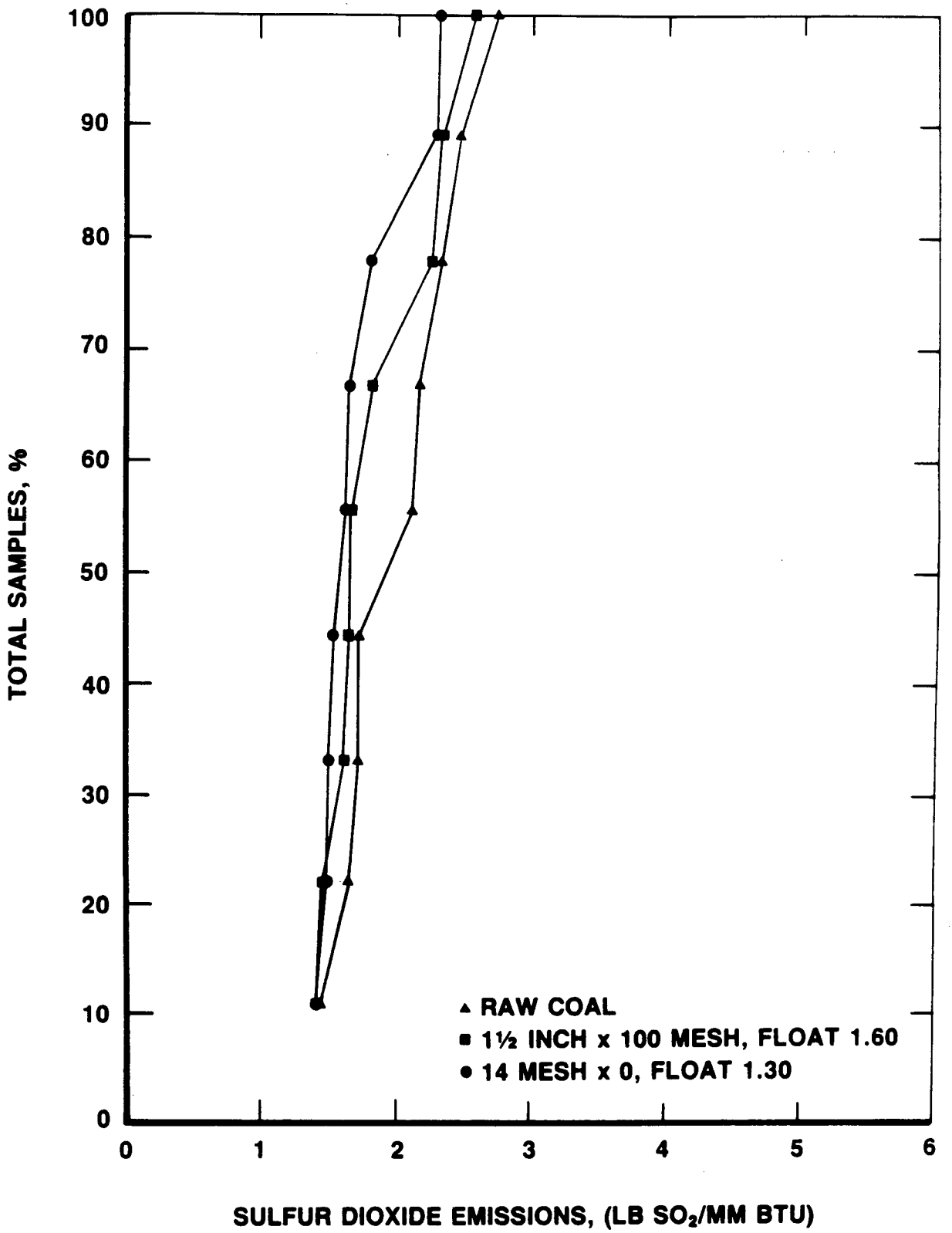

Figure 27 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

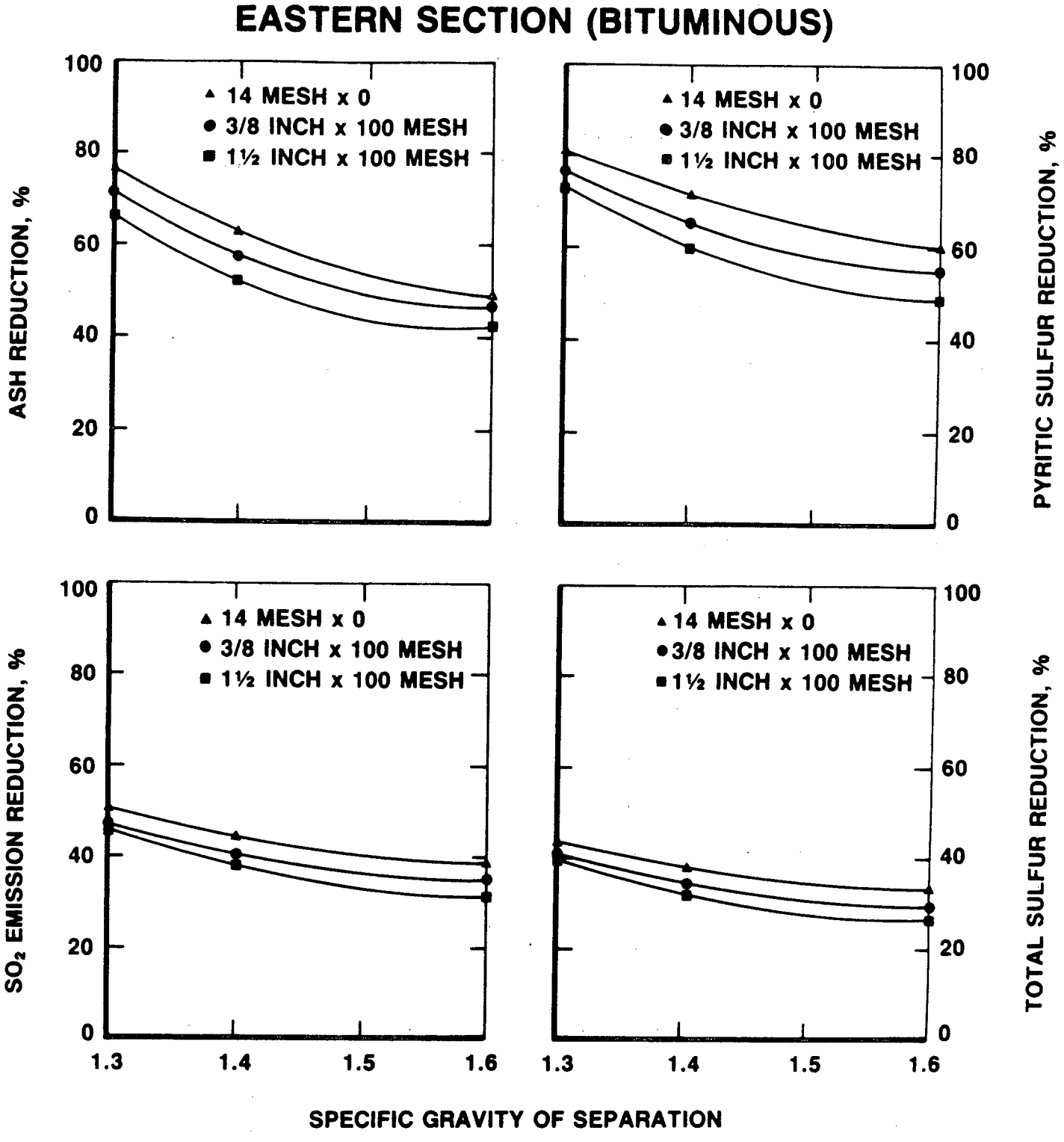

Figure 28 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

Figure 29 depicts the sample distribution meeting various SO_2 emission levels and shows that 100 percent of the raw coal samples would emit 14 pounds SO_2/MMBtu or less if burned. Laboratory coal preparation methods of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would improve the quality of the samples to 7 pounds SO_2/MMBtu, and crushing to 14-mesh top size and separating at 1.30 specific gravity would upgrade the samples to 6 pounds SO_2/MMBtu. This figure also shows that 2 percent of the raw coal samples, 4 percent of the samples crushed to 1 1/2-inch top size, and 8 percent of the samples crushed to 14-mesh top size would meet a level of 1.2 pounds SO_2/MMBtu.

In 1989, the Eastern Section produced 136 MM tons of coal, which would emit an average of 10.6 mm tons of SO_2/year if burned. Cleaning the coal crushed to 14-mesh top size at a Btu recovery of 90 percent and fired at a comparable Btu basis would reduce SO_2 emissions 41 percent to 6.3 million tons SO_2/year. Therefore cleaning the coal prior to burning would cut the SO_2 emissions in half and reduce acid rain.

Western Section (Bituminous)

Appendix D shows that the 50 raw bituminous coal samples contained an average of 15.8 percent ash, 3.24 percent pyritic sulfur, 4.64 percent total sulfur, 12,295 Btu/pound, and would emit 7.9 pounds SO_2/MMBtu if burned at the power plant. The data also show that crushing to 14-mesh top size and cleaning the samples at 1.60 specific gravity would provide products containing on the average 8.0 percent ash, 1.60 percent pyritic sulfur, 3.05 percent total sulfur, 13,670 Btu/pound, and emit 4.5 pounds SO_2/MMBtu if fired. These data and Figure 30 show that these laboratory coal cleaning methods would provide reductions of 50 percent in ash, 51 percent in pyritic sulfur, 34 percent in total sulfur, and 43 percent in SO_2 emissions.

The average data for the selected chemical and physical properties of the Eastern Section showed that the raw coal samples contained an average of 69.2 percent total carbon and 0.14 percent chlorine. The analysis of ash showed 33.05 percent SiO_2, 15.0 percent Al_2O_3, and 28.83 percent Fe_2O_3. The ID temperature was 2030°F, the ST 2091°F, and the FT 2174°F while the HGI was 62 indicating hard-to-grind coals, and the FSI was 6, thus indicating good caking coals. Crushing the coals to 14-mesh top size and separating at 1.60 specific gravity would increase the total carbon content to 75.9 percent, the SiO_2 in the ash to 38.56 percent, and the Al_2O_3 to 18.73 percent, and decrease the Fe_2O_3 in the ash to 25.68 percent. The ID temperature increased to 2041°F, the ST 2112°F, and the FT to 2198°F. However, cleaning would reduce the HGI of the coals to 53 and would have no effect on the FSI.

Figure 31 presents a distribution of the samples at various SO_2 levels of emission. The figure shows that 100 percent of the raw coal samples would emit 24 pounds SO_2/MMBtu or less if fired at the utilities. Coal cleaning techniques of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would upgrade the samples to 12.3 pounds SO_2/MMBtu or less, and crushing to 14-mesh top size and cleaning at 1.30 specific gravity would improve the quality of the samples to 7.9 pounds SO_2/MMBtu or less. This figure also shows that 12 percent of the raw coal samples, 14 percent

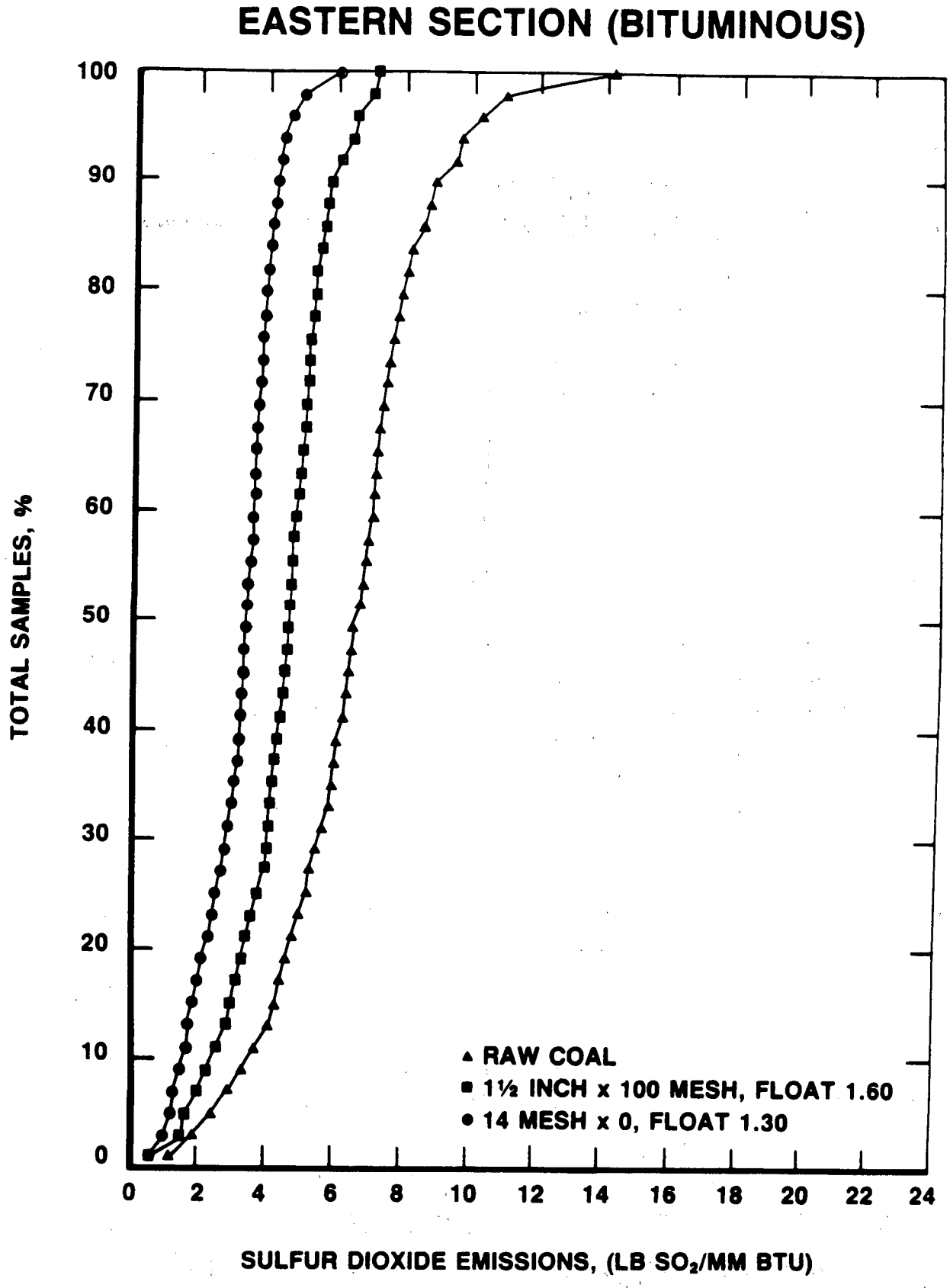

Figure 29 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

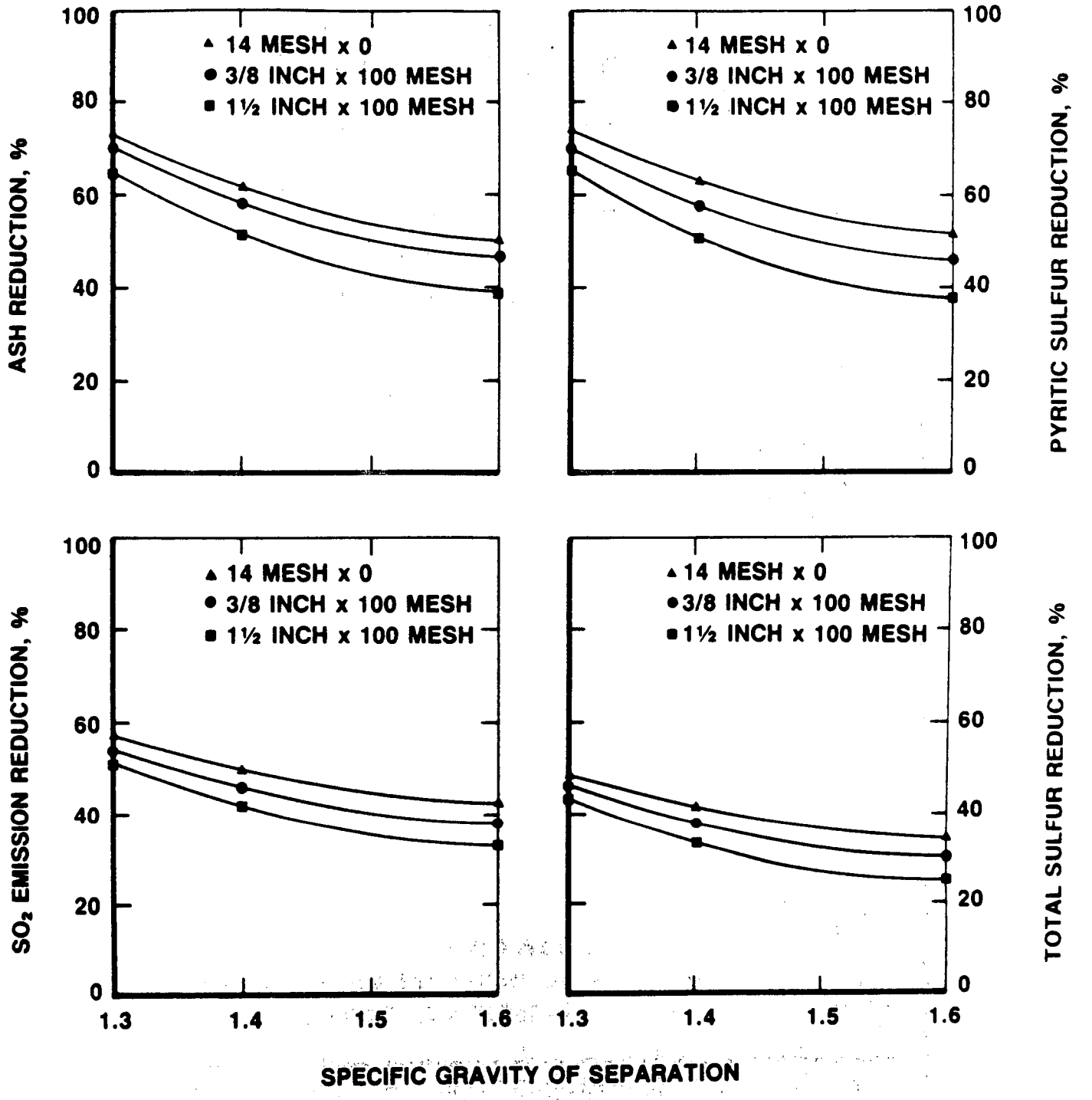

Figure 30 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

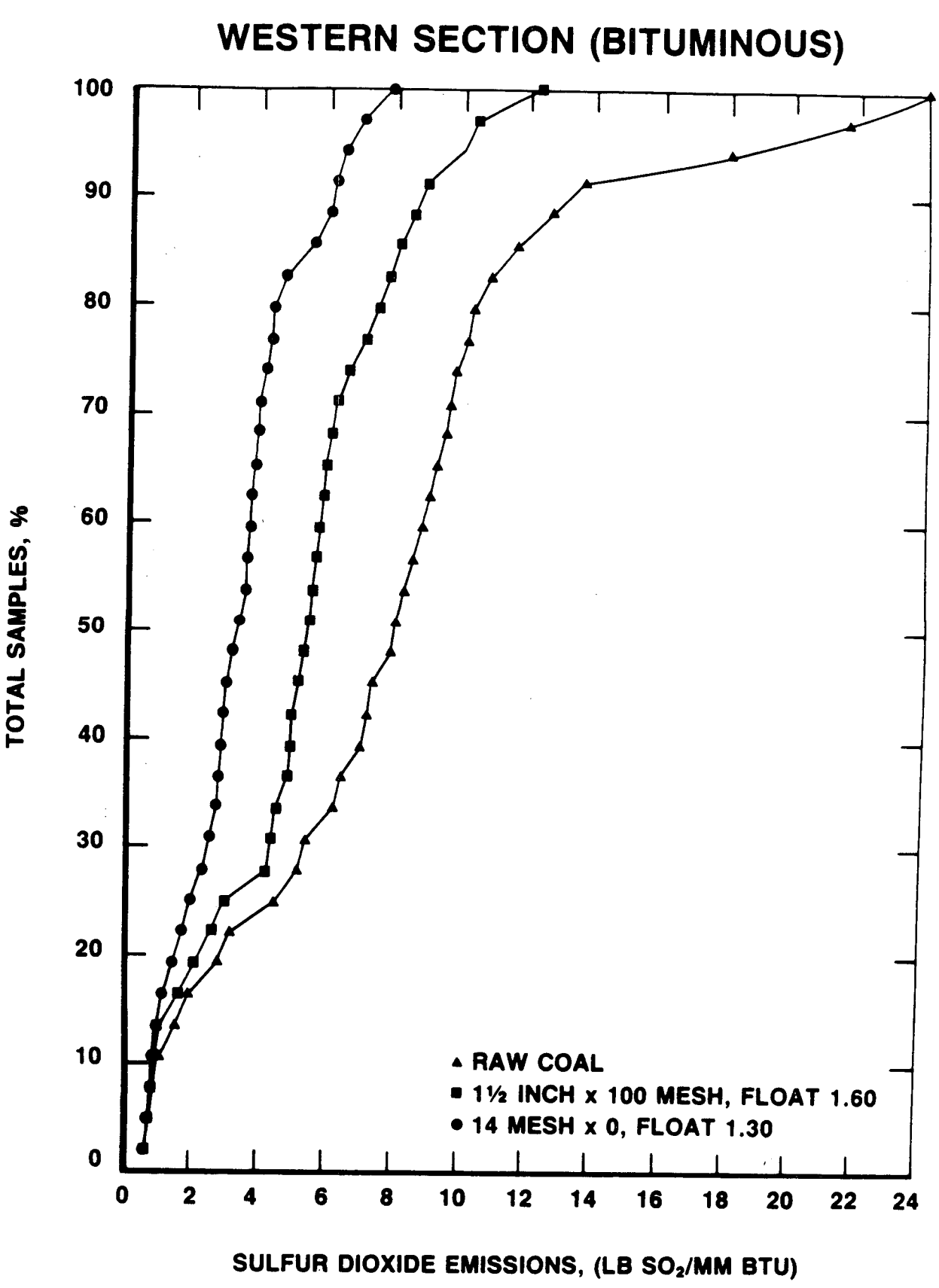

Figure 31 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

of the samples crushed to 1 1/2-inch top size, and 18 percent of the samples crushed to 14-mesh top size, would meet an SO_2 emission level of 1.2 pounds.

In 1989, the Western Section produced 7.1 MM tons of bituminous coal, which would emit an average of 0.66 million tons of SO_2/year if burned at the utilities. Cleaning the coal crushed to 3/8-inch top size at a Btu recovery of 90 percent and fired at a comparable Btu basis would reduce SO_2 emissions 41 percent to 0.39 million tons of SO_2/year. Thus, cleaning the coal would reduce SO_2 emissions and acid rain moderately.

Western Section (Lignite)

The data in Appendix D show that the 13 raw coal samples contained an average of 17 percent ash, 0.22 percent pyritic sulfur, 1.06 percent total sulfur, 10,225 Btu/pound, and would emit 2.1 pounds SO_2/MMBtu if burned at the power plant. The data also show that crushing to 14-mesh top size and cleaning the samples at 1.60 specific gravity would provide products containing on the average 13.8 percent ash, 0.09 percent pyritic sulfur, 0.96 percent total sulfur, 10,752 Btu/pound, and emit 1.8 pounds SO_2/MMBtu if fired. Additional crushing would provide minimal benefits. These data and Figure 32 show that these coal cleaning methods would provide reductions of 19 percent in ash, 57 percent in pyritic sulfur, 8 percent in total sulfur, and 12 percent in SO_2 emissions.

The data for the selected chemical and physical properties of the Western Section showed that the raw coal samples contained an average of 59.3 percent total carbon and 0.01 percent chlorine. The analyses of ash showed 44.25 percent SiO_2, 20.97 percent Al_2O_3, and 6.05 percent Fe_2O_3. The ash fusion temperatures showed an ID of 2280°F, ST of 2332°F, and an FT of 2388°F. The HGI was 61, indicating hard-to-grind coals, and the FSI was 0, indicating non-caking coals. Laboratory cleaning techniques of crushing the coals to 14-mesh top size and separating at 1.60 specific gravity would increase the total carbon content to 61.9 percent, and the Al_2O_3 to 22.26 percent, and decrease the SiO_2 to 43.69 percent and the Fe_2O_3 to 4.92 percent. The ID temperature was 2268°F, the ST 2328°F, and the FT was 2402°F. Cleaning reduced the HGI of the coals to 51 and the FSI remained 0.

Figure 33 presents a distribution of the samples at various SO_2 emission levels. The figure shows that 100 percent of the raw coal samples would emit 3.5 pounds SO_2/MMBtu or less if fired at the utilities. Coal cleaning techniques of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would upgrade the samples to 3.3 pounds SO_2/MMBtu or less, and crushing to 14-mesh top size and cleaning at 1.30 specific gravity would improve the quality of the samples to 3 pounds SO_2/MMBtu or less. This figure also shows that 0 percent of the raw coal samples, 0 percent of the samples crushed to 1 1/2-inch mesh top size, and 15 percent of the samples crushed to 14-mesh top size, would meet an SO_2 emission level of 1.2 pounds.

The Western Section lignite comprises coal from Arkansas and Texas. However, Arkansas produced no lignite in 1989, thus the Western Section lignite production would be the same as the Texas lignite production which was 50.2 MM tons.

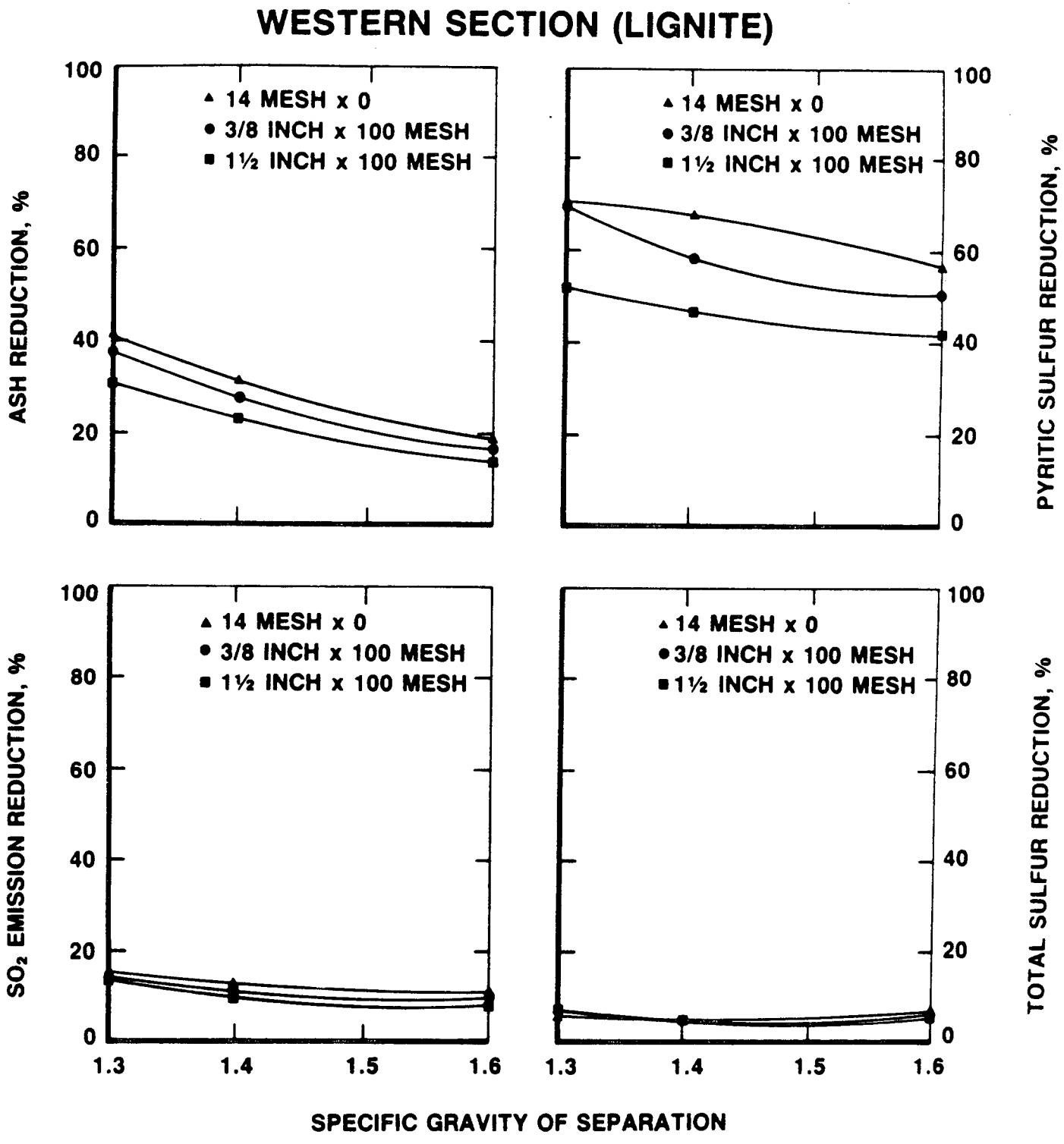

Figure 32 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

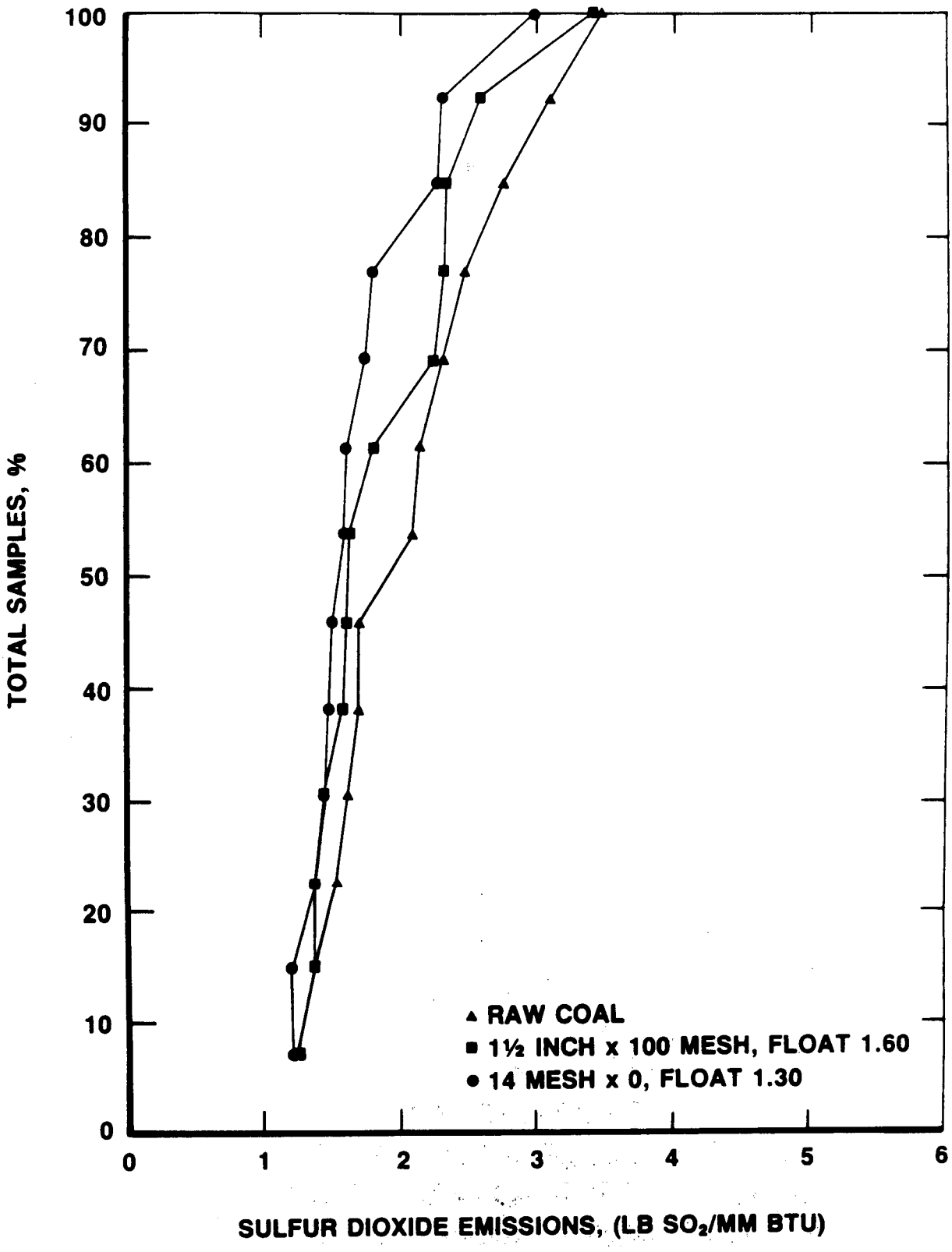

Figure 33 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

Central Region (Bituminous)

The data in Appendix D show that the 166 raw coal samples contained an average 14.8 percent ash, 2.68 percent pyritic sulfur, 4.20 percent total sulfur, 12,204 Btu/pound, and would emit an average of 7.1 pounds SO_2/MMBtu if burned at the utilities. The data also show that laboratory coal cleaning techniques of crushing to 14-mesh top size and cleaning at 1.60 specific gravity would provide products containing an average of 7.6 percent ash, 1.20 percent pyritic sulfur, 2.79 percent total sulfur, 13,426 Btu/pound, and emit 4.2 pounds SO_2/MMBtu if fired. These data and Figure 34 show that the coal preparation techniques would provide reductions of 49 percent ash, 56 percent pyritic sulfur, 34 percent total sulfur, and 41 percent in SO_2 emissions.

The composite data show that the raw coal samples contained an average of 69.5 percent total carbon and 0.13 percent chlorine. An analysis of ash showed 33.05 percent SiO_2, 15.00 percent Al_2O_3, and 28.83 percent Fe_2O_3 while the IDT was 2047°F, the ST 2105°F, and the FT 2202°F. The HGI was 58, indicating relatively hard-to-grind coals and the FSI was 4-1/2, indicating good caking coals. Laboratory cleaning techniques of crushing to 14-mesh top size and washing the coals at 1.60 specific gravity would increase the SiO_2 to 38.56 percent, the Al_2O_3 to 18.73 percent and decrease the Fe_2O_3 to 25.68 percent. It would also increase the IDT to 2099°F, the ST to 2173°F, and the FT to 2274°F. However, upgrading the coals had minimal effect on the HGI and FSI.

Figure 35 presents a sample distribution at various SO_2 emission levels and shows that 100 percent of the raw coal samples would emit 24 pounds SO_2/MMBtu or less. Laboratory coal preparation techniques of crushing to 1 1/2-inch top size and separating at 1.60 specific gravity would upgrade the SO_2 distribution to 12.3 pounds SO_2/MMBtu or less, and crushing to 14-mesh top size and cleaning at 1.30 specific gravity would improve the quality to 7.8 pounds SO_2/MMBtu or less. This figure also shows that 7 percent of the raw coal samples, 9 percent of the samples crushed to 1 1/2-inch top size, and 13 percent of the samples crushed to 14-mesh top size would meet an emission level of 1.2 pounds SO_2/MMBtu.

In 1989, the Central Region produced 143 MM tons of coal, which would emit an average of 11.3 million tons of SO_2/year. Cleaning the coal crushed to 14-mesh top size at a Btu recovery of 90 percent and burning on an equivalent Btu basis as the raw coal, would reduce SO_2 emissions 41 percent to 6.7 million tons SO_2/year. Thus, coal preparation of the coal prior to burning would significantly reduce SO_2 emissions and acid rain.

CONCLUSIONS

1. The analyses of the raw bituminous coal samples of the Eastern Section ranged on the average from 12.0 percent ash in Indiana to 15.4 percent in Illinois, 2.21 percent pyritic sulfur in Illinois to 2.44 percent in Kentucky (West), 3.69 percent total sulfur in Indiana to 4.07 percent in Kentucky (West), and 6.0 pounds SO_2/MMBtu in Indiana to a high of 6.7 pounds SO_2/MMBtu in Kentucky (West).

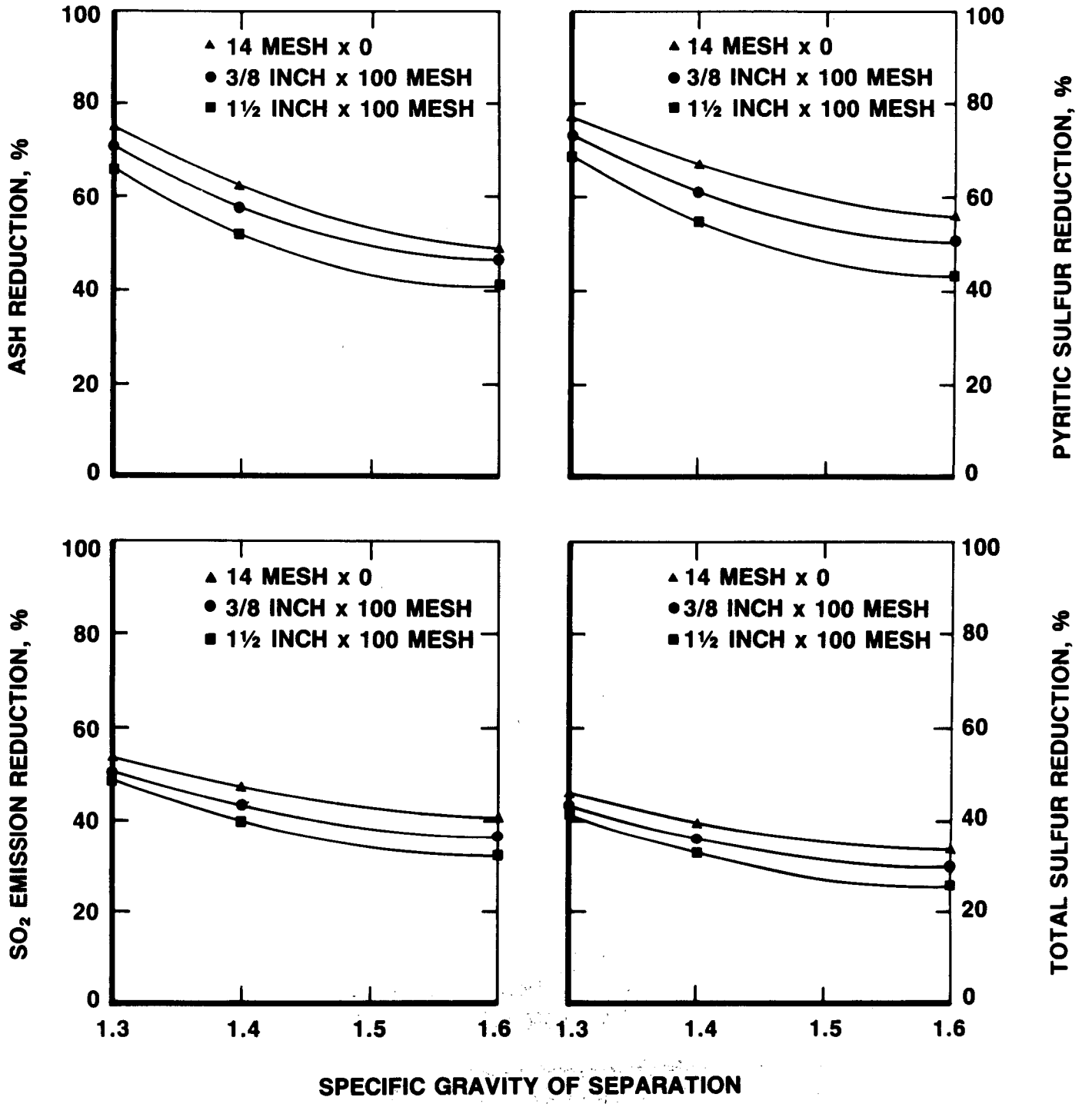

Figure 34 THE EFFECTS OF CRUSHING ON SULFUR AND ASH REDUCTION AT VARIOUS LEVELS OF GRAVIMETRIC SEPARATION

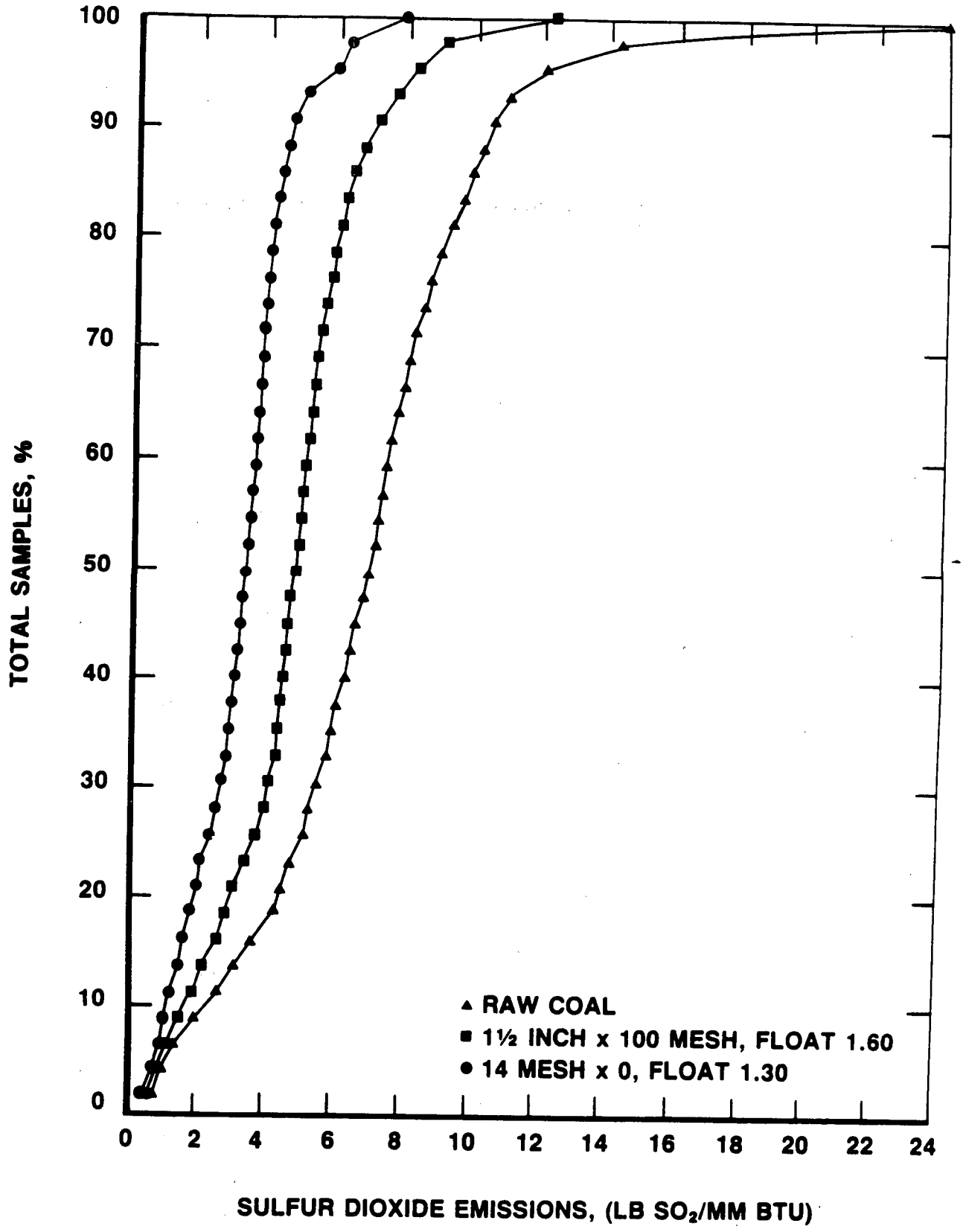

Figure 35 DISTRIBUTION OF RAW AND CLEAN COAL SAMPLES MEETING VARIOUS LEVELS OF SULFUR DIOXIDE EMISSIONS

2. The analyses of the raw bituminous coal samples of the Western Section ranged on the average from 8.2 percent ash in Arkansas to 24.9 percent in Texas, 1.04 percent pyritic sulfur in Arkansas to 4.64 percent in Iowa, 1.59 percent total sulfur in Arkansas to 6.79 percent in Iowa, and 2.2 pounds SO_2/MMBtu in Arkansas to 12.1 pounds SO_2/MMBtu in Iowa.

3. Crushing the coals from top sizes of 1 1/2 inch to 14 mesh to release impurities and subsequently removing them through coal cleaning methods at a 90% Btu recovery would provide significant reductions in these impurities. For the Eastern Section coals, these coal preparation techniques would provide reductions in ash ranging from 45 percent in Indiana to 57 percent in Illinois, in pyritic sulfur of 58 percent in Indiana to 67 percent in Illinois, in total sulfur of 33 percent in Indiana to 37 percent in Kentucky (West), and in SO_2 emissions of 38 percent in Indiana to 43 percent in Kentucky (West) and Illinois.

4. For the Western Section states, these coal preparation techniques of crushing and separating would provide reductions in ash ranging from 35 percent in Texas to 56 percent in Arkansas, in pyritic sulfur from 18 percent in Arkansas to 60 percent in Texas, in total sulfur of 18 percent in Oklahoma to 45 percent in Texas, and in SO_2 emissions from 24 percent in Oklahoma to 51 percent in Texas.

5. The number of raw bituminous coal samples in the Eastern Section meeting the 1.2 pounds SO_2/MMBtu emission level would be 0 percent in Illinois, 6 percent in Indiana, and 0 percent in Kentucky (West). Using laboratory coal preparation techniques of crushing these coals to 14-mesh top size and obtaining a float 1.30 specific gravity product would upgrade 4 percent of the samples in Illinois, 21 percent of those in Indiana, and 8 percent in Kentucky (West) to meet an emission level of 1.2 pounds SO_2/MMBtu.

6. The number of raw Bituminous coal samples in the Western Section meeting an SO_2 emission of 1.2 pounds/MMBtu would be 46 percent in Arkansas, 0 percent in Iowa, 0 percent in Kansas, 0 percent in Missouri, 35 percent in Oklahoma, and 0 percent in Texas. Laboratory coal cleaning techniques of crushing these coals to 14 mesh top size and separating at 1.30 specific gravity could upgrade 60 percent of the samples in Arkansas, 7 percent in Iowa, 0 percent in Kansas, 0 percent in Missouri, 48 percent in Oklahoma, and 28 percent in Texas to meet an emission level of 1.2 pounds/MMBtu.

7. Based on 1989 coal production, the amount of SO_2 emitted if all of the raw bituminous coal of the Eastern Section states were burned in utility plant boilers would be 4.7 MM tons per year in Illinois, 2.5 MM tons per year in Indiana, and 3.4 MM tons per year in Kentucky (West). Cleaning the coal after crushing to 14-mesh top size and at a Btu recovery of 90 percent, and burning at a comparable Btu basis of the raw coal, would reduce the SO_2 emissions by 43 percent to 2.7 MM tons per year in Illinois, 36 percent to 1.6 MM tons per year in Indiana, and 41 percent to 2.0 MM tons per year in Kentucky (West). Thus, utilizing coal preparation techniques prior to burning the coal at the power plant would significantly reduce SO_2 emissions up to 41 percent.

8. Based on 1989 coal production, the amount of SO_2 emitted if all the raw bituminous coal in the Western Section were burned in the utility plant boilers would be 0.0028 MM tons per year in Arkansas, 0.06 MM tons per year in Iowa, 0.11 MM tons per year in Kansas, 0.36 MM tons per year in Missouri, 0.11 MM tons per year in Oklahoma, and 0.017 MM tons per year in Texas. Cleaning the coal after crushing to 14-mesh top size and at a Btu recovery of 90 prcent and burning at an equivalent Btu basis as the raw coal, would reduce the SO_2 emissions 29 percent to 0.0020 MM tons per year in Arkansas, 20 percent to 0.03 MM tons per year in Iowa, 36 percent to 0.07 MM tons per year in Kansas, 44 percent to 0.20 MM tons per year in Missouri, 27 percent to 0.08 MM tons SO_2/year in Oklahoma, and 53 percent to 0.008 MM tons per year in Texas. Thus, cleaning these coals prior to burning would reduce SO_2 emissions from 20 to 53 percent.

9. The 98 raw coal bituminous samples from the Eastern Section analyzed on the average 1.41 percent ash, 2.29 percent pyritic sulfur, 3.90 percent total sulfur, 12,141 Btu/lb, and would emit 6.5 pounds SO_2/MMBtu as burned. Appropriate cleaning methods would provide reductions of 48 percent ash, 60 percent pyritic sulfur, 33 percent total sulfur, and 39 percent in SO_2 emissions. Therefore, crushing to liberate impurities and then cleaning the coal provided large reductions in mineral matter.

10. Distribution curves of the Eastern Section show that 2 percent of the raw bituminous coal samples, 4 percent of the samples crushed to 1 1/2-inch top size, and 8 percent of the samples crushed to 14-mesh top size would meet a level of 1.2 pounds SO_2/MMBtu.

11. Based on 1989 coal production the Eastern Section bituminous coals would emit 10.6 MM tons of SO_2/per year if burned. Cleaning the coals by crushing to 14-mesh top size at a Btu recovery of 90 percent and burning at a comparable Btu basis would reduce SO_2 emissions by 41 percent to 6.3 million tons of SO_2 per year. Therefore, cleaning the coal prior to burning would reduce the SO_2 emissions and any resulting acid rain significantly.

12. The 50 raw coal bituminous samples from the Western Section analyzed on the average 15.8 percent ash, 3.24 percent pyritic sulfur, 4.64 percent total sulfur, 12,295 Btu/pound, and would emit 7.9 pounds SO_2/MMBtu if burned. Appropriate coal preparation techniques would provide reductions of 50 percent ash, 51 percent pyritic sulfur, 34 percent total sulfur, and 43 percent in SO_2 emissions. Thus, crushing the coal to various top sizes ranging from 1 1/2-inch to 14-mesh to liberate impurities and then subsequently removing them provided significant reductions in mineral matter.

13. Distribution curves of the Western Section bituminous coals show that 12 percent of the raw coal samples, 14 percent of the samples crushed to 1 1/2-inch top size, and 18 percent of these crushed to 14-mesh top size would meet an SO_2 emission level of 1.2 pound/MMBtu.

14. Based on 1989 coal production, the Western Section bituminous coals would emit an average of 0.66 million tons of SO_2/year when burned.

Cleaning the coal after crushing to 14-mesh top size at a 90 percent Btu recovery and burning at an equivalent Btu basis, would reduce the SO_2 emissions by 41 percent to 0.39 million tons per year. Therefore, cleaning these high sulfur coals, using laboratory coal preparation techniques, provided large reductions in SO_2 emissions.

15. The 13 raw coal lignite samples from the Western Section analyzed on the average 17 percent ash, 0.22 percent pyritic sulfur, 1.06 percent total sulfur, 10,255 Btu/pound and would emit 2.1 pounds SO_2/MMBtu if burned. Appropriate coal preparation techniques would provide reductions of 19 percent ash, 57 percent pyritic sulfur, 8 percent total sulfur and 12 percent in SO_2 emissions. Thus crushing the coal to various top sizes ranging from 1 1/2 inch to 14 mesh to liberate impurities and then subsequently removing them provided significant reductions in mineral matter.

16. Distribution curves of the Western Section lignite coals show that 0 percent of the raw coal samples, 0 percent of the samples crushed to 1 1/2-inch top size, and 15 percent of these crushed to 14-mesh top size would meet an SO_2 emission level of 1.2 pound/MMBtu.

17. Arkansas produced no lignite in 1989, therefore, based only on Texas lignite production of 50.2 MM tons in 1989, the Western Section lignite coals would emit an average of 1.14 million tons of SO_2/year when burned. Cleaning the coal after crushing to 14-mesh top size at a 90 percent Btu recovery and burning at an equivalent Btu basis, would reduce the SO_2 emissions by 15 percent to 0.97 million tons per year. Even though these are low sulfur coals, coal preparation techniques will provide moderate reductions in SO_2 emissions.

18. The 166 raw bituminous coal samples from the Central Region contained an average of 14.8 percent ash, 2.68 percent pyritic sulfur, 4.20 percent total sulfur, 12,204 Btu/pound, and would emit 7.1 pounds SO_2/MMBtu. Crushing the coal to 14-mesh top size and then cleaning at 1.60 specific gravity would provide reductions of 49 percent ash, 56 percent pyritic sulfur, 34 percent total sulfur, and 41 percent in SO_2 emissions. Thus, crushing these coals to liberate impurities and then cleaning the resultant coal would significantly reduce the mineral matter including SO_2 emissions.

19. The average data for the selected chemical and physical properties of the Eastern Region showed that cleaning the coals at 1.60 specific gravity would increase the total carbon content and thus the calorific value. Upgrading these coals would increase the SiO_2 and Al_2O_3 content and decrease the Fe_2O_3 content in the ash of the float 1.60 specific gravity products and increase the ash fusion temperatures and thus affect the fouling and slagging in the utility boilers. Beneficiation had minimal effect on the HGI and FSI of the product coal.

20. Based on 1989 coal production, the Central Region coal would emit an average of 11.3 MM tons of SO_2/year when burned. Cleaning the coals and burning them at the utilities would reduce SO_2 emissions 41 percent

to 6.7 MM tons per year and thus reduce any resultant acid rain significantly.

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APPENDIX A

STATISTICAL TECHNIQUES AND DEFINITIONS

APPENDIX A
STATISTICAL TECHNIQUES AND DEFINITIONS

Appendix D presents three types of statistical summaries, or composites, of the individual sample data given in Appendix C. The samples have been grouped by rank (anthracite, bituminous, subbituminous, and lignite) and by the geographical area of the sampling location. If an averaging group does not contain at least four samples, no composites were taken.

The geographical areas for the first type of composites are the states, that is, the summary tables represent averages of all samples of the same rank collected in a particular state. For Kentucky, only the western coal fields have been corsidered, since the eastern fields are already included in a previous report discussing samples from the eastern region of the United States.

In the second type of composites, the geographical grouping of the samples was carried out over each of the two sections of the Central coal Region - the Eastern Section and the Western Section - regardless of the state. The Eastern Section (comprising Illinois, Indiana, and western Kentucky) contains only samples of bituminous coal, therefore only one set of composites is given. The Western Section (comprising Arkansas, Iowa, Kansas, Missouri, Oklahoma, and Texas) contains composites for bituminous and lignite coal samples. Since the anthracite samples are limited to one state (Arkansas), the composite tables for this state suffice. With regard to subbituminous coal, the number of available samples is too small for meaningful statistical data.

The third type of composites contains averages over the whole Central Region. Only bituminous coal samples are shown because the statistical information for the other ranks is fully contained in the sectionwide or statewide summaries.

Each set of statistical data for a given rank within a state, section, or region consists of three pages, each evaluating the data from different perspectives. The first page, entitled "Statistical Evaluation of the Composited Washability Data by State/Section/Region," describes the results of washability tests. For the three different top sizes and their individual specific gravities, the appropriate numbers of all the samples from the particular geographic location have been averaged for the following parameters: weight recovery, Btu recovery, heating value (in Btu/lb), ash content, pyritic sulfur content, total sulfur content, and the sulfur dioxide emission (in lb SO_2/million Btu). The sulfur dioxide emission was calculated for each sample using the equation

$$\text{Emission, lb } SO_2/\text{MM Btu} = \frac{20{,}000 \times \text{Total Sulfur, percent}}{\text{Heating Value, Btu/lb}} \qquad (1)$$

With the total sulfur given in weight percent and the heating value in Btu/lb, the resulting number represents pounds of emitted SO_2 per million Btu of coal burned.

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

$$\bar{X} = \frac{\sum_{i=1}^{N} X_i}{N} \tag{2}$$

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

Here, X_i designates the quantity (X) of the ith sample to be averaged, and N is the number of samples in the averaging group.

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

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

$$\bar{X} = 100 \frac{\bar{X}_g}{\bar{X}_o} \tag{4}$$

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

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

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

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

The third page of each statistical data set in Appendix D, entitled "Statistical Evaluation of Washability Data at Various Levels of Btu Recovery by State/Section/and Region," contains washability information from page one except the data are shown with reference to the Btu recovery. The washability data have been interpolated and recalculated as functions of the Btu recovery. The washability data of each individual sample within each size group have been used to produce a set of interpolated values for the Btu recoveries between 50 percent and 100 percent. Details of the interpolation procedure are described below. The interpolated values have been averaged according to the same concept as the experimental data on page one of the statistical data set. The averages and standard deviations of the various parameters (weight recovery, heating value, and ash and sulfur analyses) have been calculated using equations (2) and (3), respectively, and the averages and standard deviations of their reduction (or increase) have been determined with equations (4) and (5), respectively. Here, subscripts "g" and "o" of the X values refer to the level of Btu recovery and to the reference case of total recovery, respectively.

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

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

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

Note that the number of samples included in an average does not remain constant within an averaging group. This reflects that extrapolation of the cleaning effect has not been attempted. Interpolation values for the individual samples were calculated for those Btu recovery fractions that are within the range of the measured Btu recovery values. For example, if a particular coal sample did not show a Btu recovery of 50 percent or less so that a 50 percent Btu recovery value could be interpolated, then this sample could not be included into the averaging procedures for the Btu recovery of 50 percent. This would be the case, for example, when the float 1.30 specific gravity product for an individual sample had a Btu recovery of 51 percent or more.

The averages for the raw coal data (size group "ALL x 0") have been calculated from the laboratory data of all three top sizes. This is the reason why in most cases the number of samples for the raw coal data is three times that of an individual size group.

APPENDIX B

GLOSSARY OF TERMS

APPENDIX B

GLOSSARY OF TERMS

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GLOSSARY OF TERMS

ANALYSIS BASIS

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

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

  Calculation:

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

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

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

  Calculation

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

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

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

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

  Calculation

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

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

BTU ANALYSIS

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

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

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

Calculation

$$Btu/lb = A + B \times [Ash]$$

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

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

Calculation

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

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

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

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

Calculation

$$Btu\ recovery = \frac{W \times Btu(1)}{Btu(2)}$$

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

CHEMICAL ANALYSES

- Proximate Analysis - The proximate analysis of coal is a standard suite of analyses performed consecutively per ASTM D3172. The analysis covers the determination of moisture, volatile matter, and ash and the calculation of fixed carbon by the difference between 100.00% and the sum of the first three parameters.

- Ultimate Analysis - The ultimate analysis of coal is a standard suite of analyses performed consecutively per ASTM D3176, Standard Method for Ultimate Analysis of Coal and Coke. The analysis covers the determination of carbon and hydrogen as found in the gaseous products of the coal-samples' complete combustion; the determination of sulfur, nitrogen, and ash in the coal sample as a whole, and the calculation of oxygen by difference between 100.00% and the sum of the first five parameters.

FUSIBILITY OF ASH (OXIDIZING ATMOSPHERE) - The fusibility of ash is determined by ASTM D1857 which "covers the observation of the temperatures at which triangular pyramids (cones) prepared from coal ash attain and pass through certain defined stages of fusing and flow when heated at a specified rate in controlled... oxidizing atmospheres." These "defined stages" are called: initial deformation, softening temperature, and fluid temperature. Note: Another commonly determined stage, "hemispherical temperature," is not included in the ash fusibility data of this report. It should be noted that the apparatus used in determining the ash fusion temperatures was limited to a maximum temperature of 2910°F. Therefore, any temperature greater than 2910°F is listed as 2910+°F.

- Initial Deformation Temperature - In the laboratory, the initial deformation temperature is the temperature at which a prepared standard cone of ash just begins to fuse or show evidence of deformation at the top of the cone as it is being heated in a standard test furnace. This would correspond to the temperature in an operating furnace at which the particles of coal ash, in transit through the furnace, have been cooled to a point where they still retain a slight tendency to stick together or slowly to build up on heat-adsorption surfaces. When the temperatures in an operating furnace are such that the ash particles have cooled to a temperature lower than their initial deformation temperature, they tend to accumulate as a "dry" product.

- Softening Temperature - The softening temperature (commonly called the fusion temperature of an ash) corresponds to an observed condition between initial deformation and fluidity. To the laboratory technician, the softening temperature is the temperature at which the test cone under observation has deformed to a spherical form where the height = width.

- Fluid Temperature - In the laboratory determination, the fluid temperature is the temperature at which the test cone flattens out to a pancake shape on the plaque. To the operating engineer, the fluid temperature is related to the temperature at which the coal ash may be expected to flow in streams or drip from heat-absorption surfaces or the temperature at which heavy clinker forms on the grates under a fuel bed.

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

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

MISCELLANEOUS DATA

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

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

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

  $$Na = Na_2O \times Ash \times .01 \times .7418$$

  where: Na = sodium, element of total moisture free coal, %
  Na_2O = sodium oxide, ash basis, %
  Ash = ash, moisture free, %

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

- Mineral Matter (Parr) - Mineral matter is calculated using the so-called Parr formula. This value is used in the calculation of fixed carbon, volatile matter, and calorific value on the mineral matter free basis in the classification of coals by rank.

  Calculation

  $$MM = 1.08\ A + (0.55 \times S)$$

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

MOISTURE

- Moisture, As-Received - The "as-received moisture" is determined on samples of coal per ASTM D3173. The moisture is that contained at the time the analytical laboratory receives the coal sample. This usually means that an air-dry moisture loss has occurred and/or has been determined prior to determining as-received moisture. Moisture as determined by ASTM D3173 "is used for calculating other analytical results to a moisture free basis."

- Moisture, Total - The total moisture is determined per ASTM D3302. The method covers the measurement of the moisture in coal as it exists at the site, at the time, and under the conditions it is sampled. It is applicable to coals as mined, processed, shipped, or utilized in normal commercial pursuits. By inference, ASTM D3302 is applicable to the channel samples taken as the basis of the analyses in this report.

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

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

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

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

- Dry Basis - See Moisture-Free Basis

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

PHYSICAL PARAMETERS

- Free Swelling Index (FSI) - The free swelling index is determined by ASTM D720 which states: "a small-scale test for obtaining information regarding the free-swelling properties of coal." The value obtained is used to indicate "the caking properties of coal when burned as a fuel" plus giving "a broad indication of the degree of oxidation of a coal." The values of FSI obtained range from 0 to 9 by $\frac{1}{2}$ intervals per a standard set of profiles. Any value less than 1 is considered, for the purposes of this test, as non-caking; values from 1 to 9 indicate increasing degrees of caking quality.

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

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

POUNDS OF SO_2 PER MILLION BTU - The "pounds of SO_2 per million Btu" value is used as a measure of the amount of SO_2 produced upon combustion of coal. It is calculated as follows:

$$\#SO_2/MM\ Btu = \frac{20 \times 10^3 \times S}{Btu}$$

where: $\#SO_2/MM\ Btu$ = pounds of SO_2 per million Btu
S = total sulfur, moisture free, %
Btu = Btu/lb, moisture free

In actual power-plant combustion, about 5% of the SO_2 is collected in the produced fly ash and therefore the algorithm stated above is customarily multiplied by a factor of about 0.95.

PRODUCT (CUMULATIVE WASHABILITY DATA)

- 100 M x 0 - This material was screened from the 1 1/2" x 0 material prior to float-sink testing. The 100 M x 0 material was not subjected to float-sink testing but was analyzed chemically for calorific content, ash, pyritic and total sulfur, and included with the presentation of the washability data of the 1 1/2" x 100 M material.

- Total (1 1/2" x 0) - This material represents the mathematical cumulation of the washability data of the 1 1/2" x 100 M plus the analytical data of the 100 M x 0 material.

- Total (3/8" x 0) - Similarly the same procedure as above was followed for the 100 M x 0 and total (3/8" x 0) products for the sample crushed to pass 3/8".

- Cum (14 M x 0) - This summation represents the mathematical cumulation of the washability data of the 14-mesh x 0 material.

RANK - In the United States, the classification of coals by rank is according to their degree of metamorphism, or progressive alteration, in the natural series from lignite to anthracite. This classification is covered in ASTM D388 and is according to fixed carbon and gross calorific value (expressed in Btu/lb) calculated to the mineral-matter-free basis (see Table 3). The higher rank coals are classified according to fixed carbon on the dry basis; the lower rank coals are classified according to gross calorific value on the moist (inherent moisture) basis. Agglomerating character is used to differentiate between adjacent groups. (From: ASTM D388, Section 4).

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

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

- Btu (moist, mm-free)

$$\text{MMMF Btu} = \frac{(\text{Btu} - 50 \times S) \times (\frac{100-M}{100}) \times 100}{100 - (\frac{100-M}{100}) \times (1.08\ A + .55\ S)}$$

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

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

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

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

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

Class	Group	Fixed Carbon Limits, percent (Dry, Mineral-Matter-Free Basis)		Volatile Matter Limits, percent (Dry, Mineral-Matter-Free Basis)		Calorific Value Limits, Btu per Pound (Moist,[b] Mineral-Matter-Free Basis)		Agglomerating Character
		Equal or Greater Than	Less Than	Greater Than	Equal or Less Than	Equal or Greater Than	Less Than	
I. Anthracite	1. Meta-anthracite	98	...	...	2	...	...	
	2. Anthracite	92	98	2	8	...	...	nonagglomerating
	3. Semianthracite[c]	86	92	8	14	...	...	
II. Bituminous	4. Low Volatile Bituminous Coal	78	86	14	22	...	...	
	5. Medium Volatile Bituminous Coal	69	78	22	31	...	...	
	6. High Volatile A Bituminous Coal	...	69	31	...	14 000[d]	...	commonly agglomerating
	7. High Volatile B Bituminous Coal	...	...	...	...	13 000[d]	14 000	
	8. High Volatile C Bituminous Coal	...	...	...	...	11 500	13 000	
					25	10 500	11 500	agglomerating
	9. Subbituminous A Coal	...	...	...	31	10 500	11 500	
III. Subbituminous	10. Subbituminous B Coal	...	...	...	...	9 500	10 500	
	11. Subbituminous C Coal	...	...	...	...	8 300	9 500	nonagglomerating
IV. Lignitic	12. Lignite A	...	...	...	...	6 300	8 300	
	13. Lignite B	...	...	...	...	...	6 300	

[a]This classification does not include a few coals, principally nonbanded varieties, which have unusual physical and chemical properties and which come within the limits of fixed carbon or calorific value of high-volatile bituminous and subbituminous ranks. All of these coals either contain less than 48% dry, mineral-matter-free carbon or have more than 15,500 moist, mineral-matter-free British thermal units per pound.
[b]Moist refers to coal containing its natural inherent moisture but not including water on the surface of the coal.
[c]If agglomerating, classify in low-volatile group of the bituminous class.
[d]Coals having 69% or more fixed carbon on the dry, mineral-matter-free basis shall be classified according to fixed carbon, regardless of calorific value.
[e]It is recognized that there may be nonagglomerating varieties in these groups of the bituminous class, and that there are notable exceptions in high volatile C bituminous group.

- Mineral Matter (dry) (Parr formula)

  MM (Parr) = 1.08 A + 0.55 S

  where: MM (Parr) = mineral matter (Parr formula), moisture free basis, %
  A = ash, moisture free, %
  S = sulfur, moisture free, %

SULFUR FORMS

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

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

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

- Organic Sulfur - Organic sulfur is calculated by deducting the sums of sulfatic and pyritic sulfur from the total sulfur in the coal as determined by ASTM D3177. This form of sulfur can be removed only by chemical methods with and without above-ambient operating temperatures. Chemical removal methods are beyond the scope of unit operations used in present-day preparation plants.

- Total Sulfur - Total sulfur comprises sulfatic, pyritic, and organic sulfur, and is determined by ASTM D3177. The values of total sulfur are used in determining sulfur emissions from coal combustion, evaluation of coal preparation processes, and of coal quality in contract specifications, in addition to other purposes of commercial or scientific interest.

UTILIZATION RATIOS OF THE RAW COAL[9]

- Base/Acid

  The ratio is determined as follows:

  $$\text{Base/Acid Ratio} = [Fe_2O_3 + CaO + MgO + K_2O + Na_2O]/[SiO_2 + TiO_2 + Al_2O_3]$$

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

  The base-to-acid ratio has been empirically correlated with ash melting and viscosity properties and problems. At values less than 0.75, the

melting temperature and the viscosity of the ash at any given temperature decrease as base-to-acid ratio increases. A maximum base-to-acid ratio is frequently specific for coal intended for dry bottom furnaces to guard against slag buildup problems.

o Dolomite

The ratio is determined as follows:

$$\text{Dolomite Ratio} = [CaO + MgO]/[Fe_2O_3 + CaO + MgO + Na_2O + K_2O]$$

where: oxides are determined on the ash basis and expressed as present

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

o Hydrogen/Carbon

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

$$\text{H/C Ratio} = ([H] \times \frac{100-MM}{100})/([C] \times \frac{100-MM}{100}) \times 12.011$$

where: [H] = the hydrogen content on the dry basis determined as part of the ultimate analysis of the raw coal
MM = mineral matter on the dry basis (see Mineral Matter)
[C] = the carbon content on the dry basis determined as part of the ultimate analysis of the raw coal.

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

o Oxygen/Carbon

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

$$\text{O/C Ratio} = ([O] \times \frac{100-MM}{100})/([C] \times \frac{100-MM}{100}) \times 0.75073$$

where: [O] = the oxygen content on the dry basis determined as part of the ultimate analysis of the raw coal
MM = mineral matter on the dry basis (see Mineral Matter in this Glossary)
[C] = the carbon content on the dry basis determined as part of the ultimate analysis of the raw coal.

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

- R250

The ratio is determined as follows:

$$R250\ Ratio = (SiO_2 + Al_2O_3)/(SiO_2 + Al_2O_3 + Fe_2O_3 + CaO)$$

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

Purpose: The R250 ratio is used by Winegartner and Rhodes[10] in their empirical algorithm for the prediction of the fusibility of ash from mineral oxide analyses.

- Silica

The ratio is determined as follows:

$$Silica\ Ratio = (SiO_2)/(SiO_2 + Fe_2O_3 + CaO + MgO)$$

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

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

- Silica/Alumina

The ratio is determined as follows:

$$Silica/Alumina\ Ratio = SiO_2/Al_2O_3$$

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

Purpose: The silica-to-alumina ratio is used in estimating the T_{250} temperature by the Babcock & Wilcox[12] method. When the % base or base-to-acid ratio is low, alumina serves to flux the slag and thus reduce the temperature at which the viscosity of the slag will be 250 poise.

APPENDIX C

COMPLETE WASHABILITY AND CHARACTERIZATION OF CENTRAL REGION COALS

APPENDIX C

COMPLETE WASHABILITY AND CHARACTERIZATION OF CENTRAL REGION COALS

State	Bed	County	Page
Arkansas	Charleston (2)	Franklin	92
	Charleston	Johnson	96
	Lower Hartshorne	Johnson	98
	Paris	Logan	100
	Uncorrelated	Johnson	102
	Uncorrelated	Pope	104
	Upper Hartshorne (2)	Johnson	106
	Upper Hartshorne (3)	Sebastian	110
	Wilcox (2)	Dallas	116
	Wilcox	Ouachita	120
	Wilcox	Saline	122
Illinois	No. 2	Fulton	124
	No. 2	Peoria	126
	No. 5	Franklin	128
	No. 5 (4)	Fulton	130
	No. 5	Gallatin	138
	No. 5 (2)	Perry	140
	No. 5	Randolph	144
	No. 5	Saline	146
	No. 6	Christian	148
	No. 6 (2)	Douglas	150
	No. 6 (2)	Franklin	154
	No. 6	Fulton	158
	No. 6 (3)	Jefferson	160
	No. 6 (2)	Knox	166
	No. 6	Macoupin	170
	No. 6 (2)	Montgomery	172
	No. 6	Peoria	176
	No. 6 (2)	Perry	178
	No. 6 (2)	Randolph	182
	No. 6	Saline	186
	No. 6 (2)	St. Clair	188
	No. 6	Stark	192
	No. 6 (5)	Williamson	194
Indiana	No. III	Clay	204
	No. III (2)	Greene	206
	No. IV	Pike	210
	No. V	Gibson	212
	No. V	Greene	214
	No. V (4)	Pike	216
	No. V	Sullivan	224
	No. V	Warrick	226
	No. VI (2)	Sullivan	228
	No. VI	Vermillion	232
	No. VI (3)	Warrick	234
	No. VII (2)	Sullivan	240
	No. VII	Vigo	244

State	Bed	County	Page
Iowa	Cliffland	Mahaska	246
	Hastie	Mahaska	248
	Hastie	Monroe	250
	Lower-Ford (4)	Marion	252
	Lower-Ford (2)	Monroe	260
	Lucas County No. 5	Wapello	264
	Uncorrelated	Lucas	266
	Uncorrelated (4)	Mahaska	268
	Uncorrelated (2)	Marion	276
Kansas	Bevier	Crawford	280
	Croweburg (2)	Crawford	282
	Fleming	Bourbon	286
	Fleming	Cherokee	288
	Knifeton	Crawford	290
	Mineral	Cherokee	292
	Mineral	Crawford	294
	Mulky	Bourbon	296
	Rowe	Crawford	298
Kentucky (West)	No. 6	Butler	300
	No. 6 (2)	Hopkins	302
	No. 6	Ohio	306
	No. 7	Ohio	308
	No. 9	Daviess	310
	No. 9 (7)	Hopkins	312
	No. 9	Muhlenberg	326
	No. 9 (2)	Ohio	328
	No. 9 (3)	Union	332
	No. 11 (2)	Hopkins	340
	No. 11 (5)	Muhlenberg	344
	No. 12	Hopkins	354
	No. 12 (5)	Muhlenberg	356
	Nos. 11 and 12	Muhlenberg	366
	No. 14 (3)	Hopkins	368
Missouri	Bevier	Boone	374
	Bevier	Macon	376
	Bevier	Randolph	378
	Bevier	Vernon	380
	Croweburg (2)	Vernon	382
	Drywood	Barton	386
	Fleming (3)	Vernon	388
	Knifeton	Barton	394
	Mulberry	Bates	396
	Rowe (2)	Barton	398
	Tebo (3)	Henry	402
	Weir-Pittsburg	Henry	408

State	Bed	County	Page
Oklahoma	Cavanal	Craig	410
	Cavanal	Rogers	412
	Croweburg	Okmulgee	414
	Croweburg	Rogers	416
	Croweburg	Wagoner	418
	Mulky	Craig	420
	Mulky	Nowata	422
	Mulky	Rogers	424
	Lower McAlester	Latimer	426
	Secor	Wagoner	428
	Stigler	Haskell	430
	Stigler	Latimer	432
	Upper and Lower Hartshorne	Haskell	434
Texas	Bull Creek	Coleman	436
	Lower Calvert Bluff (2)	Freestone	438
	Lower Calvert Bluff	Milam	442
	Olmos	Maverick	444
	San Pedro	Webb	446
	Thurber	Erath	448
	Uncorrelated	Angelina	450
	Wilcox	Harrison	452
	Wilcox	Panola	454
	Wilcox (3)	Titus	456

STATE: ARKANSAS
COUNTY: FRANKLIN

BED: CHARLESTON
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 554
SAMPLE NO. 544

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	19.8	21.0	3.0	.43	1.19	15300	1.6
FLOAT 1.40	87.4	90.8	4.9	.89	1.48	14990	2.0
FLOAT 1.60	95.7	98.1	6.0	1.12	1.66	14790	2.2
CUM(1-1/2" X 100M)	100.0	100.0	8.0	1.27	1.80	14430	2.5
100M X 0	3.3	3.1	11.1	2.99	3.19	13760	4.6
TOTAL(1-1/2" X 0)	100.0	100.0	8.1	1.33	1.85	14408	2.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.9	69.6	3.2	.52	1.17	15250	1.5
FLOAT 1.40	87.5	91.1	4.4	.79	1.38	15040	1.8
FLOAT 1.60	95.4	97.8	5.7	1.00	1.55	14800	2.1
CUM(3/8" X 100M)	100.0	100.0	7.8	1.24	1.77	14440	2.5
100M X 0	4.8	4.6	11.2	3.10	3.34	13740	4.9
TOTAL(3/8" X 0)	100.0	100.0	8.0	1.33	1.85	14406	2.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.0	44.5	3.4	.53	1.17	15260	1.5
FLOAT 1.40	87.0	90.9	4.5	.80	1.33	15040	1.8
FLOAT 1.60	93.7	96.9	5.4	.93	1.44	14890	1.9
CUM(14M X 0)	100.0	100.0	8.1	1.39	1.87	14400	2.6

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	40.6
3/8" X 14M	43.6
14M X 100M	12.5
100M X 0	3.3

MOISTURE, %

TOTAL	2.6
AS RECEIVED	.6

STATE: ARKANSAS
COUNTY: FRANKLIN

BED: CHARLESTON
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 554
SAMPLE NO. 544

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.60	.80	.80	--	--	--	--	--	--
ASH	8.05	5.14	49.79	8.10	5.18	50.19	--	--	--
VOLATILE MATTER	17.66	17.46	20.25	17.77	17.60	20.41	19.33	18.56	40.98
FIXED CARBON	73.69	76.60	29.16	74.13	77.21	29.40	80.67	81.44	59.02
BTU/LB	14314	14805	6792	14400	14924	6847	15669	15740	13745

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	81.97	84.74	31.82	82.46	85.42	32.08	89.73	90.09	64.40
HYDROGEN	4.35	4.54	1.78	4.31	4.48	1.70	4.69	4.73	3.41
NITROGEN	1.40	1.47	.60	1.41	1.48	.60	1.54	1.56	1.20
SULFUR	1.92	1.40	9.01	1.93	1.41	9.08	2.10	1.49	18.23
OXYGEN	2.31	2.71	7.01	1.79	2.02	6.35	1.95	2.13	12.75
ASH	8.05	5.14	49.79	8.10	5.18	50.19	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.37	.84	8.60	1.38	.85	8.67	1.50	.90	17.40
SULFATIC	.01	.00	.15	.01	.00	.15	.01	.00	.31
ORGANIC	.54	.56	.26	.54	.56	.26	.59	.59	.52
TOTAL	1.92	1.40	9.01	1.93	1.41	9.08	2.10	1.49	18.23

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	36.01	29.19	31.11
AL2O3	(ALUMINUM OXIDE)	20.14	26.59	18.10
FE2O3	(IRON OXIDE)	20.56	17.59	22.30
TIO2	(TITANIUM OXIDE)	1.15	1.08	.67
CAO	(CALCIUM OXIDE)	8.24	8.59	12.87
MGO	(MAGNESIUM OXIDE)	2.93	3.81	1.49
NA2O	(SODIUM OXIDE)	.71	.93	.27
K2O	(POTASSIUM OXIDE)	1.37	1.45	1.45
SO3	(SULFITES)	8.03	7.97	9.78

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.59	.57
DOLOMITE	.33	.38
HYDROGEN/CARBON	.63	.63
OXYGEN/CARBON	.02	.02
R250	.66	.68
SILICA	.53	.50
SILICA/ALUMINA	1.79	1.10

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2040	2180	--
SOFTENING TEMPERATURE	(ST)	2160	2230	--
FLUID TEMPERATURE	(FT)	2260	2290	--

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	.06	--	--
NA (SODIUM)	(CALCULATED)	.04	.04	.10
MINERAL MATTER	(PARR)	9.81	6.37	59.20

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	9	8 1/2	0
HARDGROVE GRINDABILITY	(HGI)	106	--	--

STATE: ARKANSAS
COUNTY: FRANKLIN

BED: CHARLESTON
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 554
SAMPLE NO. 545

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	7.5	8.0	2.9	1.11	1.84	15249	2.4
FLOAT 1.40	89.2	92.8	5.4	2.31	3.11	14812	4.2
FLOAT 1.60	94.9	98.2	5.9	2.47	3.32	14724	4.5
FLOAT 1.90	96.2	99.2	6.2	2.56	3.42	14672	4.7
CUM(1-1/2" X 100M)	100.0	100.0	8.7	2.78	3.63	14235	5.1
100M X 0	.4	.3	19.0	3.52	4.23	12434	6.8
TOTAL(1-1/2" X 0)	100.0	100.0	8.7	2.78	3.63	14228	5.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	18.1	19.4	2.8	1.06	1.83	15266	2.4
FLOAT 1.40	87.4	91.3	4.9	2.12	2.92	14899	3.9
FLOAT 1.60	94.3	97.8	5.5	2.33	3.18	14794	4.3
FLOAT 1.90	96.2	99.2	6.2	2.56	3.42	14672	4.7
CUM(3/8" X 100M)	100.0	100.0	8.5	2.73	3.58	14270	5.0
100M X 0	1.0	.9	13.9	3.23	4.04	13326	6.1
TOTAL(3/8" X 0)	100.0	100.0	8.6	2.74	3.58	14260	5.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.7	22.4	2.5	.80	1.57	15319	2.0
FLOAT 1.40	83.2	87.8	4.5	1.87	2.67	14969	3.6
FLOAT 1.60	92.7	97.0	5.2	2.17	3.04	14847	4.1
FLOAT 1.90	96.2	99.2	6.2	2.56	3.42	14672	4.7
CUM(14M X 0)	100.0	100.0	9.0	2.74	3.61	14182	5.1

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.4

MOISTURE, %

TOTAL	.6
AS RECEIVED	.4

STATE: ARKANSAS
COUNTY: FRANKLIN

BED: CHARLESTON
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 554
SAMPLE NO. 545

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.40	--	--	--	--	--	--	--	--
ASH	9.16	--	--	9.20	--	--	--	--	--
VOLATILE MATTER	19.49	--	--	19.57	--	--	21.56	--	--
FIXED CARBON	70.94	--	--	71.23	--	--	78.44	--	--
BTU/LB	14102	--	--	14159	--	--	15593	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.66	--	--	3.67	--	--	4.04	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	9.16	--	--	9.20	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.91	--	--	2.92	--	--	3.22	--	--
SULFATIC	.13	--	--	.13	--	--	.14	--	--
ORGANIC	.62	--	--	.62	--	--	.68	--	--
TOTAL	3.66	--	--	3.67	--	--	4.04	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	11.95	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ARKANSAS
COUNTY: JOHNSON

BED: CHARLESTON
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 554
SAMPLE NO. 546

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.5	64.2	2.8	.22	.70	15282	.9
FLOAT 1.40	94.9	95.6	3.2	.21	.71	15238	.9
FLOAT 1.60	99.7	99.9	3.7	.21	.70	15150	.9
CUM(1-1/2" X 100M)	100.0	100.0	3.9	.22	.71	15123	.9
100M X 0	2.4	2.3	7.2	.35	.94	14534	1.3
TOTAL(1-1/2" X 0)	100.0	100.0	4.0	.22	.72	15109	.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.6	22.9	2.4	.23	.78	15210	1.0
FLOAT 1.40	94.5	95.3	3.5	.22	.70	15153	.9
FLOAT 1.60	99.4	99.7	4.0	.22	.69	15063	.9
CUM(3/8" X 100M)	100.0	100.0	4.2	.23	.70	15019	.9
100M X 0	8.2	8.1	5.4	.38	.83	14839	1.1
TOTAL(3/8" X 0)	100.0	100.0	4.3	.24	.71	15005	.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.2	10.5	2.1	.23	.79	15444	1.0
FLOAT 1.40	92.3	93.5	3.3	.23	.77	15226	1.0
FLOAT 1.60	99.1	99.7	3.8	.24	.77	15119	1.0
CUM(14M X 0)	100.0	100.0	4.3	.26	.80	15035	1.1

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	52.6
3/8" X 14M	31.5
14M X 100M	13.5
100M X 0	2.4

MOISTURE, %

TOTAL	1.5
AS RECEIVED	.6

STATE: ARKANSAS
COUNTY: JOHNSON

BED: CHARLESTON
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 554
SAMPLE NO. 546

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.60	.60	.60	--	--	--	--	--	--
ASH	4.37	3.78	56.64	4.40	3.80	56.98	--	--	--
VOLATILE MATTER	16.86	16.84	18.90	16.96	16.94	19.02	17.74	17.61	44.21
FIXED CARBON	78.17	78.78	23.86	78.64	79.26	24.00	82.26	82.39	55.79
BTU/LB	14929	15029	6043	15019	15119	6080	15710	15717	14132

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	86.22	86.80	34.18	86.74	87.32	34.39	90.73	90.77	79.94
HYDROGEN	4.33	4.36	1.66	4.28	4.32	1.60	4.48	4.49	3.72
NITROGEN	1.88	1.90	.40	1.89	1.91	.40	1.98	1.98	.93
SULFUR	.73	.70	4.08	.73	.70	4.10	.76	.73	9.54
OXYGEN	2.48	2.48	3.04	1.96	1.95	2.53	2.05	2.03	5.87
ASH	4.37	3.78	56.64	4.40	3.80	56.98	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.23	.22	2.45	.23	.22	2.46	.24	.23	5.72
SULFATIC	.06	.06	.06	.06	.06	.06	.06	.06	.14
ORGANIC	.44	.42	1.57	.44	.42	1.58	.46	.44	3.68
TOTAL	.73	.70	4.08	.73	.70	4.10	.76	.73	9.54

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.59	.59
OXYGEN/CARBON	.02	.02
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2115	2125	--
SOFTENING TEMPERATURE (ST)	2210	2245	--
FLUID TEMPERATURE (FT)	2315	2355	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.06	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	5.15	4.49	63.80

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	8 1/2	--
HARDGROVE GRINDABILITY (HGI)	108	--	--

STATE: ARKANSAS
COUNTY: JOHNSON

BED: LOWER HARTSHORNE
RANK: SEMI-ANTHRACITE

BED CODE: 563
SAMPLE NO. 547

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.1	.1	4.8	1.07	1.77	14917	2.4
FLOAT 1.40	56.5	59.1	5.4	1.42	2.20	14812	3.0
FLOAT 1.60	94.7	96.6	7.5	2.46	3.35	14445	4.6
FLOAT 1.90	98.0	99.2	8.1	2.72	3.71	14340	5.2
CUM(1-1/2" X 100M)	100.0	100.0	9.1	2.92	3.97	14165	5.6
100M X 0	.3	.3	11.6	4.30	5.71	13728	8.3
TOTAL(1-1/2" X 0)	100.0	100.0	9.1	2.92	3.98	14164	5.6

SAMPLE CRUSHED TO PASS 3/8"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.6	.6	3.4	.61	1.30	15162	1.7
FLOAT 1.40	68.2	71.2	5.2	1.32	2.08	14847	2.8
FLOAT 1.60	93.6	96.1	6.6	2.03	2.87	14602	3.9
FLOAT 1.90	98.0	99.2	8.1	2.72	3.71	14340	5.2
CUM(3/8" X 100M)	100.0	100.0	8.8	2.80	3.87	14217	5.4
100M X 0	.9	.9	11.1	4.16	5.54	13815	8.0
TOTAL(3/8" X 0)	100.0	100.0	8.8	2.81	3.89	14214	5.5

SAMPLE CRUSHED TO PASS 14M

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.8	.9	3.1	.61	1.26	15214	1.7
FLOAT 1.40	69.1	72.7	4.8	1.00	1.59	14917	2.1
FLOAT 1.60	92.5	95.7	6.2	1.62	2.35	14672	3.2
FLOAT 1.90	98.0	99.2	8.1	2.72	3.71	14340	5.2
CUM(14M X 0)	100.0	100.0	9.0	2.89	4.03	14182	5.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

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

MOISTURE, %

TOTAL	1.8
AS RECEIVED	1.0

STATE: ARKANSAS
COUNTY: JOHNSON

BED: LOWER HARTSHORNE
RANK: SEMI-ANTHRACITE

BED CODE: 563
SAMPLE NO. 547

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.00	--	--	--	--	--	--	--	--
ASH	9.11	--	--	9.20	--	--	--	--	--
VOLATILE MATTER	12.28	--	--	12.40	--	--	13.66	--	--
FIXED CARBON	77.62	--	--	78.40	--	--	86.34	--	--
BTU/LB	13864	--	--	14004	--	--	15423	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.95	--	--	3.99	--	--	4.39	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	9.11	--	--	9.20	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.99	--	--	3.02	--	--	3.33	--	--
SULFATIC	.26	--	--	.26	--	--	.29	--	--
ORGANIC	.70	--	--	.71	--	--	.78	--	--
TOTAL	3.95	--	--	3.99	--	--	4.39	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	12.13	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ARKANSAS
COUNTY: LOGAN

BED: PARIS
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 551
SAMPLE NO. 548

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.5	40.2	3.2	1.03	1.24	15290	1.6
FLOAT 1.40	75.5	77.9	4.4	1.65	1.85	15100	2.5
FLOAT 1.60	96.1	98.3	5.2	1.91	2.12	14970	2.8
CUM(1-1/2" X 100M)	100.0	100.0	7.1	2.05	2.25	14630	3.1
100M X 0	4.4	4.2	9.5	2.65	2.93	14130	4.1
TOTAL(1-1/2" X 0)	100.0	100.0	7.2	2.08	2.28	14608	3.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.6	53.8	3.6	1.05	1.35	15210	1.8
FLOAT 1.40	91.0	93.8	4.6	1.59	1.87	15030	2.5
FLOAT 1.60	95.7	98.1	5.1	1.74	2.04	14940	2.7
CUM(3/8" X 100M)	100.0	100.0	7.2	1.94	2.24	14580	3.1
100M X 0	5.7	5.6	8.7	2.83	3.04	14260	4.3
TOTAL(3/8" X 0)	100.0	100.0	7.3	1.99	2.29	14562	3.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	73.9	76.7	4.1	1.18	1.52	15140	2.0
FLOAT 1.40	89.2	92.0	4.6	1.41	1.77	15040	2.4
FLOAT 1.60	94.9	97.2	5.1	1.69	1.97	14940	2.6
CUM(14M X 0)	100.0	100.0	7.1	2.00	2.32	14590	3.2

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	29.6
3/8" X 14M	48.7
14M X 100M	17.3
100M X 0	4.4

MOISTURE, %

TOTAL	4.8
AS RECEIVED	.5

STATE: ARKANSAS
COUNTY: LOGAN

BED: PARIS
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 551
SAMPLE NO. 548

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.50	.70	.60	--	--	--	--	--	--
ASH	7.26	4.86	45.81	7.30	4.90	46.09	--	--	--
VOLATILE MATTER	16.34	15.85	24.07	16.42	15.96	24.21	17.72	16.78	44.91
FIXED CARBON	75.89	78.59	29.52	76.28	79.14	29.70	82.28	83.22	55.09
BTU/LB	14486	14867	7773	14559	14972	7820	15705	15743	14505

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	82.97	85.45	30.42	83.39	86.05	30.60	89.96	90.48	56.76
HYDROGEN	4.31	4.47	1.86	4.27	4.42	1.80	4.61	4.65	3.34
NITROGEN	1.66	1.72	.60	1.67	1.73	.60	1.80	1.82	1.11
SULFUR	2.34	1.76	8.79	2.35	1.77	8.84	2.54	1.86	16.40
OXYGEN	1.45	1.74	12.53	1.01	1.13	12.07	1.09	1.19	22.39
ASH	7.26	4.86	45.81	7.30	4.90	46.09	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.94	1.51	7.72	1.95	1.52	7.77	2.10	1.60	14.41
SULFATIC	.01	.00	.02	.01	.00	.02	.01	.00	.04
ORGANIC	.39	.25	1.05	.39	.25	1.05	.42	.26	1.96
TOTAL	2.34	1.76	8.79	2.35	1.77	8.84	2.54	1.86	16.40

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	25.67	14.92	43.47
AL2O3	(ALUMINUM OXIDE)	15.64	10.75	19.23
FE2O3	(IRON OXIDE)	37.47	42.18	24.59
TIO2	(TITANIUM OXIDE)	1.31	.05	.93
CAO	(CALCIUM OXIDE)	6.72	9.87	2.74
MGO	(MAGNESIUM OXIDE)	4.44	6.30	1.00
NA2O	(SODIUM OXIDE)	.71	.47	.43
K2O	(POTASSIUM OXIDE)	1.18	.75	2.41
SO3	(SULFITES)	6.84	12.54	.64

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	1.19	2.32
DOLOMITE	.22	.27
HYDROGEN/CARBON	.62	.62
OXYGEN/CARBON	.01	.01
R250	.48	.33
SILICA	.35	.21
SILICA/ALUMINA	1.64	1.39

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2060	2190	--
SOFTENING TEMPERATURE	(ST)	2170	2220	--
FLUID TEMPERATURE	(FT)	2270	2250	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.08	--	--
NA (SODIUM) (CALCULATED)	.04	.02	.15
MINERAL MATTER (PARR)	9.18	6.20	54.64

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	9	7 1/2	0
HARDGROVE GRINDABILITY	(HGI)	113	--	--

STATE: ARKANSAS
COUNTY: JOHNSON

BED: UNCORRELATED
RANK: SEMI-ANTHRACITE

BED CODE: 799
SAMPLE NO. 549

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.7	.7	2.1	.09	.76	15212	1.0
FLOAT 1.40	94.8	95.9	4.2	.05	.63	14863	.8
FLOAT 1.60	98.6	99.2	4.6	.05	.63	14781	.9
CUM(1-1/2" X 100M)	100.0	100.0	5.1	.05	.63	14686	.9
100M X 0	2.0	1.9	8.8	.17	.79	13734	1.2
TOTAL(1-1/2" X 0)	100.0	100.0	5.2	.05	.63	14667	.9

SAMPLE CRUSHED TO PASS 3/8"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.7	.7	2.3	.07	.75	15230	1.0
FLOAT 1.40	93.5	94.9	3.6	.05	.65	14951	.9
FLOAT 1.60	97.8	98.7	4.0	.05	.65	14879	.9
CUM(3/8" X 100M)	100.0	100.0	4.6	.05	.64	14738	.9
100M X 0	11.3	11.0	6.2	.07	.69	14338	1.0
TOTAL(3/8" X 0)	100.0	100.0	4.8	.05	.65	14693	.9

SAMPLE CRUSHED TO PASS 14M

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.7	.7	2.5	.07	.75	15107	1.0
FLOAT 1.40	90.5	92.6	3.5	.03	.65	14937	.9
FLOAT 1.60	97.0	98.6	4.0	.04	.65	14838	.9
CUM(14M X 0)	100.0	100.0	5.0	.04	.65	14600	.9

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	60.9
3/8" X 14M	27.1
14M X 100M	10.0
100M X 0	2.0

MOISTURE, %

TOTAL	4.5
AS RECEIVED	.6

STATE: ARKANSAS
COUNTY: JOHNSON

BED: UNCORRELATED
RANK: SEMI-ANTHRACITE

BED CODE: 799
SAMPLE NO. 549

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.60	.50	.70	--	--	--	--	--	--
ASH	4.97	3.82	38.55	5.00	3.84	38.83	--	--	--
VOLATILE MATTER	13.66	13.27	25.89	13.74	13.34	26.07	14.47	13.87	42.62
FIXED CARBON	80.77	82.41	34.85	81.26	82.82	35.10	85.53	86.13	57.38
BTU/LB	14513	14789	6696	14600	14863	6743	15369	15457	11023

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	86.16	87.63	44.54	86.68	88.07	44.85	91.24	91.59	73.32
HYDROGEN	3.85	3.92	1.77	3.81	3.88	1.70	4.01	4.04	2.78
NITROGEN	1.72	1.76	.50	1.73	1.77	.50	1.82	1.84	.82
SULFUR	.66	.63	.66	.66	.63	.66	.70	.66	1.08
OXYGEN	2.64	2.24	13.99	2.12	1.80	13.46	2.23	1.87	22.01
ASH	4.97	3.82	38.55	5.00	3.84	38.83	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.05	.04	.04	.05	.04	.04	.06	.05	.07
SULFATIC	.02	.00	.02	.02	.00	.02	.02	.00	.03
ORGANIC	.59	.59	.60	.59	.59	.60	.62	.61	.98
TOTAL	.66	.63	.66	.66	.63	.66	.70	.66	1.08

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.53	.53
OXYGEN/CARBON	.02	.02
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2380	2380	--
SOFTENING TEMPERATURE (ST)	2430	2430	--
FLUID TEMPERATURE (FT)	2640	2660	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.01	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	5.77	4.50	42.30

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	2	0 1/2	--
HARDGROVE GRINDABILITY (HGI)	84	--	--

STATE: ARKANSAS
COUNTY: POPE

BED: UNCORRELATED
RANK: SEMI-ANTHRACITE

BED CODE: 799
SAMPLE NO. 550

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	1.0	1.1	3.2	.11	.95	15047	1.3
FLOAT 1.40	64.3	70.2	5.1	.28	1.11	14711	1.5
FLOAT 1.60	94.1	96.0	10.6	.78	1.58	13761	2.3
CUM(1-1/2" X 100M)	100.0	100.0	12.2	.86	1.66	13483	2.5
100M X 0	1.6	1.6	12.0	.64	1.75	13452	2.6
TOTAL(1-1/2" X 0)	100.0	100.0	12.2	.86	1.66	13482	2.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.9	3.3	3.0	.14	.90	15105	1.2
FLOAT 1.40	65.7	71.8	5.2	.29	1.05	14723	1.4
FLOAT 1.60	91.0	94.1	9.7	.79	1.46	13914	2.1
CUM(3/8" X 100M)	100.0	100.0	12.3	.95	1.63	13463	2.4
100M X 0	8.8	8.9	11.1	.75	1.74	13612	2.6
TOTAL(3/8" X 0)	100.0	100.0	12.2	.93	1.64	13476	2.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.0	8.9	4.2	.20	.97	14825	1.3
FLOAT 1.40	61.5	67.5	4.9	.25	1.07	14667	1.5
FLOAT 1.60	88.0	92.6	8.0	.44	1.34	14068	1.9
CUM(14M X 0)	100.0	100.0	12.0	.86	1.70	13365	2.5

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	65.3
3/8" X 14M	24.6
14M X 100M	8.5
100M X 0	1.6

MOISTURE, %

TOTAL	5.8
AS RECEIVED	1.0

STATE: ARKANSAS
COUNTY: POPE

BED: UNCORRELATED
RANK: SEMI-ANTHRACITE

BED CODE: 799
SAMPLE NO. 550

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.00	1.00	1.00	--	--	--	--	--	--
ASH	12.36	8.24	41.48	12.48	8.32	41.90	--	--	--
VOLATILE MATTER	11.47	11.36	12.57	11.58	11.47	12.70	13.23	12.51	21.86
FIXED CARBON	75.18	79.41	44.95	75.94	80.21	45.40	86.77	87.49	78.14
BTU/LB	13159	13879	8046	13292	14019	8128	15188	15292	13989

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	78.10	81.40	46.13	78.89	82.22	46.60	90.14	89.68	80.21
HYDROGEN	3.57	3.72	2.49	3.49	3.64	2.40	3.99	3.97	4.13
NITROGEN	1.50	1.59	.89	1.51	1.60	.90	1.73	1.75	1.55
SULFUR	1.49	1.23	3.87	1.50	1.24	3.91	1.71	1.35	6.72
OXYGEN	2.99	3.83	5.14	2.12	2.97	4.29	2.42	3.24	7.39
ASH	12.36	8.24	41.48	12.48	8.32	41.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.79	.48	3.51	.79	.48	3.55	.91	.53	6.10
SULFATIC	.06	.05	.13	.06	.05	.13	.07	.05	.22
ORGANIC	.64	.70	.23	.65	.71	.23	.74	.77	.39
TOTAL	1.49	1.23	3.87	1.50	1.24	3.91	1.71	1.35	6.72

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	39.63	35.80	44.32
AL2O3	(ALUMINUM OXIDE)	34.32	34.70	31.68
FE2O3	(IRON OXIDE)	14.30	15.16	16.30
TIO2	(TITANIUM OXIDE)	1.33	1.33	1.00
CAO	(CALCIUM OXIDE)	3.08	4.76	1.65
MGO	(MAGNESIUM OXIDE)	2.45	3.58	1.03
NA2O	(SODIUM OXIDE)	1.60	1.50	1.50
K2O	(POTASSIUM OXIDE)	1.69	1.45	1.93
SO3	(SULFITES)	1.25	1.01	.45

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.31	.37
DOLOMITE	.24	.32
HYDROGEN/CARBON	.53	.53
OXYGEN/CARBON	.02	.03
R250	.81	.78
SILICA	.67	.62
SILICA/ALUMINA	1.15	1.03

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2250	2250	2260
SOFTENING TEMPERATURE	(ST)	2390	2350	2380
FLUID TEMPERATURE	(FT)	2640	2580	2580

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	.00	--	--
NA (SODIUM)	(CALCULATED)	.15	.09	.47
MINERAL MATTER	(PARR)	14.17	9.67	46.01

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	0	0	0
HARDGROVE GRINDABILITY	(HGI)	78	74	--

STATE: ARKANSAS
COUNTY: JOHNSON

BED: UPPER HARTSHORNE
RANK: SEMI-ANTHRACITE

BED CODE: 562
SAMPLE NO. 551

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.6	.6	1.8	.30	.76	15349	1.0
FLOAT 1.40	88.9	92.4	3.8	.35	.86	14987	1.1
FLOAT 1.60	94.0	96.9	4.4	.51	1.03	14878	1.4
FLOAT 1.90	96.3	98.6	5.0	.60	1.13	14770	1.5
CUM(1-1/2" X 100M)	100.0	100.0	6.9	1.19	1.76	14426	2.4
100M X 0	.2	.2	9.9	.98	1.58	13884	2.3
TOTAL(1-1/2" X 0)	100.0	100.0	6.9	1.19	1.76	14425	2.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	3.1	3.3	2.5	.20	.74	15222	1.0
FLOAT 1.40	88.4	92.3	3.6	.22	.82	15023	1.1
FLOAT 1.60	93.7	97.2	4.1	.32	.92	14933	1.2
FLOAT 1.90	96.3	98.6	5.0	.60	1.13	14770	1.5
CUM(3/8" X 100M)	100.0	100.0	7.1	1.20	1.84	14390	2.6
100M X 0	.8	.8	7.8	1.01	1.63	14264	2.3
TOTAL(3/8" X 0)	100.0	100.0	7.1	1.20	1.84	14389	2.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	3.0	3.2	3.1	.04	.69	15113	.9
FLOAT 1.40	86.8	91.2	3.3	.13	.79	15077	1.0
FLOAT 1.60	93.2	97.3	3.8	.17	.84	14987	1.1
FLOAT 1.90	96.3	98.6	5.0	.60	1.13	14770	1.5
CUM(14M X 0)	100.0	100.0	7.3	1.13	1.82	14354	2.5

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	1.0
AS RECEIVED	.6

STATE: ARKANSAS
COUNTY: JOHNSON

BED: UPPER HARTSHORNE
RANK: SEMI-ANTHRACITE

BED CODE: 562
SAMPLE NO.: 551

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.60	--	--	--	--	--	--	--	--
ASH	6.97	--	--	7.01	--	--	--	--	--
VOLATILE MATTER	12.21	--	--	12.29	--	--	13.21	--	--
FIXED CARBON	80.22	--	--	80.70	--	--	86.79	--	--
BTU/LB	14307	--	--	14393	--	--	15478	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.89	--	--	1.90	--	--	2.04	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	6.97	--	--	7.01	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.23	--	--	1.24	--	--	1.33	--	--
SULFATIC	.12	--	--	.12	--	--	.13	--	--
ORGANIC	.54	--	--	.54	--	--	.58	--	--
TOTAL	1.89	--	--	1.90	--	--	2.04	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	8.61	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ARKANSAS
COUNTY: JOHNSON

BED: UPPER HARTSHORNE
RANK: SEMI-ANTHRACITE

BED CODE: 562
SAMPLE NO. 552

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	1.3	1.4	5.0	.76	1.42	14790	1.9
FLOAT 1.40	76.7	80.0	6.7	1.09	1.66	14570	2.3
FLOAT 1.60	95.5	97.6	8.4	1.15	1.71	14270	2.4
CUM(1-1/2" X 100M)	100.0	100.0	10.0	1.61	2.27	13970	3.2
100M X 0	2.7	2.4	18.4	4.14	4.44	12310	7.2
TOTAL(1-1/2" X 0)	100.0	100.0	10.2	1.68	2.33	13925	3.3

SAMPLE CRUSHED TO PASS 3/8"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	.9	1.0	4.4	.60	1.27	14870	1.7
FLOAT 1.40	77.7	81.4	6.1	.93	1.51	14660	2.1
FLOAT 1.60	95.0	97.4	7.8	.94	1.62	14350	2.3
CUM(3/8" X 100M)	100.0	100.0	9.7	1.49	2.20	13990	3.1
100M X 0	4.3	3.9	17.2	3.93	4.38	12550	7.0
TOTAL(3/8" X 0)	100.0	100.0	10.0	1.59	2.29	13928	3.3

SAMPLE CRUSHED TO PASS 14M

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	4.5	4.7	6.2	.58	1.30	14630	1.8
FLOAT 1.40	82.0	85.5	7.1	.82	1.40	14490	1.9
FLOAT 1.60	93.3	96.1	8.1	.91	1.47	14310	2.1
CUM(14M X 0)	100.0	100.0	10.3	1.60	2.16	13900	3.1

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	52.4
3/8" X 14M	35.5
14M X 100M	9.4
100M X 0	2.7

MOISTURE, %

TOTAL	2.2
AS RECEIVED	.8

STATE: ARKANSAS
COUNTY: JOHNSON

BED: UPPER HARTSHORNE
RANK: SEMI-ANTHRACITE

BED CODE: 562
SAMPLE NO. 552

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.80	1.00	1.30	--	--	--	--	--	--
ASH	9.72	7.70	42.02	9.80	7.78	42.57	--	--	--
VOLATILE MATTER	11.16	10.36	24.41	11.25	10.47	24.73	12.47	11.35	43.06
FIXED CARBON	78.32	80.94	32.27	78.95	81.76	32.70	87.53	88.65	56.94
BTU/LB	13866	14217	7860	13977	14360	7964	15496	15571	13867

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	80.41	83.28	30.40	81.05	84.12	30.80	89.86	91.22	53.63
HYDROGEN	3.59	3.72	1.72	3.53	3.64	1.60	3.91	3.95	2.79
NITROGEN	1.70	1.76	.59	1.71	1.78	.60	1.89	1.93	1.04
SULFUR	2.21	1.31	11.56	2.23	1.32	11.71	2.47	1.43	20.39
OXYGEN	2.38	2.23	13.71	1.68	1.36	12.72	1.86	1.47	22.15
ASH	9.72	7.70	42.02	9.80	7.78	42.57	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.66	.81	11.06	1.67	.82	11.21	1.85	.89	19.52
SULFATIC	.01	.00	.02	.01	.00	.02	.01	.00	.03
ORGANIC	.55	.50	.47	.55	.50	.48	.61	.55	.84
TOTAL	2.21	1.31	11.56	2.23	1.32	11.71	2.47	1.43	20.39

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	38.65	38.35	31.53
AL2O3	(ALUMINUM OXIDE)	28.80	31.87	23.38
FE2O3	(IRON OXIDE)	22.43	13.01	40.03
TIO2	(TITANIUM OXIDE)	1.29	1.25	.60
CAO	(CALCIUM OXIDE)	2.80	3.54	.48
MGO	(MAGNESIUM OXIDE)	2.02	2.65	.80
NA2O	(SODIUM OXIDE)	1.48	1.62	.38
K2O	(POTASSIUM OXIDE)	1.52	1.81	1.33
SO3	(SULFITES)	2.15	1.90	.37

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.44	.32
DOLOMITE	.16	.27
HYDROGEN/CARBON	.52	.52
OXYGEN/CARBON	.02	.01
R250	.73	.81
SILICA	.59	.67
SILICA/ALUMINA	1.34	1.20

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2240	2210	--
SOFTENING TEMPERATURE (ST)	2400	2260	--
FLUID TEMPERATURE (FT)	2540	2310	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.07	--	--
NA (SODIUM) (CALCULATED)	.11	.09	.12
MINERAL MATTER (PARR)	11.81	9.08	52.42

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	0	0	0
HARDGROVE GRINDABILITY (HGI)	67	--	--

STATE: ARKANSAS
COUNTY: SEBASTIAN

BED: UPPER HARTSHORNE
RANK: MED VOLATILE BITUMINOUS

BED CODE: 562
SAMPLE NO. 553

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.4	59.1	2.6	.17	.67	15195	.9
FLOAT 1.40	79.9	88.5	4.0	.21	.64	14916	.9
FLOAT 1.60	87.1	94.9	5.1	.23	.66	14676	.9
CUM(1-1/2" X 100M)	100.0	100.0	10.9	.30	.74	13471	1.1
100M X 0	3.3	3.4	8.8	.46	1.17	13901	1.7
TOTAL(1-1/2" X 0)	100.0	100.0	10.8	.31	.75	13485	1.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.3	71.7	2.5	.06	.71	15257	.9
FLOAT 1.40	81.3	91.0	3.4	.11	.76	15085	1.0
FLOAT 1.60	85.7	95.1	4.0	.14	.77	14959	1.0
CUM(3/8" X 100M)	100.0	100.0	11.2	.24	.84	13475	1.2
100M X 0	13.4	14.3	6.6	.46	.86	14353	1.2
TOTAL(3/8" X 0)	100.0	100.0	10.6	.27	.84	13593	1.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.8	64.4	1.9	.06	.67	15240	.9
FLOAT 1.40	80.4	90.0	2.9	.11	.70	15058	.9
FLOAT 1.60	87.1	96.8	3.4	.15	.73	14945	1.0
CUM(14M X 0)	100.0	100.0	10.7	.25	.82	13450	1.2

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	43.6
3/8" X 14M	33.5
14M X 100M	19.6
100M X 0	3.3

MOISTURE, %

TOTAL	3.5
AS RECEIVED	.9

STATE: ARKANSAS
COUNTY: SEBASTIAN

BED: UPPER HARTSHORNE
RANK: MED VOLATILE BITUMINOUS

BED CODE: 562
SAMPLE NO. 553

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.90	.80	.70	--	--	--	--	--	--
ASH	11.10	3.47	59.98	11.20	3.50	60.40	--	--	--
VOLATILE MATTER	20.63	18.67	35.15	20.82	18.82	35.40	23.45	19.50	89.39
FIXED CARBON	67.37	77.06	4.17	67.98	77.68	4.20	76.55	80.50	10.61
BTU/LB	13254	14810	3299	13375	14929	3323	15062	15471	8390

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	77.42	85.37	23.61	78.12	86.06	23.78	87.98	89.18	60.05
HYDROGEN	4.06	4.52	1.07	3.99	4.47	1.00	4.50	4.63	2.53
NITROGEN	1.40	1.59	.20	1.42	1.61	.20	1.60	1.66	.51
SULFUR	.81	.73	1.42	.82	.74	1.43	.92	.77	3.61
OXYGEN	5.21	4.31	13.72	4.45	3.63	13.19	5.01	3.76	33.31
ASH	11.10	3.47	59.98	11.20	3.50	60.40	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.26	.13	.92	.26	.14	.93	.29	.14	2.34
SULFATIC	.02	.02	.02	.02	.02	.02	.02	.02	.05
ORGANIC	.54	.58	.48	.54	.59	.48	.61	.61	1.22
TOTAL	.81	.73	1.42	.82	.74	1.43	.92	.77	3.61

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	21.73	35.37	20.03
AL2O3	(ALUMINUM OXIDE)	12.07	21.12	10.94
FE2O3	(IRON OXIDE)	46.90	22.01	54.47
TIO2	(TITANIUM OXIDE)	.33	1.00	.33
CAO	(CALCIUM OXIDE)	5.28	8.68	5.60
MGO	(MAGNESIUM OXIDE)	4.28	4.36	3.95
NA2O	(SODIUM OXIDE)	1.00	2.70	.30
K2O	(POTASSIUM OXIDE)	1.45	2.18	1.25
SO3	(SULFITES)	6.63	2.35	2.92

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	1.73	.69
DOLOMITE	.16	.33
HYDROGEN/CARBON	.61	.62
OXYGEN/CARBON	.04	.03
R250	.39	.65
SILICA	.28	.50
SILICA/ALUMINA	1.80	1.67

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2090	1960	--
SOFTENING TEMPERATURE	(ST)	2140	2000	--
FLUID TEMPERATURE	(FT)	2220	2040	--

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	.00	--	--
NA (SODIUM)	(CALCULATED)	.08	.07	.13
MINERAL MATTER	(PARR)	12.55	4.19	66.02

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	6	7	--
HARDGROVE GRINDABILITY	(HGI)	109	111	--

STATE: ARKANSAS
COUNTY: SEBASTIAN

BED: UPPER HARTSHORNE
RANK: MED VOLATILE BITUMINOUS

BED CODE: 562
SAMPLE NO. 554

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.2	60.4	3.3	.10	.73	15214	1.0
FLOAT 1.40	71.5	82.9	4.6	.14	.79	14955	1.1
FLOAT 1.60	79.2	90.1	6.1	.21	.85	14670	1.2
CUM(1-1/2" X 100M)	100.0	100.0	15.5	.55	1.08	12900	1.7
100M X 0	4.1	4.4	11.2	.43	1.10	13696	1.6
TOTAL(1-1/2" X 0)	100.0	100.0	15.3	.55	1.08	12932	1.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.2	73.4	2.6	.09	.74	15303	1.0
FLOAT 1.40	72.9	87.9	3.5	.15	.80	15135	1.1
FLOAT 1.60	77.2	92.0	4.3	.21	.85	14965	1.1
CUM(3/8" X 100M)	100.0	100.0	16.6	.56	1.11	12551	1.8
100M X 0	12.2	13.7	9.3	.32	.99	14043	1.4
TOTAL(3/8" X 0)	100.0	100.0	15.7	.53	1.10	12733	1.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.0	66.2	2.4	.09	.83	15299	1.1
FLOAT 1.40	75.6	88.4	3.3	.14	.88	15132	1.2
FLOAT 1.60	80.8	93.7	3.9	.20	.94	14999	1.3
CUM(14M X 0)	100.0	100.0	15.1	.50	1.14	12939	1.8

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	45.5
3/8" X 14M	28.3
14M X 100M	22.1
100M X 0	4.1

MOISTURE, %

TOTAL	4.2
AS RECEIVED	.5

STATE: ARKANSAS
COUNTY: SEBASTIAN

BED: UPPER HARTSHORNE
RANK: MED VOLATILE BITUMINOUS

BED CODE: 562
SAMPLE NO. 554

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.50	.80	.60	--	--	--	--	--	--
ASH	15.63	4.02	64.33	15.70	4.06	64.72	--	--	--
VOLATILE MATTER	22.39	20.81	30.00	22.50	20.97	30.18	26.70	21.86	85.54
FIXED CARBON	61.48	74.37	5.07	61.79	74.97	5.10	73.30	78.14	14.46
BTU/LB	12782	14855	3964	12847	14974	3988	15240	15607	11304

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	73.52	85.11	22.86	73.89	85.80	23.00	87.65	89.43	65.20
HYDROGEN	4.16	4.79	1.56	4.12	4.74	1.50	4.89	4.94	4.25
NITROGEN	1.49	1.75	.40	1.49	1.76	.40	1.77	1.84	1.13
SULFUR	1.04	.84	1.97	1.05	.85	1.99	1.24	.88	5.63
OXYGEN	4.17	3.49	8.87	3.75	2.80	8.39	4.44	2.92	23.78
ASH	15.63	4.02	64.33	15.70	4.06	64.72	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.51	.18	1.75	.51	.18	1.76	.61	.19	5.00
SULFATIC	.03	.03	.04	.04	.03	.04	.04	.03	.11
ORGANIC	.50	.63	.18	.50	.64	.18	.59	.66	.52
TOTAL	1.04	.84	1.97	1.05	.85	1.99	1.24	.88	5.63

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	29.83	34.94	29.40
AL2O3	(ALUMINUM OXIDE)	16.59	21.12	16.22
FE2O3	(IRON OXIDE)	38.03	22.30	40.61
TIO2	(TITANIUM OXIDE)	.33	.67	.33
CAO	(CALCIUM OXIDE)	4.20	6.44	3.36
MGO	(MAGNESIUM OXIDE)	3.18	4.41	2.75
NA2O	(SODIUM OXIDE)	1.10	1.50	.70
K2O	(POTASSIUM OXIDE)	1.93	1.95	2.14
SO3	(SULFITES)	4.60	6.49	4.09

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	1.04	.65
DOLOMITE	.15	.30
HYDROGEN/CARBON	.67	.66
OXYGEN/CARBON	.04	.02
R250	.52	.66
SILICA	.40	.52
SILICA/ALUMINA	1.80	1.65

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2005	2055	--
SOFTENING TEMPERATURE (ST)	2115	2145	--
FLUID TEMPERATURE (FT)	2215	2250	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.00	--	--
NA (SODIUM) (CALCULATED)	.13	.05	.34
MINERAL MATTER (PARR)	17.54	4.84	70.99

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	--
HARDGROVE GRINDABILITY (HGI)	111	--	--

STATE: ARKANSAS
COUNTY: SEBASTIAN

BED: UPPER HARTSHORNE
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 562
SAMPLE NO. 555

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	90.0	91.0	2.2	.08	.72	15320	.9
FLOAT 1.40	97.6	98.5	2.3	.09	.72	15290	.9
FLOAT 1.60	98.9	99.7	2.5	.09	.73	15264	1.0
CUM(1-1/2" X 100M)	100.0	100.0	3.1	.09	.72	15149	1.0
100M X 0	3.3	3.2	6.3	.27	.91	14538	1.3
TOTAL(1-1/2" X 0)	100.0	100.0	3.2	.10	.73	15128	1.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	88.9	90.0	2.2	.05	.74	15359	1.0
FLOAT 1.40	97.1	98.1	2.3	.06	.74	15333	1.0
FLOAT 1.60	98.9	99.8	2.4	.06	.74	15311	1.0
CUM(3/8" X 100M)	100.0	100.0	3.1	.07	.74	15179	1.0
100M X 0	13.8	13.7	3.8	.17	.79	15017	1.1
TOTAL(3/8" X 0)	100.0	100.0	3.2	.08	.75	15156	1.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	74.8	76.2	2.0	.08	.74	15374	1.0
FLOAT 1.40	94.0	95.4	2.2	.08	.73	15308	1.0
FLOAT 1.60	98.2	99.5	2.3	.09	.73	15279	1.0
CUM(14M X 0)	100.0	100.0	3.3	.11	.75	15085	1.0

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	43.0
3/8" X 14M	36.2
14M X 100M	17.5
100M X 0	3.3

MOISTURE, %

TOTAL	4.1
AS RECEIVED	.7

STATE: ARKANSAS
COUNTY: SEBASTIAN

BED: UPPER HARTSHORNE
RANK: LOW VOLATILE BITUMINOUS

BED CODE: 562
SAMPLE NO. 555

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.70	.80	.70	--	--	--	--	--	--
ASH	3.38	2.38	59.75	3.40	2.40	60.17	--	--	--
VOLATILE MATTER	18.33	18.39	14.03	18.46	18.54	14.13	19.11	18.99	35.48
FIXED CARBON	77.59	78.43	25.52	78.14	79.06	25.70	80.89	81.01	64.52
BTU/LB	14964	15141	4202	15069	15263	4232	15599	15639	10625

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	86.00	86.92	18.23	86.61	87.62	18.36	89.65	89.78	46.10
HYDROGEN	4.62	4.68	1.16	4.57	4.63	1.09	4.74	4.74	2.75
NITROGEN	1.87	1.90	.26	1.89	1.91	.26	1.95	1.96	.65
SULFUR	.81	.73	2.01	.82	.74	2.03	.84	.76	5.08
OXYGEN	3.32	3.39	18.59	2.72	2.70	18.09	2.81	2.76	45.42
ASH	3.38	2.38	59.75	3.40	2.40	60.17	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.11	.09	1.31	.11	.09	1.32	.11	.09	3.32
SULFATIC	.02	.02	.02	.02	.02	.02	.02	.02	.05
ORGANIC	.68	.62	.68	.69	.63	.68	.71	.65	1.72
TOTAL	.81	.73	2.01	.82	.74	2.03	.84	.76	5.08

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	34.07	25.38	56.68
AL2O3	(ALUMINUM OXIDE)	22.44	21.10	27.15
FE2O3	(IRON OXIDE)	15.56	19.10	8.01
TIO2	(TITANIUM OXIDE)	.57	.60	1.00
CAO	(CALCIUM OXIDE)	7.61	10.10	.84
MGO	(MAGNESIUM OXIDE)	4.29	5.50	1.33
NA2O	(SODIUM OXIDE)	1.70	2.10	.40
K2O	(POTASSIUM OXIDE)	1.76	1.30	3.37
SO3	(SULFITES)	9.85	12.26	.92

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.54	.81
DOLOMITE	.38	.41
HYDROGEN/CARBON	.63	.63
OXYGEN/CARBON	.02	.02
R250	.71	.61
SILICA	.55	.43
SILICA/ALUMINA	1.52	1.20

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2100	2000	--
SOFTENING TEMPERATURE (ST)	2140	2040	--
FLUID TEMPERATURE (FT)	2180	2080	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.01	--	--
NA (SODIUM) (CALCULATED)	.04	.04	.18
MINERAL MATTER (PARR)	4.38	3.00	76.04

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	8 1/2	0 1/2
HARDGROVE GRINDABILITY (HGI)	119	115	--

STATE: ARKANSAS
COUNTY: DALLAS

BED: WILCOX
RANK: LIGNITE A

BED CODE: 900
SAMPLE NO. 556

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	86.1	90.5	12.7	.02	.68	10980	1.2
FLOAT 1.40	93.9	97.0	14.0	.02	.67	10787	1.2
FLOAT 1.60	97.4	99.3	14.9	.02	.67	10648	1.3
CUM(1-1/2" X 100M)	100.0	100.0	16.4	.02	.66	10441	1.3
100M X 0	1.9	1.1	46.8	.12	.50	6133	1.6
TOTAL(1-1/2" X 0)	100.0	100.0	17.0	.02	.66	10359	1.3

SAMPLE CRUSHED TO PASS 3/8"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	81.0	85.8	11.9	.04	.68	11115	1.2
FLOAT 1.40	93.6	97.0	13.5	.04	.68	10875	1.3
FLOAT 1.60	97.0	99.3	14.4	.04	.67	10739	1.2
CUM(3/8" X 100M)	100.0	100.0	16.0	.04	.66	10495	1.3
100M X 0	11.6	8.9	33.4	.04	.52	8042	1.3
TOTAL(3/8" X 0)	100.0	100.0	18.0	.04	.64	10211	1.3

SAMPLE CRUSHED TO PASS 14M

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	78.4	84.2	12.0	.02	.68	11157	1.2
FLOAT 1.40	92.6	97.1	13.5	.02	.69	10894	1.3
FLOAT 1.60	96.5	99.6	14.7	.02	.68	10718	1.3
CUM(14M X 0)	100.0	100.0	17.0	.03	.72	10386	1.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	71.9
3/8" X 14M	20.5
14M X 100M	5.7
100M X 0	1.9

MOISTURE, %

TOTAL	35.8
AS RECEIVED	32.0

STATE: ARKANSAS
COUNTY: DALLAS

BED: WILCOX
RANK: LIGNITE A

BED CODE: 900
SAMPLE NO. 556

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	32.00	21.90	4.20	--	--	--	--	--	--
ASH	11.63	11.56	78.27	17.10	14.80	81.70	--	--	--
VOLATILE MATTER	34.26	40.32	14.08	50.38	51.62	14.70	60.77	60.59	80.33
FIXED CARBON	22.11	26.23	3.45	32.52	33.58	3.60	39.23	39.41	19.67
BTU/LB	7054	8361	1114	10374	10705	1162	12514	12565	6352

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	39.64	46.91	8.14	58.30	60.07	8.50	70.33	70.50	46.45
HYDROGEN	7.05	6.54	1.90	5.14	5.26	1.50	6.20	6.18	8.20
NITROGEN	.70	.83	.19	1.03	1.07	.20	1.25	1.25	1.09
SULFUR	.46	.50	1.75	.68	.64	1.82	.82	.75	9.96
OXYGEN	40.51	33.65	9.75	17.75	18.16	6.28	21.41	21.32	34.30
ASH	11.63	11.56	78.27	17.10	14.80	81.70	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.02	.01	.29	.03	.02	.31	.03	.02	1.67
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.05
ORGANIC	.44	.48	1.44	.64	.61	1.51	.78	.72	8.24
TOTAL	.46	.50	1.75	.68	.64	1.82	.82	.75	9.96

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	43.89	37.50	72.45
AL2O3	(ALUMINUM OXIDE)	26.02	26.78	21.12
FE2O3	(IRON OXIDE)	7.15	8.29	1.14
TIO2	(TITANIUM OXIDE)	1.33	1.33	.67
CAO	(CALCIUM OXIDE)	11.19	13.99	.56
MGO	(MAGNESIUM OXIDE)	1.23	1.46	.20
NA2O	(SODIUM OXIDE)	.19	--	--
K2O	(POTASSIUM OXIDE)	.24	.19	.24
SO3	(SULFITES)	8.17	9.52	.65

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.28	--
DOLOMITE	.62	--
HYDROGEN/CARBON	1.06	1.05
OXYGEN/CARBON	.23	.23
R250	.79	.74
SILICA	.69	.61
SILICA/ALUMINA	1.69	1.40

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2350	2350	--
SOFTENING TEMPERATURE	(ST)	2400	2400	--
FLUID TEMPERATURE	(FT)	2450	2450	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.01	--	--
NA (SODIUM) (CALCULATED)	.02	--	--
MINERAL MATTER (PARR)	18.84	16.34	89.24

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	0	0	--
HARDGROVE GRINDABILITY	(HGI)	71	57	--

STATE: ARKANSAS
COUNTY: DALLAS

BED: WILCOX
RANK: LIGNITE A

BED CODE: 900
SAMPLE NO. 557

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	95.5	97.2	9.7	.44	.75	11538	1.3
FLOAT 1.40	97.6	99.0	9.9	.45	.78	11496	1.3
FLOAT 1.60	98.5	99.5	10.2	.47	.79	11458	1.4
CUM(1-1/2" X 100M)	100.0	100.0	11.0	.57	.88	11337	1.6
100M X 0	1.7	1.5	20.9	1.05	1.86	9877	3.8
TOTAL(1-1/2" X 0)	100.0	100.0	11.2	.58	.90	11312	1.6

SAMPLE CRUSHED TO PASS 3/8"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	93.3	95.3	8.8	.14	.72	11567	1.2
FLOAT 1.40	97.3	98.8	9.4	.17	.74	11491	1.3
FLOAT 1.60	98.5	99.6	9.7	.20	.77	11442	1.3
CUM(3/8" X 100M)	100.0	100.0	10.5	.35	.91	11320	1.6
100M X 0	10.2	9.6	15.6	.41	.95	10635	1.8
TOTAL(3/8" X 0)	100.0	100.0	11.0	.36	.91	11250	1.6

SAMPLE CRUSHED TO PASS 14M

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	90.3	93.5	8.6	.12	.71	11633	1.2
FLOAT 1.40	95.4	97.9	9.2	.14	.73	11534	1.3
FLOAT 1.60	97.7	99.5	9.9	.17	.76	11442	1.3
CUM(14M X 0)	100.0	100.0	11.3	.38	.96	11239	1.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.5
3/8" X 14M	18.7
14M X 100M	6.1
100M X 0	1.7

MOISTURE, %

TOTAL	37.4
AS RECEIVED	34.4

STATE: ARKANSAS
COUNTY: DALLAS

BED: WILCOX
RANK: LIGNITE A

BED CODE: 900
SAMPLE NO. 557

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	34.40	24.30	3.50	--	--	--	--	--	--
ASH	7.71	7.42	70.73	11.75	9.80	73.30	--	--	--
VOLATILE MATTER	33.02	38.88	16.69	50.33	51.36	17.30	57.03	56.94	64.79
FIXED CARBON	24.88	29.40	9.07	37.92	38.84	9.40	42.97	43.06	35.21
BTU/LB	7335	8671	2300	11182	11455	2383	12671	12700	8926

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	41.87	49.52	12.68	63.82	65.42	13.14	72.32	72.53	49.21
HYDROGEN	7.17	6.65	1.93	5.11	5.22	1.60	5.79	5.78	5.99
NITROGEN	.72	.84	.29	1.09	1.11	.30	1.24	1.24	1.12
SULFUR	.55	.60	9.13	.83	.79	9.46	.94	.87	35.43
OXYGEN	41.99	34.97	5.23	17.40	17.66	2.20	19.71	19.58	8.24
ASH	7.71	7.42	70.73	11.75	9.80	73.30	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.26	.14	8.97	.39	.19	9.30	.45	.21	34.83
SULFATIC	.01	.01	.02	.02	.01	.02	.02	.01	.07
ORGANIC	.28	.45	.14	.42	.59	.14	.48	.65	.53
TOTAL	.55	.60	9.13	.83	.79	9.46	.94	.87	35.43

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	50.71	45.17	65.20
AL2O3	(ALUMINUM OXIDE)	23.38	26.78	11.69
FE2O3	(IRON OXIDE)	6.01	4.58	17.16
TIO2	(TITANIUM OXIDE)	2.33	2.66	.33
CAO	(CALCIUM OXIDE)	8.40	10.35	.56
MGO	(MAGNESIUM OXIDE)	1.53	1.76	.43
NA2O	(SODIUM OXIDE)	.19	--	--
K2O	(POTASSIUM OXIDE)	.48	.48	.96
SO3	(SULFITES)	6.11	7.63	.09

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.22	--
DOLOMITE	.60	--
HYDROGEN/CARBON	.96	.96
OXYGEN/CARBON	.21	.20
R250	.84	.83
SILICA	.76	.73
SILICA/ALUMINA	2.17	1.69

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2280	2300	2300
SOFTENING TEMPERATURE	(ST)	2380	2380	2380
FLUID TEMPERATURE	(FT)	2490	2470	2470

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.01	--	--
NA (SODIUM) (CALCULATED)	.02	--	--
MINERAL MATTER (PARR)	13.08	11.02	84.37

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	0	0	0
HARDGROVE GRINDABILITY	(HGI)	64	60	60

STATE: ARKANSAS
COUNTY: OUACHITA

BED: WILCOX
RANK: LIGNITE A

BED CODE: 900
SAMPLE NO. 558

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	88.1	92.7	11.2	.23	1.13	11253	2.0
FLOAT 1.40	94.0	97.8	11.9	.31	1.21	11129	2.2
FLOAT 1.60	95.7	99.1	12.2	.39	1.29	11072	2.3
CUM(1-1/2" X 100M)	100.0	100.0	15.0	.77	1.65	10697	3.1
100M X 0	1.5	1.0	40.8	.43	1.23	6954	3.5
TOTAL(1-1/2" X 0)	100.0	100.0	15.4	.76	1.64	10641	3.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	75.5	81.5	10.3	.17	.96	11407	1.7
FLOAT 1.40	90.6	95.6	11.7	.23	1.02	11151	1.8
FLOAT 1.60	94.8	98.8	12.4	.36	1.15	11014	2.1
CUM(3/8" X 100M)	100.0	100.0	15.7	.79	1.55	10569	2.9
100M X 0	12.6	12.1	18.7	.63	1.44	10142	2.8
TOTAL(3/8" X 0)	100.0	100.0	16.1	.77	1.54	10515	2.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	77.7	84.1	9.5	.13	1.01	11520	1.8
FLOAT 1.40	90.4	95.7	10.8	.16	1.02	11264	1.8
FLOAT 1.60	94.1	98.2	11.8	.25	1.11	11109	2.0
CUM(14M X 0)	100.0	100.0	15.0	.77	1.59	10642	3.0

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	76.6
3/8" X 14M	16.1
14M X 100M	5.8
100M X 0	1.5

MOISTURE, %

TOTAL	35.8
AS RECEIVED	29.2

STATE: ARKANSAS
COUNTY: OUACHITA

BED: WILCOX
RANK: LIGNITE A

BED CODE: 900
SAMPLE NO. 558

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	29.20	11.20	2.50	--	--	--	--	--	--
ASH	11.04	10.74	66.96	15.60	12.10	68.68	--	--	--
VOLATILE MATTER	34.57	45.08	19.72	48.83	50.77	20.22	57.86	57.75	64.56
FIXED CARBON	25.18	32.97	10.82	35.57	37.13	11.10	42.14	42.25	35.44
BTU/LB	7481	9832	2867	10567	11072	2940	12520	12596	9387

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	42.34	55.82	11.60	59.80	62.86	11.90	70.86	71.52	37.99
HYDROGEN	6.86	6.02	1.25	5.11	5.38	1.00	6.06	6.12	3.19
NITROGEN	.66	.87	.20	.93	.98	.20	1.11	1.12	.64
SULFUR	1.22	.99	9.04	1.73	1.12	9.28	2.05	1.27	29.61
OXYGEN	37.87	25.54	10.94	16.82	17.56	8.95	19.93	19.97	28.56
ASH	11.04	10.74	66.96	15.60	12.10	68.68	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.57	.20	8.84	.81	.23	9.06	.96	.26	28.94
SULFATIC	.03	.01	.07	.04	.01	.07	.05	.01	.22
ORGANIC	.62	.78	.14	.88	.88	.14	1.04	1.00	.45
TOTAL	1.22	.99	9.04	1.73	1.12	9.28	2.05	1.27	29.61

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	51.99	49.43	49.86
AL2O3	(ALUMINUM OXIDE)	24.89	39.22	3.02
FE2O3	(IRON OXIDE)	16.59	4.86	41.75
TIO2	(TITANIUM OXIDE)	1.00	1.67	.33
CAO	(CALCIUM OXIDE)	1.12	1.68	.28
MGO	(MAGNESIUM OXIDE)	.53	.76	.09
NA2O	(SODIUM OXIDE)	.08	--	--
K2O	(POTASSIUM OXIDE)	.18	.23	.14
SO3	(SULFITES)	.77	1.31	.15

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.24	--
DOLOMITE	.09	--
HYDROGEN/CARBON	1.03	1.03
OXYGEN/CARBON	.21	.21
R250	.81	.93
SILICA	.74	.87
SILICA/ALUMINA	2.09	1.26

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2430	2910+	--
SOFTENING TEMPERATURE (ST)	2480	2910+	--
FLUID TEMPERATURE (FT)	2540	2910+	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.00	--	--
NA (SODIUM) (CALCULATED)	.01	--	--
MINERAL MATTER (PARR)	17.80	13.68	79.27

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	0	0	--
HARDGROVE GRINDABILITY (HGI)	70	54	--

STATE: ARKANSAS
COUNTY: SALINE

BED: WILCOX
RANK: LIGNITE B

BED CODE: 900
SAMPLE NO. 559

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.8	59.5	19.2	.19	1.58	9139	3.5
FLOAT 1.40	55.9	74.0	22.6	.18	1.50	8707	3.4
FLOAT 1.60	77.9	91.4	30.7	.16	1.31	7712	3.4
CUM(1-1/2" X 100M)	100.0	100.0	39.4	.17	1.14	6575	3.5
100M X 0	1.0	1.0	42.4	.67	1.52	6276	4.8
TOTAL(1-1/2" X 0)	100.0	100.0	39.4	.18	1.14	6573	3.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	36.6	54.1	17.3	.12	1.52	9600	3.2
FLOAT 1.40	50.5	70.4	21.5	.12	1.52	9050	3.4
FLOAT 1.60	71.7	88.8	29.4	.13	1.29	8039	3.2
CUM(3/8" X 100M)	100.0	100.0	40.9	.14	1.06	6492	3.3
100M X 0	5.6	5.1	45.2	.49	1.29	5909	4.4
TOTAL(3/8" X 0)	100.0	100.0	41.1	.16	1.07	6459	3.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.7	42.4	16.1	.09	1.47	9830	3.0
FLOAT 1.40	42.4	62.7	21.0	.09	1.43	9164	3.1
FLOAT 1.60	70.6	88.2	31.9	.11	1.24	7743	3.2
CUM(14M X 0)	100.0	100.0	43.4	.13	1.00	6196	3.2

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	78.9
3/8" X 14M	15.7
14M X 100M	4.4
100M X 0	1.0

MOISTURE, %

TOTAL	36.5
AS RECEIVED	32.7

STATE: ARKANSAS
COUNTY: SALINE

BED: WILCOX
RANK: LIGNITE B

BED CODE: 900
SAMPLE NO. 559

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	32.70	7.30	3.00	--	--	--	--	--	--
ASH	27.73	29.74	69.84	41.20	32.08	72.00	--	--	--
VOLATILE MATTER	23.46	35.60	20.95	34.86	38.40	21.60	59.29	56.54	77.14
FIXED CARBON	16.11	27.36	6.21	23.94	29.52	6.40	40.71	43.46	22.86
BTU/LB	4308	7159	2323	6401	7723	2395	10886	11371	8553

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	25.89	41.59	13.74	38.46	44.86	14.16	65.41	66.05	50.57
HYDROGEN	5.82	4.29	2.27	3.25	3.75	2.00	5.53	5.52	7.14
NITROGEN	.44	.71	.29	.65	.77	.30	1.11	1.13	1.07
SULFUR	.70	1.15	.42	1.04	1.25	.43	1.77	1.83	1.53
OXYGEN	39.42	22.52	13.44	15.39	17.29	11.11	26.17	25.46	39.68
ASH	27.73	29.74	69.84	41.20	32.08	72.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.10	.11	.17	.15	.12	.18	.25	.18	.64
SULFATIC	.03	.04	.05	.05	.04	.05	.08	.06	.18
ORGANIC	.57	1.01	.19	.85	1.08	.20	1.45	1.60	.72
TOTAL	.70	1.15	.42	1.04	1.25	.43	1.77	1.83	1.53

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	56.68	53.69	60.94
AL2O3	(ALUMINUM OXIDE)	29.04	28.66	29.79
FE2O3	(IRON OXIDE)	3.58	4.29	3.15
TIO2	(TITANIUM OXIDE)	1.00	1.00	1.00
CAO	(CALCIUM OXIDE)	3.08	4.48	1.12
MGO	(MAGNESIUM OXIDE)	.96	1.19	.66
NA2O	(SODIUM OXIDE)	.27	--	--
K2O	(POTASSIUM OXIDE)	1.20	1.20	1.20
SO3	(SULFITES)	3.33	4.50	.37

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.10	--
DOLOMITE	.44	--
HYDROGEN/CARBON	1.01	1.00
OXYGEN/CARBON	.30	.29
R250	.93	.90
SILICA	.88	.85
SILICA/ALUMINA	1.95	1.87

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2560	--
SOFTENING TEMPERATURE (ST)	2910+	2650	--
FLUID TEMPERATURE (FT)	2910+	2850	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.00	--	--
NA (SODIUM) (CALCULATED)	.08	--	--
MINERAL MATTER (PARR)	45.07	35.33	78.00

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	0	0	--
HARDGROVE GRINDABILITY (HGI)	82	--	--

STATE: ILLINOIS
COUNTY: FULTON

BED: NO.2
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 496
SAMPLE NO. 560

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.6	69.7	4.8	1.44	2.73	13548	4.0
FLOAT 1.40	68.7	85.3	5.5	1.68	3.04	13429	4.5
FLOAT 1.60	77.6	94.2	7.3	2.12	3.58	13123	5.5
FLOAT 1.90	82.0	97.3	9.0	2.42	3.94	12835	6.1
CUM(1-1/2" X 100M)	100.0	100.0	20.9	4.04	5.49	10814	10.2
100M X 0	.3	.2	39.3	4.77	5.27	7689	13.7
TOTAL(1-1/2" X 0)	100.0	100.0	21.0	4.04	5.49	10805	10.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.9	32.5	3.7	1.09	2.27	13735	3.3
FLOAT 1.40	69.2	85.5	4.9	1.50	2.80	13531	4.1
FLOAT 1.60	78.6	94.9	6.7	1.92	3.33	13225	5.0
FLOAT 1.90	82.0	97.3	9.0	2.42	3.94	12835	6.1
CUM(3/8" X 100M)	100.0	100.0	20.1	4.17	5.52	10950	10.1
100M X 0	1.0	.8	34.0	5.15	6.36	8589	14.8
TOTAL(3/8" X 0)	100.0	100.0	20.2	4.18	5.53	10926	10.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.5	39.2	3.2	.85	2.01	13820	2.9
FLOAT 1.40	68.6	86.9	4.3	1.19	2.45	13633	3.6
FLOAT 1.60	76.1	94.7	5.7	1.46	2.76	13395	4.1
FLOAT 1.90	82.0	97.3	9.0	2.42	3.94	12835	6.1
CUM(14M X 0)	100.0	100.0	21.2	4.40	5.56	10763	10.3

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	3.8
AS RECEIVED	2.0

STATE: ILLINOIS
COUNTY: FULTON

BED: NO.2
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 496
SAMPLE NO. 560

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.00	--	--	--	--	--	--	--	--
ASH	21.27	--	--	21.70	--	--	--	--	--
VOLATILE MATTER	35.48	--	--	36.20	--	--	46.23	--	--
FIXED CARBON	41.26	--	--	42.10	--	--	53.77	--	--
BTU/LB	10880	--	--	11102	--	--	14179	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	5.24	--	--	5.35	--	--	6.83	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	21.27	--	--	21.70	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.82	--	--	3.90	--	--	4.98	--	--
SULFATIC	.14	--	--	.15	--	--	.19	--	--
ORGANIC	1.28	--	--	1.31	--	--	1.67	--	--
TOTAL	5.24	--	--	5.35	--	--	6.83	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	26.38	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: PEORIA

BED: NO.2
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 496
SAMPLE NO. 561

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	71.3	80.2	4.2	.85	2.80	13650	4.1
FLOAT 1.40	83.2	93.0	4.7	1.10	3.07	13565	4.5
FLOAT 1.60	87.2	96.6	5.4	1.33	3.31	13446	4.9
FLOAT 1.90	89.9	98.3	6.4	1.54	3.51	13276	5.3
CUM(1-1/2" X 100M)	100.0	100.0	13.1	3.35	5.21	12138	8.6
100M X 0	.2	.1	35.7	4.58	5.43	8301	13.1
TOTAL(1-1/2" X 0)	100.0	100.0	13.1	3.35	5.21	12131	8.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.9	62.5	2.9	.49	2.45	13871	3.5
FLOAT 1.40	83.5	94.0	3.8	.77	2.79	13718	4.1
FLOAT 1.60	86.9	97.2	4.3	.96	2.99	13633	4.4
FLOAT 1.90	89.9	98.3	6.4	1.54	3.51	13276	5.3
CUM(3/8" X 100M)	100.0	100.0	12.8	3.26	5.23	12189	8.6
100M X 0	.7	.6	22.5	5.24	6.65	10542	12.6
TOTAL(3/8" X 0)	100.0	100.0	12.9	3.27	5.24	12178	8.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.5	52.1	2.7	.39	2.34	13905	3.4
FLOAT 1.40	79.7	90.1	3.8	.66	2.66	13718	3.9
FLOAT 1.60	87.0	97.0	4.9	.98	3.00	13531	4.4
FLOAT 1.90	89.9	98.3	6.4	1.54	3.51	13276	5.3
CUM(14M X 0)	100.0	100.0	13.1	3.24	5.22	12138	8.6

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	14.4
AS RECEIVED	8.0

STATE: ILLINOIS
COUNTY: PEORIA

BED: NO.2
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 496
SAMPLE NO. 561

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	8.00	--	--	--	--	--	--	--	--
ASH	11.57	--	--	12.58	--	--	--	--	--
VOLATILE MATTER	40.40	--	--	43.91	--	--	50.23	--	--
FIXED CARBON	40.03	--	--	43.51	--	--	49.77	--	--
BTU/LB	12516	--	--	13605	--	--	15562	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.86	--	--	5.28	--	--	6.04	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	11.57	--	--	12.58	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.18	--	--	3.45	--	--	3.95	--	--
SULFATIC	.09	--	--	.10	--	--	.11	--	--
ORGANIC	1.59	--	--	1.73	--	--	1.98	--	--
TOTAL	4.86	--	--	5.28	--	--	6.04	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	16.49	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: FRANKLIN

BED: NO.5
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 562

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.0	55.1	3.9	.46	1.91	13701	2.8
FLOAT 1.40	81.8	89.1	6.4	.60	2.03	13276	3.1
FLOAT 1.60	90.7	96.9	7.9	.72	2.13	13022	3.3
FLOAT 1.90	93.1	98.4	8.7	.87	2.28	12886	3.5
CUM(1-1/2" X 100M)	100.0	100.0	12.8	1.77	3.15	12189	5.2
100M X 0	.5	.5	16.0	1.97	3.06	11646	5.3
TOTAL(1-1/2" X 0)	100.0	100.0	12.8	1.77	3.15	12187	5.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.9	50.8	3.1	.39	1.83	13837	2.6
FLOAT 1.40	78.9	86.9	5.3	.55	1.93	13463	2.9
FLOAT 1.60	89.9	96.6	7.2	.65	2.01	13140	3.1
FLOAT 1.90	93.1	98.4	8.7	.87	2.28	12886	3.5
CUM(3/8" X 100M)	100.0	100.0	12.6	1.74	3.07	12223	5.0
100M X 0	1.2	1.2	15.4	2.50	3.67	11748	6.2
TOTAL(3/8" X 0)	100.0	100.0	12.6	1.75	3.08	12218	5.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.3	39.1	2.7	.37	1.82	13905	2.6
FLOAT 1.40	75.5	83.2	5.5	.54	1.94	13429	2.9
FLOAT 1.60	90.0	96.6	7.5	.66	2.02	13089	3.1
FLOAT 1.90	93.1	98.4	8.7	.87	2.28	12886	3.5
CUM(14M X 0)	100.0	100.0	12.8	1.77	3.08	12189	5.1

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	4.4
AS RECEIVED	2.3

STATE: ILLINOIS
COUNTY: FRANKLIN

BED: NO.5
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 562

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.30	--	--	--	--	--	--	--	--
ASH	12.90	--	--	13.20	--	--	--	--	--
VOLATILE MATTER	32.92	--	--	33.70	--	--	38.82	--	--
FIXED CARBON	51.88	--	--	53.10	--	--	61.18	--	--
BTU/LB	12109	--	--	12394	--	--	14279	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.95	--	--	3.02	--	--	3.48	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	12.90	--	--	13.20	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.88	--	--	1.92	--	--	2.21	--	--
SULFATIC	.06	--	--	.06	--	--	.07	--	--
ORGANIC	1.02	--	--	1.04	--	--	1.20	--	--
TOTAL	2.95	--	--	3.02	--	--	3.48	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.66	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.06	--	--
MINERAL MATTER (PARR)	15.92	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: FULTON

BED: NO.5
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 489
SAMPLE NO. 563

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.6	61.8	7.2	.42	2.54	13140	3.9
FLOAT 1.40	88.5	90.5	8.3	.65	2.76	12954	4.3
FLOAT 1.60	97.8	98.7	9.3	.97	3.07	12784	4.8
CUM(1-1/2" X 100M)	100.0	100.0	10.0	1.10	3.17	12665	5.0
100M X 0	.8	.7	18.5	1.77	3.39	11222	6.0
TOTAL(1-1/2" X 0)	100.0	100.0	10.1	1.11	3.17	12653	5.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.2	44.4	6.2	.43	2.56	13310	3.8
FLOAT 1.40	82.3	85.4	7.3	.53	2.66	13123	4.1
FLOAT 1.60	96.0	97.7	8.8	.92	3.02	12869	4.7
CUM(3/8" X 100M)	100.0	100.0	10.1	1.15	3.20	12648	5.1
100M X 0	1.9	1.8	15.0	1.68	3.48	11816	5.9
TOTAL(3/8" X 0)	100.0	100.0	10.2	1.16	3.21	12632	5.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	7.4	7.9	4.4	.50	2.45	13616	3.6
FLOAT 1.40	82.3	85.6	6.7	.49	2.60	13225	3.9
FLOAT 1.60	95.2	97.5	7.9	.66	2.81	13022	4.3
CUM(14M X 0)	100.0	100.0	9.7	1.04	3.12	12716	4.9

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	69.2
3/8" X 14M	25.1
14M X 100M	4.9
100M X 0	.8

MOISTURE, %

TOTAL	8.2
AS RECEIVED	5.6

STATE: ILLINOIS
COUNTY: FULTON

BED: NO.5
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 489
SAMPLE NO. 563

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.60	4.20	3.20	--	--	--	--	--	--
ASH	9.52	7.47	44.43	10.09	7.80	45.90	--	--	--
VOLATILE MATTER	40.46	41.08	--	42.87	42.88	--	47.67	46.51	--
FIXED CARBON	44.41	47.24	--	47.05	49.32	--	52.33	53.49	--
BTU/LB	11906	12617	--	12612	13170	--	14027	14284	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.16	2.68	8.97	3.35	2.80	9.27	3.72	3.03	17.13
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	9.52	7.47	44.43	10.09	7.80	45.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.14	.64	8.30	1.21	.67	8.58	1.35	.72	15.85
SULFATIC	.03	.03	.03	.03	.03	.03	.03	.03	.06
ORGANIC	1.99	2.01	.64	2.10	2.10	.66	2.34	2.28	1.22
TOTAL	3.16	2.68	8.97	3.35	2.80	9.27	3.72	3.03	17.13

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.67	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2010	2140	--
SOFTENING TEMPERATURE	(ST)	2060	2200	--
FLUID TEMPERATURE	(FT)	2250	2440	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.05	--	--
MINERAL MATTER (PARR)	12.73	9.96	54.67

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	3	3 1/2	--
HARDGROVE GRINDABILITY	(HGI)	56	53	--

STATE: ILLINOIS
COUNTY: FULTON

BED: NO.5
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 564

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.1	71.6	7.7	.55	2.67	12963	4.1
FLOAT 1.40	86.1	89.7	8.4	.76	2.88	12848	4.5
FLOAT 1.60	95.4	97.7	9.8	1.09	3.20	12620	5.1
CUM(1-1/2" X 100M)	100.0	100.0	11.6	1.46	3.55	12326	5.8
100M X 0	.6	.5	21.8	1.99	3.64	10662	6.8
TOTAL(1-1/2" X 0)	100.0	100.0	11.7	1.46	3.55	12316	5.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.6	66.5	6.7	.47	2.68	13126	4.1
FLOAT 1.40	87.8	90.8	7.6	.65	2.84	12979	4.4
FLOAT 1.60	96.7	98.5	8.8	.97	3.15	12783	4.9
CUM(3/8" X 100M)	100.0	100.0	10.2	1.30	3.45	12555	5.5
100M X 0	1.8	1.6	18.1	1.03	3.82	11266	6.8
TOTAL(3/8" X 0)	100.0	100.0	10.3	1.30	3.46	12532	5.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.0	11.3	2.2	.18	2.42	13860	3.5
FLOAT 1.40	83.7	89.4	6.6	.51	2.73	13142	4.2
FLOAT 1.60	92.0	96.1	8.3	.80	3.03	12865	4.7
CUM(14M X 0)	100.0	100.0	11.7	1.46	3.65	12310	5.9

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	6.9
AS RECEIVED	4.2

STATE: ILLINOIS
COUNTY: FULTON

BED: NO.5
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 564

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.20	5.40	4.70	--	--	--	--	--	--
ASH	11.21	7.47	49.46	11.70	7.90	51.90	--	--	--
VOLATILE MATTER	40.24	41.91	--	42.00	44.30	--	47.57	48.10	--
FIXED CARBON	44.36	45.22	--	46.30	47.80	--	52.43	51.90	--
BTU/LB	11793	12232	--	12310	12930	--	13941	14039	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.50	2.80	10.29	3.66	2.96	10.80	4.14	3.21	22.44
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	11.21	7.47	49.46	11.70	7.90	51.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.40	.74	8.62	1.46	.78	9.05	1.65	.85	18.81
SULFATIC	.02	.01	.04	.03	.01	.04	.03	.01	.08
ORGANIC	2.08	2.05	1.62	2.17	2.17	1.71	2.46	2.36	3.54
TOTAL	3.50	2.80	10.29	3.66	2.96	10.80	4.14	3.21	22.44

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.42	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	1950	2080	--
SOFTENING TEMPERATURE	(ST)	1980	2130	--
FLUID TEMPERATURE	(FT)	2010	2190	--

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	--	--	--
NA (SODIUM)	(CALCULATED)	.04	--	--
MINERAL MATTER	(PARR)	14.65	10.16	61.99

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: FULTON

BED: NO.5
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 565

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.0	52.9	8.0	.60	2.62	13005	4.0
FLOAT 1.40	69.2	81.5	9.6	.99	2.97	12733	4.7
FLOAT 1.60	81.8	94.0	11.4	1.35	3.28	12427	5.3
FLOAT 1.90	87.2	97.7	13.2	1.55	3.43	12122	5.7
CUM(1-1/2" X 100M)	100.0	100.0	20.9	2.47	4.17	10814	7.7
100M X 0	.2	.2	32.9	1.95	3.06	8776	7.0
TOTAL(1-1/2" X 0)	100.0	100.0	20.9	2.47	4.17	10810	7.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.0	38.4	6.8	.58	2.59	13208	3.9
FLOAT 1.40	69.4	81.7	8.3	.76	2.73	12954	4.2
FLOAT 1.60	83.0	95.2	10.3	1.05	2.98	12614	4.7
FLOAT 1.90	87.2	97.7	13.2	1.55	3.43	12122	5.7
CUM(3/8" X 100M)	100.0	100.0	19.8	2.26	3.98	11001	7.2
100M X 0	.9	.8	30.2	2.55	4.72	9235	10.2
TOTAL(3/8" X 0)	100.0	100.0	19.9	2.26	3.99	10985	7.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.8	31.0	4.8	.48	2.44	13548	3.6
FLOAT 1.40	65.6	79.3	7.4	.66	2.60	13106	4.0
FLOAT 1.60	81.3	95.4	9.6	.97	2.85	12733	4.5
FLOAT 1.90	87.2	97.7	13.2	1.55	3.43	12122	5.7
CUM(14M X 0)	100.0	100.0	20.7	2.37	4.04	10848	7.4

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	2.5
AS RECEIVED	1.1

STATE: ILLINOIS
COUNTY: FULTON

BED: NO.5
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 565

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.10	--	--	--	--	--	--	--	--
ASH	19.78	--	--	20.00	--	--	--	--	--
VOLATILE MATTER	37.78	--	--	38.20	--	--	47.75	--	--
FIXED CARBON	41.34	--	--	41.80	--	--	52.25	--	--
BTU/LB	11087	--	--	11210	--	--	14013	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.81	--	--	3.86	--	--	4.82	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	19.78	--	--	20.00	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.58	--	--	2.60	--	--	3.25	--	--
SULFATIC	.07	--	--	.07	--	--	.09	--	--
ORGANIC	1.17	--	--	1.18	--	--	1.48	--	--
TOTAL	3.81	--	--	3.86	--	--	4.82	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.47	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.07	--	--
MINERAL MATTER (PARR)	23.72	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: FULTON

BED: NO.5
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 489
SAMPLE NO. 566

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.1	68.0	8.6	1.12	2.73	12903	4.2
FLOAT 1.40	83.0	87.2	9.4	1.19	2.88	12767	4.5
FLOAT 1.60	94.0	96.8	10.9	1.46	3.19	12512	5.1
CUM(1-1/2" X 100M)	100.0	100.0	13.0	1.92	3.63	12155	6.0
100M X 0	.5	.4	22.9	2.90	4.51	10474	8.6
TOTAL(1-1/2" X 0)	100.0	100.0	13.0	1.92	3.63	12147	6.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.4	56.0	6.4	.48	2.69	13276	4.1
FLOAT 1.40	81.9	87.3	8.1	.75	2.87	12988	4.4
FLOAT 1.60	91.6	95.9	9.4	1.04	3.12	12767	4.9
CUM(3/8" X 100M)	100.0	100.0	12.8	1.74	3.75	12189	6.2
100M X 0	1.9	1.7	19.3	2.62	4.38	11086	7.9
TOTAL(3/8" X 0)	100.0	100.0	12.9	1.76	3.76	12168	6.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	4.8	5.5	3.3	.27	1.68	13803	2.4
FLOAT 1.40	71.9	78.8	6.1	.48	2.48	13327	3.7
FLOAT 1.60	93.9	98.5	9.5	.85	2.90	12750	4.5
CUM(14M X 0)	100.0	100.0	13.0	1.79	3.81	12155	6.3

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	7.8
AS RECEIVED	5.1

STATE: ILLINOIS
COUNTY: FULTON

BED: NO.5
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 489
SAMPLE NO. 566

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.10	4.08	3.00	--	--	--	--	--	--
ASH	12.72	8.15	72.31	13.40	8.50	74.55	--	--	--
VOLATILE MATTER	39.57	42.01	--	41.70	43.80	--	48.15	47.87	--
FIXED CARBON	42.61	45.75	--	44.90	47.70	--	51.85	52.13	--
BTU/LB	11284	12681	--	11890	13220	--	13730	14448	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.69	2.82	17.31	3.89	2.94	17.84	4.49	3.21	70.10
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	12.72	8.15	72.31	13.40	8.50	74.55	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.79	.86	15.77	1.89	.90	16.26	2.18	.98	63.88
SULFATIC	.02	.00	.05	.03	.00	.05	.03	.00	.20
ORGANIC	1.87	1.96	1.49	1.97	2.04	1.53	2.27	2.23	6.02
TOTAL	3.69	2.82	17.31	3.89	2.94	17.84	4.49	3.21	70.10

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.80	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	1940	2070	--
SOFTENING TEMPERATURE	(ST)	1990	2120	--
FLUID TEMPERATURE	(FT)	2050	2340	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.08	--	--
MINERAL MATTER (PARR)	16.61	10.80	90.32

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: GALLATIN

BED: NO.5
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 489
SAMPLE NO. 567

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.9	42.9	4.6	.41	2.29	13582	3.4
FLOAT 1.40	68.5	88.3	7.9	.84	2.51	13022	3.9
FLOAT 1.60	77.2	96.9	9.9	1.22	2.82	12682	4.4
FLOAT 1.90	79.7	99.0	10.7	1.50	3.07	12546	4.9
CUM(1-1/2" X 100M)	100.0	100.0	25.1	2.74	4.06	10101	8.0
100M X 0	.4	.4	30.2	2.95	4.46	9235	9.7
TOTAL(1-1/2" X 0)	100.0	100.0	25.1	2.74	4.06	10097	8.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.3	34.2	3.8	.33	2.25	13718	3.3
FLOAT 1.40	62.7	80.8	7.7	.84	2.60	13055	4.0
FLOAT 1.60	78.1	96.3	11.0	1.33	3.02	12495	4.8
FLOAT 1.90	79.7	99.0	10.7	1.50	3.07	12546	4.9
CUM(3/8" X 100M)	100.0	100.0	24.9	2.86	4.29	10135	8.5
100M X 0	.3	.3	27.3	3.27	4.56	9727	9.4
TOTAL(3/8" X 0)	100.0	100.0	24.9	2.86	4.29	10134	8.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	21.5	29.4	3.2	.26	2.27	13820	3.3
FLOAT 1.40	59.9	78.0	7.1	.98	2.51	13157	3.8
FLOAT 1.60	76.5	95.4	10.4	1.35	2.77	12597	4.4
FLOAT 1.90	79.7	99.0	10.7	1.50	3.07	12546	4.9
CUM(14M X 0)	100.0	100.0	25.1	2.77	3.94	10101	7.8

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.4

MOISTURE, %

TOTAL	4.9
AS RECEIVED	3.3

STATE: ILLINOIS
COUNTY: GALLATIN

BED: NO.5
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 489
SAMPLE NO. 567

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.30	--	--	--	--	--	--	--	--
ASH	25.24	--	--	26.10	--	--	--	--	--
VOLATILE MATTER	33.35	--	--	34.49	--	--	46.67	--	--
FIXED CARBON	38.11	--	--	39.41	--	--	53.34	--	--
BTU/LB	10622	--	--	10985	--	--	14865	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.15	--	--	4.29	--	--	5.81	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	25.24	--	--	26.10	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.55	--	--	2.64	--	--	3.57	--	--
SULFATIC	.04	--	--	.04	--	--	.05	--	--
ORGANIC	1.56	--	--	1.61	--	--	2.18	--	--
TOTAL	4.15	--	--	4.29	--	--	5.81	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.75	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.15	--	--
MINERAL MATTER (PARR)	30.55	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: PERRY

BED: NO.5
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 489
SAMPLE NO. 568

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.2	62.7	5.3	.36	3.02	13462	4.5
FLOAT 1.40	91.5	94.8	7.1	.43	3.04	13161	4.6
FLOAT 1.60	94.0	97.0	7.4	.48	3.07	13110	4.7
CUM(1-1/2" X 100M)	100.0	100.0	9.8	1.23	3.71	12708	5.8
100M X 0	1.2	1.1	17.8	1.51	3.04	11365	5.3
TOTAL(1-1/2" X 0)	100.0	100.0	9.9	1.23	3.70	12691	5.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.6	56.2	4.4	.29	3.03	13613	4.5
FLOAT 1.40	88.7	92.7	6.2	.39	3.04	13312	4.6
FLOAT 1.60	94.0	97.3	6.9	.42	3.04	13194	4.6
CUM(3/8" X 100M)	100.0	100.0	9.6	1.23	3.77	12741	5.9
100M X 0	4.8	4.6	12.6	1.31	3.45	12238	5.6
TOTAL(3/8" X 0)	100.0	100.0	9.7	1.23	3.75	12717	5.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.3	53.3	3.5	.28	2.96	13764	4.3
FLOAT 1.40	81.1	86.1	5.0	.35	3.00	13513	4.4
FLOAT 1.60	93.2	97.1	6.5	.41	3.00	13261	4.5
CUM(14M X 0)	100.0	100.0	9.7	1.35	3.82	12724	6.0

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	76.7
3/8" X 14M	17.3
14M X 100M	4.8
100M X 0	1.2

MOISTURE, %

TOTAL	9.3
AS RECEIVED	7.2

STATE: ILLINOIS
COUNTY: PERRY

BED: NO.5
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 489
SAMPLE NO. 568

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	7.20	3.30	2.20	--	--	--	--	--	--
ASH	9.36	6.58	53.40	10.09	6.80	54.60	--	--	--
VOLATILE MATTER	39.06	41.15	35.31	42.10	42.56	36.10	46.82	45.66	79.52
FIXED CARBON	44.37	48.97	9.10	47.82	50.64	9.30	53.18	54.34	20.48
BTU/LB	11522	12994	5094	12416	13437	5209	13809	14418	11473

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	65.21	71.34	21.73	70.27	73.77	22.22	78.15	79.16	48.94
HYDROGEN	5.18	5.19	1.22	4.72	4.99	1.00	5.25	5.35	2.20
NITROGEN	1.18	1.29	.29	1.27	1.34	.30	1.41	1.43	.66
SULFUR	3.51	2.94	14.73	3.78	3.05	15.06	4.21	3.27	33.18
OXYGEN	15.56	12.66	8.62	9.87	10.06	6.82	10.98	10.79	15.01
ASH	9.36	6.58	53.40	10.09	6.80	54.60	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.24	.44	13.92	1.34	.45	14.23	1.49	.48	31.35
SULFATIC	.01	.01	.02	.02	.01	.02	.02	.01	.04
ORGANIC	2.26	2.50	.79	2.43	2.58	.81	2.70	2.77	1.78
TOTAL	3.51	2.94	14.73	3.78	3.05	15.06	4.21	3.27	33.18

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.38	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.81	.81
OXYGEN/CARBON	.11	.10
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2000	2410	2170
SOFTENING TEMPERATURE (ST)	2050	2460	2200
FLUID TEMPERATURE (FT)	2100	2580	2230

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.08	--	--
NA (SODIUM) (CALCULATED)	.03	--	--
MINERAL MATTER (PARR)	12.97	9.02	67.25

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3	3 1/2	--
HARDGROVE GRINDABILITY (HGI)	60	59	--

STATE: ILLINOIS
COUNTY: PERRY

BED: NO.5
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 569

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.5	26.2	3.4	.42	2.67	13786	3.9
FLOAT 1.40	79.6	88.1	7.5	.84	3.09	13089	4.7
FLOAT 1.60	88.1	95.8	8.8	1.14	3.37	12869	5.2
FLOAT 1.90	91.2	98.0	9.7	1.39	3.61	12716	5.7
CUM(1-1/2" X 100M)	100.0	100.0	14.9	2.54	4.66	11833	7.9
100M X 0	.2	.2	24.2	2.41	3.65	10254	7.1
TOTAL(1-1/2" X 0)	100.0	100.0	14.9	2.54	4.66	11830	7.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.8	32.7	2.8	.37	2.66	13888	3.8
FLOAT 1.40	73.1	82.3	6.2	.68	2.93	13310	4.4
FLOAT 1.60	87.2	95.6	8.3	.89	3.10	12954	4.8
FLOAT 1.90	91.2	98.0	9.7	1.39	3.61	12716	5.7
CUM(3/8" X 100M)	100.0	100.0	15.0	2.38	4.48	11816	7.6
100M X 0	.9	.8	22.2	3.51	5.14	10593	9.7
TOTAL(3/8" X 0)	100.0	100.0	15.1	2.39	4.49	11805	7.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.5	33.9	2.4	.36	2.59	13955	3.7
FLOAT 1.40	69.2	79.0	5.6	.60	2.83	13412	4.2
FLOAT 1.60	85.6	94.6	8.1	.87	3.03	12988	4.7
FLOAT 1.90	91.2	98.0	9.7	1.39	3.61	12716	5.7
CUM(14M X 0)	100.0	100.0	15.4	2.48	4.55	11748	7.7

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	11.5
AS RECEIVED	6.4

STATE: ILLINOIS
COUNTY: PERRY

BED: NO.5
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 569

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	6.40	--	--	--	--	--	--	--	--
ASH	14.60	--	--	15.60	--	--	--	--	--
VOLATILE MATTER	35.85	--	--	38.30	--	--	45.38	--	--
FIXED CARBON	43.15	--	--	46.10	--	--	54.62	--	--
BTU/LB	12086	--	--	12912	--	--	15299	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.23	--	--	4.52	--	--	5.36	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	14.60	--	--	15.60	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.41	--	--	2.57	--	--	3.05	--	--
SULFATIC	.07	--	--	.07	--	--	.08	--	--
ORGANIC	1.76	--	--	1.88	--	--	2.23	--	--
TOTAL	4.23	--	--	4.52	--	--	5.36	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.62	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.07	--	--
MINERAL MATTER (PARR)	19.33	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: RANDOLPH

BED: NO.5
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 570

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.0	49.0	4.3	.42	3.05	13811	4.4
FLOAT 1.40	72.5	79.7	6.9	1.05	3.60	13308	5.4
FLOAT 1.60	91.1	95.3	10.2	2.05	4.49	12669	7.1
CUM(1-1/2" X 100M)	100.0	100.0	13.1	3.41	5.74	12108	9.5
100M X 0	.8	.7	18.5	3.41	5.09	11062	9.2
TOTAL(1-1/2" X 0)	100.0	100.0	13.1	3.41	5.73	12099	9.5

SAMPLE CRUSHED TO PASS 3/8"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.4	53.1	3.9	.42	2.98	13889	4.3
FLOAT 1.40	72.6	80.4	6.3	.91	3.42	13424	5.1
FLOAT 1.60	89.9	94.8	9.6	1.75	4.15	12785	6.5
CUM(3/8" X 100M)	100.0	100.0	13.0	3.32	5.64	12127	9.3
100M X 0	2.1	2.0	15.9	4.08	6.16	11566	10.7
TOTAL(3/8" X 0)	100.0	100.0	13.1	3.34	5.65	12115	9.3

SAMPLE CRUSHED TO PASS 14M

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.6	55.6	3.4	.39	2.85	13985	4.1
FLOAT 1.40	67.8	76.7	5.7	.78	3.04	13540	4.5
FLOAT 1.60	85.3	91.9	9.0	1.41	3.71	12901	5.8
CUM(14M X 0)	100.0	100.0	13.8	3.68	5.91	11972	9.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

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

MOISTURE, %

TOTAL	4.8
AS RECEIVED	2.1

STATE: ILLINOIS
COUNTY: RANDOLPH

BED: NO.5
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 570

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.10	3.00	2.70	--	--	--	--	--	--
ASH	12.97	8.54	42.15	13.25	8.80	43.32	--	--	--
VOLATILE MATTER	41.88	44.14	--	42.78	45.50	--	49.31	49.89	--
FIXED CARBON	43.05	44.33	--	43.97	45.70	--	50.69	50.11	--
BTU/LB	11825	12552	--	12079	12940	--	13924	14189	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	5.57	3.73	18.18	5.69	3.85	18.69	6.56	4.22	32.97
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	12.97	8.54	42.15	13.25	8.80	43.32	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.23	1.32	16.40	3.30	1.36	16.85	3.80	1.49	29.73
SULFATIC	.01	.00	.02	.01	.00	.02	.01	.00	.04
ORGANIC	2.33	2.42	1.76	2.38	2.49	1.81	2.74	2.73	3.20
TOTAL	5.57	3.73	18.18	5.69	3.85	18.69	6.56	4.22	32.97

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.33	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1970	2030	--
SOFTENING TEMPERATURE (ST)	2020	2080	--
FLUID TEMPERATURE (FT)	2070	2130	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.03	--	--
MINERAL MATTER (PARR)	17.44	11.62	57.06

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: SALINE

BED: NO.5
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 489
SAMPLE NO. 571

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.3	28.4	3.5	.42	1.40	13769	2.0
FLOAT 1.40	80.2	93.1	7.3	1.01	1.93	13123	2.9
FLOAT 1.60	85.9	98.7	8.1	1.23	2.21	12988	3.4
FLOAT 1.90	87.2	99.6	8.5	1.34	2.32	12920	3.6
CUM(1-1/2" X 100M)	100.0	100.0	18.0	2.29	3.34	11306	5.9
100M X 0	.3	.2	31.0	2.22	2.75	9099	6.0
TOTAL(1-1/2" X 0)	100.0	100.0	18.0	2.29	3.34	11300	5.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.1	40.6	3.0	.42	1.37	13854	2.0
FLOAT 1.40	76.9	90.5	6.2	.81	1.73	13310	2.6
FLOAT 1.60	84.4	98.0	7.3	.99	1.94	13123	3.0
FLOAT 1.90	87.2	99.6	8.5	1.34	2.32	12920	3.6
CUM(3/8" X 100M)	100.0	100.0	18.0	2.34	3.27	11306	5.8
100M X 0	.8	.7	27.4	2.83	3.52	9710	7.3
TOTAL(3/8" X 0)	100.0	100.0	18.1	2.34	3.27	11294	5.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	21.9	27.4	2.6	.38	1.32	13921	1.9
FLOAT 1.40	62.5	75.6	5.3	.65	1.66	13463	2.5
FLOAT 1.60	82.4	96.0	8.2	1.01	1.97	12971	3.0
FLOAT 1.90	87.2	99.6	8.5	1.34	2.32	12920	3.6
CUM(14M X 0)	100.0	100.0	19.0	2.12	2.95	11137	5.3

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	2.5
AS RECEIVED	1.7

STATE: ILLINOIS
COUNTY: SALINE

BED: NO.5
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 489
SAMPLE NO. 571

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.70	--	--	--	--	--	--	--	--
ASH	17.93	--	--	18.24	--	--	--	--	--
VOLATILE MATTER	32.13	--	--	32.68	--	--	39.98	--	--
FIXED CARBON	48.24	--	--	49.08	--	--	60.02	--	--
BTU/LB	11835	--	--	12040	--	--	14726	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.97	--	--	3.02	--	--	3.69	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	17.93	--	--	18.24	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.10	--	--	2.14	--	--	2.62	--	--
SULFATIC	.11	--	--	.11	--	--	.13	--	--
ORGANIC	.76	--	--	.77	--	--	.94	--	--
TOTAL	2.97	--	--	3.02	--	--	3.69	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.31	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.04	--	--
MINERAL MATTER (PARR)	21.36	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: CHRISTIAN

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 572

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.9	39.8	5.4	.67	3.25	13584	4.8
FLOAT 1.40	65.4	77.8	6.6	.88	3.41	13365	5.1
FLOAT 1.60	82.0	94.9	8.6	1.27	3.77	13000	5.8
CUM(1-1/2" X 100M)	100.0	100.0	18.3	2.56	4.71	11229	8.4
100M X 0	2.7	2.3	26.4	2.23	4.40	9750	9.0
TOTAL(1-1/2" X 0)	100.0	100.0	18.5	2.55	4.70	11189	8.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.1	33.3	4.8	.61	3.27	13694	4.8
FLOAT 1.40	61.8	74.8	5.8	.72	3.34	13511	4.9
FLOAT 1.60	81.0	94.9	8.2	1.16	3.72	13073	5.7
CUM(3/8" X 100M)	100.0	100.0	18.7	2.43	4.70	11156	8.4
100M X 0	3.4	3.0	26.2	2.70	4.92	9787	10.1
TOTAL(3/8" X 0)	100.0	100.0	19.0	2.44	4.71	11110	8.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	14.3	17.6	5.2	.65	3.30	13621	4.8
FLOAT 1.40	62.0	73.8	7.8	1.16	3.74	13146	5.7
FLOAT 1.60	81.2	95.3	8.8	1.22	3.76	12963	5.8
CUM(14M X 0)	100.0	100.0	19.3	2.65	5.12	11047	9.3

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	8.2
AS RECEIVED	5.1

STATE: ILLINOIS
COUNTY: CHRISTIAN

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 572

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.10	4.08	2.90	--	--	--	--	--	--
ASH	18.51	8.25	60.27	19.50	8.60	62.07	--	--	--
VOLATILE MATTER	35.40	40.00	--	37.30	41.70	--	46.34	45.62	--
FIXED CARBON	41.00	47.67	--	43.20	49.70	--	53.66	54.38	--
BTU/LB	10448	12470	--	11010	13000	--	13677	14223	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.84	3.64	10.21	5.10	3.79	10.51	6.34	4.15	27.71
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	18.51	8.25	60.27	19.50	8.60	62.07	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.53	1.17	8.09	2.67	1.22	8.33	3.32	1.33	21.96
SULFATIC	.18	.12	.21	.19	.13	.22	.24	.14	.57
ORGANIC	2.13	2.34	1.91	2.24	2.44	1.96	2.78	2.67	5.17
TOTAL	4.84	3.64	10.21	5.10	3.79	10.51	6.34	4.15	27.71

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.91	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2020	2020	--
SOFTENING TEMPERATURE (ST)	2070	2070	--
FLUID TEMPERATURE (FT)	2120	2130	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.13	--	--
MINERAL MATTER (PARR)	23.87	11.37	72.81

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	2	2 1/2	--
HARDGROVE GRINDABILITY (HGI)	57	55	--

STATE: ILLINOIS
COUNTY: DOUGLAS

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 573

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	74.6	80.0	5.0	.64	1.67	13676	2.4
FLOAT 1.40	87.6	92.6	6.2	.71	1.73	13477	2.6
FLOAT 1.60	93.0	97.0	7.3	.86	1.88	13296	2.8
CUM(1-1/2" X 100M)	100.0	100.0	10.6	1.69	2.71	12750	4.3
100M X 0	1.1	1.0	20.2	1.56	2.68	11162	4.8
TOTAL(1-1/2" X 0)	100.0	100.0	10.7	1.69	2.71	12732	4.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	70.7	76.4	4.2	.53	1.63	13808	2.4
FLOAT 1.40	85.7	91.4	5.3	.59	1.66	13626	2.4
FLOAT 1.60	91.7	96.4	6.4	.70	1.75	13444	2.6
CUM(3/8" X 100M)	100.0	100.0	10.4	1.71	2.73	12783	4.3
100M X 0	4.2	4.0	14.2	1.64	2.76	12154	4.5
TOTAL(3/8" X 0)	100.0	100.0	10.6	1.71	2.73	12756	4.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.3	37.6	3.0	.46	1.59	14007	2.3
FLOAT 1.40	75.6	82.2	3.7	.46	1.56	13891	2.2
FLOAT 1.60	89.7	95.3	5.6	.59	1.62	13577	2.4
CUM(14M X 0)	100.0	100.0	10.4	1.67	2.68	12783	4.2

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	71.9
3/8" X 14M	21.6
14M X 100M	5.4
100M X 0	1.1

MOISTURE, %

TOTAL	10.3
AS RECEIVED	7.3

STATE: ILLINOIS
COUNTY: DOUGLAS

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 573

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	7.30	5.20	4.00	--	--	--	--	--	--
ASH	9.46	5.52	48.11	10.20	5.82	50.11	--	--	--
VOLATILE MATTER	38.17	41.03	20.24	41.17	43.29	21.09	45.85	45.96	42.27
FIXED CARBON	45.08	48.24	27.65	48.63	50.89	28.80	54.15	54.04	57.73
BTU/LB	11856	12858	5968	12790	13563	6217	14243	14402	12462

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.34	1.60	11.48	2.53	1.69	11.96	2.81	1.79	23.97
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	9.46	5.52	48.11	10.20	5.82	50.11	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.48	.62	10.63	1.60	.65	11.08	1.78	.69	22.20
SULFATIC	.05	.01	.10	.06	.01	.10	.06	.01	.20
ORGANIC	.81	.98	.75	.87	1.03	.78	.97	1.09	1.57
TOTAL	2.34	1.60	11.48	2.53	1.69	11.96	2.81	1.79	23.97

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2120	2200	2010
SOFTENING TEMPERATURE (ST)	2170	2350	2060
FLUID TEMPERATURE (FT)	2220	2570	2110

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	12.40	7.22	60.70

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3 1/2	3 1/2	--
HARDGROVE GRINDABILITY (HGI)	56	57	--

STATE: ILLINOIS
COUNTY: DOUGLAS

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 574

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	74.0	78.9	4.5	.63	1.78	13705	2.6
FLOAT 1.40	87.1	91.7	5.5	.70	1.83	13546	2.7
FLOAT 1.60	92.8	96.6	6.5	.82	1.92	13387	2.9
CUM(1-1/2" X 100M)	100.0	100.0	9.8	2.09	3.13	12862	4.9
100M X 0	2.3	2.1	15.4	1.61	2.62	11970	4.4
TOTAL(1-1/2" X 0)	100.0	100.0	9.9	2.08	3.12	12841	4.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	67.2	72.3	3.4	.49	1.69	13881	2.4
FLOAT 1.40	84.9	90.1	4.5	.56	1.73	13705	2.5
FLOAT 1.60	92.6	96.8	5.8	.68	1.83	13498	2.7
CUM(3/8" X 100M)	100.0	100.0	9.5	2.10	3.18	12910	4.9
100M X 0	5.8	5.5	13.4	1.90	2.99	12289	4.9
TOTAL(3/8" X 0)	100.0	100.0	9.7	2.09	3.17	12874	4.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.3	49.9	3.3	.51	1.69	13896	2.4
FLOAT 1.40	78.0	83.5	3.9	.51	1.65	13801	2.4
FLOAT 1.60	92.1	96.4	5.8	.64	1.74	13498	2.6
CUM(14M X 0)	100.0	100.0	9.6	2.02	3.09	12894	4.8

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	62.9
3/8" X 14M	26.1
14M X 100M	8.7
100M X 0	2.3

MOISTURE, %

TOTAL	10.1
AS RECEIVED	7.1

STATE: ILLINOIS
COUNTY: DOUGLAS

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 574

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	7.10	5.00	5.40	--	--	--	--	--	--
ASH	9.10	5.61	48.96	9.80	5.90	51.75	--	--	--
VOLATILE MATTER	37.89	41.05	12.82	40.79	43.21	13.55	45.22	45.92	28.08
FIXED CARBON	45.90	48.35	32.83	49.41	50.89	34.70	54.78	54.08	71.92
BTU/LB	11900	12853	5855	12810	13530	6189	14202	14378	12827

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.75	1.69	17.84	2.97	1.78	18.85	3.29	1.89	39.07
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	9.10	5.61	48.96	9.80	5.90	51.75	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.76	.67	17.13	1.89	.70	18.11	2.10	.75	37.53
SULFATIC	.06	.04	.09	.07	.04	.09	.07	.04	.19
ORGANIC	.94	.99	.62	1.01	1.04	.66	1.12	1.10	1.36
TOTAL	2.75	1.69	17.84	2.97	1.78	18.85	3.29	1.89	39.07

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	12.21	7.35	66.26

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	2 1/2	3 1/2	1
HARDGROVE GRINDABILITY (HGI)	56	56	--

STATE: ILLINOIS
COUNTY: FRANKLIN

BED: NO.6
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 484
SAMPLE NO. 575

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.1	62.3	4.0	.31	.96	13684	1.4
FLOAT 1.40	84.9	95.0	6.3	.38	1.00	13293	1.5
FLOAT 1.60	89.3	98.7	7.2	.39	1.01	13140	1.5
FLOAT 1.90	91.2	99.9	7.9	.42	1.04	13022	1.6
CUM(1-1/2" X 100M)	100.0	100.0	14.6	.59	1.16	11884	2.0
100M X 0	.3	.3	20.7	.97	1.17	10848	2.2
TOTAL(1-1/2" X 0)	100.0	100.0	14.6	.59	1.16	11881	2.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.5	62.5	3.0	.27	.91	13854	1.3
FLOAT 1.40	83.5	94.7	5.4	.31	.93	13446	1.4
FLOAT 1.60	87.4	98.3	6.1	.33	.93	13327	1.4
FLOAT 1.90	91.2	99.9	7.9	.42	1.04	13022	1.6
CUM(3/8" X 100M)	100.0	100.0	14.8	.57	1.12	11850	1.9
100M X 0	1.4	1.3	20.2	.92	1.39	10933	2.5
TOTAL(3/8" X 0)	100.0	100.0	14.9	.57	1.12	11837	1.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.5	26.7	2.0	.20	.87	14023	1.2
FLOAT 1.40	72.3	83.0	4.8	.28	.91	13548	1.3
FLOAT 1.60	85.8	95.9	6.9	.32	.93	13191	1.4
FLOAT 1.90	91.2	99.9	7.9	.42	1.04	13022	1.6
CUM(14M X 0)	100.0	100.0	15.1	.60	1.15	11799	1.9

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	3.1
AS RECEIVED	2.1

STATE: ILLINOIS
COUNTY: FRANKLIN

BED: NO.6
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 484
SAMPLE NO. 575

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.10	--	--	--	--	--	--	--	--
ASH	15.37	--	--	15.70	--	--	--	--	--
VOLATILE MATTER	32.62	--	--	33.32	--	--	39.53	--	--
FIXED CARBON	49.91	--	--	50.98	--	--	60.48	--	--
BTU/LB	12074	--	--	12333	--	--	14631	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.05	--	--	1.07	--	--	1.27	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	15.37	--	--	15.70	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.61	--	--	.62	--	--	.73	--	--
SULFATIC	.01	--	--	.01	--	--	.01	--	--
ORGANIC	.43	--	--	.44	--	--	.52	--	--
TOTAL	1.05	--	--	1.07	--	--	1.27	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	1.15	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.13	--	--
MINERAL MATTER (PARR)	17.55	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: FRANKLIN

BED: NO.6
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 576

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.6	61.4	3.9	.57	2.39	13742	3.5
FLOAT 1.40	93.0	93.9	6.3	.87	2.57	13476	3.8
FLOAT 1.60	99.0	99.2	7.2	.98	2.64	13377	3.9
CUM(1-1/2" X 100M)	100.0	100.0	7.5	1.03	2.69	13343	4.0
100M X 0	1.9	1.6	24.2	3.58	5.78	11496	10.1
TOTAL(1-1/2" X 0)	100.0	100.0	7.8	1.08	2.75	13308	4.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	72.3	74.4	4.2	.84	2.42	13708	3.5
FLOAT 1.40	90.7	92.1	5.8	.88	2.52	13531	3.7
FLOAT 1.60	98.1	98.7	7.0	1.00	2.59	13399	3.9
CUM(3/8" X 100M)	100.0	100.0	7.7	1.11	2.69	13321	4.0
100M X 0	3.1	2.8	17.5	2.82	4.83	12237	7.9
TOTAL(3/8" X 0)	100.0	100.0	8.0	1.16	2.76	13288	4.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	72.7	74.9	4.1	.57	2.32	13719	3.4
FLOAT 1.40	89.6	91.5	5.2	.65	2.40	13598	3.5
FLOAT 1.60	97.1	98.0	6.6	.71	2.48	13443	3.7
CUM(14M X 0)	100.0	100.0	7.7	.92	2.68	13321	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	6.4
AS RECEIVED	3.3

STATE: ILLINOIS
COUNTY: FRANKLIN

BED: NO.6
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 576

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.30	3.50	3.20	--	--	--	--	--	--
ASH	7.74	6.18	42.20	8.00	6.40	43.60	--	--	--
VOLATILE MATTER	39.36	39.66	--	40.70	41.10	--	44.24	43.91	--
FIXED CARBON	49.61	50.66	--	51.30	52.50	--	55.76	56.09	--
BTU/LB	12849	12994	--	13288	13465	--	14443	14386	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.83	2.31	9.09	2.93	2.39	9.39	3.19	2.55	16.64
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	7.74	6.18	42.20	8.00	6.40	43.60	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.12	.71	7.70	1.16	.73	7.95	1.26	.78	14.10
SULFATIC	.02	.01	.03	.02	.01	.03	.02	.01	.05
ORGANIC	1.69	1.59	1.36	1.75	1.65	1.41	1.90	1.76	2.49
TOTAL	2.83	2.31	9.09	2.93	2.39	9.39	3.19	2.55	16.64

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	1.09	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2080	2180	--
SOFTENING TEMPERATURE (ST)	2140	2270	--
FLUID TEMPERATURE (FT)	2300	2520	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.06	--	--
MINERAL MATTER (PARR)	10.25	8.23	52.25

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: FULTON

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 577

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	70.7	84.6	4.7	.65	2.43	13551	3.6
FLOAT 1.40	77.1	91.8	5.1	.67	2.45	13486	3.6
FLOAT 1.60	81.5	95.8	6.2	.73	2.48	13307	3.7
CUM(1-1/2" X 100M)	100.0	100.0	18.4	3.44	4.95	11326	8.7
100M X 0	1.6	1.4	26.4	2.76	3.94	10026	7.9
TOTAL(1-1/2" X 0)	100.0	100.0	18.5	3.43	4.93	11305	8.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.3	71.5	4.0	.50	2.42	13664	3.5
FLOAT 1.40	74.9	89.8	4.5	.53	2.44	13583	3.6
FLOAT 1.60	80.6	95.4	5.6	.57	2.45	13404	3.7
CUM(3/8" X 100M)	100.0	100.0	18.4	3.35	4.99	11326	8.8
100M X 0	4.6	4.0	27.8	3.12	4.49	9799	9.2
TOTAL(3/8" X 0)	100.0	100.0	18.8	3.34	4.97	11255	8.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.4	30.8	3.5	.42	2.29	13746	3.3
FLOAT 1.40	60.8	73.5	3.8	.44	2.32	13697	3.4
FLOAT 1.60	79.4	93.9	5.7	.58	2.40	13388	3.6
CUM(14M X 0)	100.0	100.0	18.4	3.45	4.93	11326	8.7

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	77.7
3/8" X 14M	16.2
14M X 100M	4.5
100M X 0	1.6

MOISTURE, %

TOTAL	11.8
AS RECEIVED	8.9

STATE: ILLINOIS
COUNTY: FULTON

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 577

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	8.90	7.40	2.20	--	--	--	--	--	--
ASH	16.76	5.37	63.23	18.40	5.80	64.66	--	--	--
VOLATILE MATTER	35.14	41.24	15.98	38.57	44.53	16.34	47.27	47.27	46.24
FIXED CARBON	39.20	45.99	18.58	43.03	49.67	19.00	52.73	52.73	53.76
BTU/LB	10285	12408	3737	11290	13400	3821	13836	14225	10810

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.81	2.44	14.38	5.29	2.64	14.71	6.48	2.80	41.61
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	16.76	5.37	63.23	18.40	5.80	64.66	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.09	.59	14.19	3.39	.64	14.51	4.15	.68	41.06
SULFATIC	.12	.10	.02	.14	.11	.02	.17	.12	.06
ORGANIC	1.60	1.75	.17	1.76	1.89	.18	2.16	2.01	.50
TOTAL	4.81	2.44	14.38	5.29	2.64	14.71	6.48	2.80	41.61

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	1.08	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.15	--	--
MINERAL MATTER (PARR)	22.78	7.80	77.92

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	2	3 1/2	--
HARDGROVE GRINDABILITY (HGI)	53	54	--

STATE: ILLINOIS
COUNTY: JEFFERSON

BED: NO.6
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 578

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.3	44.8	5.3	.32	.96	13404	1.4
FLOAT 1.40	84.1	86.7	8.4	.39	.97	13057	1.5
FLOAT 1.60	95.4	96.9	10.1	.41	.99	12867	1.5
CUM(1-1/2" X 100M)	100.0	100.0	11.9	.56	1.12	12666	1.8
100M X 0	1.2	1.2	13.7	1.21	2.11	12464	3.4
TOTAL(1-1/2" X 0)	100.0	100.0	11.9	.57	1.13	12663	1.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.1	52.2	5.2	.34	.98	13415	1.5
FLOAT 1.40	80.8	84.2	7.6	.41	1.00	13146	1.5
FLOAT 1.60	93.9	96.1	9.7	.43	1.01	12912	1.6
CUM(3/8" X 100M)	100.0	100.0	12.3	.60	1.17	12621	1.9
100M X 0	1.9	1.9	14.3	1.27	1.96	12397	3.2
TOTAL(3/8" X 0)	100.0	100.0	12.3	.61	1.19	12617	1.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.0	55.5	4.5	.30	.95	13493	1.4
FLOAT 1.40	78.9	83.1	6.2	.32	.94	13303	1.4
FLOAT 1.60	93.7	96.7	8.6	.33	.89	13035	1.4
CUM(14M X 0)	100.0	100.0	12.2	.59	1.20	12632	1.9

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	7.3
AS RECEIVED	4.2

STATE: ILLINOIS
COUNTY: JEFFERSON

BED: NO.6
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 578

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.20	4.40	2.80	--	--	--	--	--	--
ASH	11.69	8.51	63.86	12.20	8.90	65.70	--	--	--
VOLATILE MATTER	34.49	35.56	--	36.00	37.20	--	41.00	40.83	--
FIXED CARBON	49.62	51.53	--	51.80	53.90	--	59.00	59.17	--
BTU/LB	12101	12429	--	12632	13001	--	14387	14271	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.15	.86	5.65	1.20	.90	5.81	1.37	.99	16.94
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	11.69	8.51	63.86	12.20	8.90	65.70	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.57	.32	4.33	.59	.33	4.46	.67	.36	12.99
SULFATIC	.02	.02	.02	.02	.02	.02	.02	.02	.06
ORGANIC	.57	.53	1.30	.59	.55	1.33	.67	.60	3.89
TOTAL	1.15	.86	5.65	1.20	.90	5.81	1.37	.99	16.94

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2620	2690	--
SOFTENING TEMPERATURE (ST)	2680	2740	--
FLUID TEMPERATURE (FT)	2780	2800	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	13.84	10.11	74.15

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: JEFFERSON

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 579

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.8	55.6	4.4	.38	1.15	13616	1.7
FLOAT 1.40	77.1	94.5	7.1	.47	1.21	13157	1.8
FLOAT 1.60	82.3	99.6	8.1	.52	1.25	12988	1.9
FLOAT 1.90	84.4	101.0	9.0	.56	1.27	12835	2.0
CUM(1-1/2" X 100M)	100.0	100.0	21.4	.79	1.43	10729	2.7
100M X 0	.5	.5	23.1	.62	1.65	10440	3.2
TOTAL(1-1/2" X 0)	100.0	100.0	21.4	.79	1.43	10728	2.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	36.8	47.3	3.3	.36	1.12	13803	1.6
FLOAT 1.40	72.7	90.2	6.2	.47	1.19	13310	1.8
FLOAT 1.60	81.4	98.8	7.9	.52	1.23	13022	1.9
FLOAT 1.90	84.4	101.0	9.0	.56	1.27	12835	2.0
CUM(3/8" X 100M)	100.0	100.0	21.4	.77	1.38	10729	2.6
100M X 0	1.4	1.4	22.2	1.13	1.62	10593	3.1
TOTAL(3/8" X 0)	100.0	100.0	21.4	.78	1.38	10727	2.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.7	40.5	2.9	.30	1.09	13871	1.6
FLOAT 1.40	63.6	81.0	5.6	.41	1.15	13412	1.7
FLOAT 1.60	79.3	96.8	8.9	.50	1.20	12852	1.9
FLOAT 1.90	84.4	101.0	9.0	.56	1.27	12835	2.0
CUM(14M X 0)	100.0	100.0	22.6	.73	1.32	10525	2.5

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	12.8
AS RECEIVED	7.1

STATE: ILLINOIS
COUNTY: JEFFERSON

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 579

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	7.10	--	--	--	--	--	--	--	--
ASH	20.16	--	--	21.70	--	--	--	--	--
VOLATILE MATTER	30.40	--	--	32.72	--	--	41.79	--	--
FIXED CARBON	42.34	--	--	45.58	--	--	58.21	--	--
BTU/LB	10940	--	--	11776	--	--	15039	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.25	--	--	1.35	--	--	1.72	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	20.16	--	--	21.70	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.78	--	--	.84	--	--	1.07	--	--
SULFATIC	.03	--	--	.03	--	--	.04	--	--
ORGANIC	.45	--	--	.48	--	--	.61	--	--
TOTAL	1.25	--	--	1.35	--	--	1.72	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.78	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.13	--	--
MINERAL MATTER (PARR)	24.17	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: JEFFERSON

BED: NO.6
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 580

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.2	60.1	3.7	.56	1.25	13735	1.8
FLOAT 1.40	73.7	93.3	7.6	.88	1.58	13072	2.4
FLOAT 1.60	79.0	98.2	9.0	.98	1.66	12835	2.6
FLOAT 1.90	81.0	99.1	10.2	1.02	1.69	12631	2.7
CUM(1-1/2" X 100M)	100.0	100.0	23.8	1.25	1.84	10322	3.6
100M X 0	.2	.2	23.6	1.68	2.05	10355	4.0
TOTAL(1-1/2" X 0)	100.0	100.0	23.8	1.25	1.84	10322	3.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.5	56.0	4.2	.53	1.20	13650	1.8
FLOAT 1.40	70.7	90.6	6.4	.73	1.37	13276	2.1
FLOAT 1.60	78.5	97.7	8.7	.89	1.50	12886	2.3
FLOAT 1.90	81.0	99.1	10.2	1.02	1.69	12631	2.7
CUM(3/8" X 100M)	100.0	100.0	23.6	1.25	1.78	10355	3.4
100M X 0	.2	.2	34.1	1.55	1.86	8572	4.3
TOTAL(3/8" X 0)	100.0	100.0	23.6	1.25	1.78	10352	3.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.1	49.1	4.6	.15	1.15	13582	1.7
FLOAT 1.40	64.8	84.0	6.3	.64	1.29	13293	1.9
FLOAT 1.60	78.7	98.5	9.0	.75	1.34	12835	2.1
FLOAT 1.90	81.0	99.1	10.2	1.02	1.69	12631	2.7
CUM(14M X 0)	100.0	100.0	24.2	1.28	1.76	10254	3.4

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	6.8
AS RECEIVED	3.5

STATE: ILLINOIS
COUNTY: JEFFERSON

BED: NO.6
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 580

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.50	--	--	--	--	--	--	--	--
ASH	22.42	--	--	23.23	--	--	--	--	--
VOLATILE MATTER	30.30	--	--	31.40	--	--	40.90	--	--
FIXED CARBON	43.78	--	--	45.37	--	--	59.10	--	--
BTU/LB	11057	--	--	11458	--	--	14925	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.61	--	--	1.67	--	--	2.18	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	22.42	--	--	23.23	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.25	--	--	1.30	--	--	1.69	--	--
SULFATIC	.01	--	--	.01	--	--	.01	--	--
ORGANIC	.35	--	--	.36	--	--	.47	--	--
TOTAL	1.61	--	--	1.67	--	--	2.18	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	26.01	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: KNOX

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 581

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.3	51.3	4.0	.68	2.59	13505	3.8
FLOAT 1.40	84.1	88.1	5.0	.80	2.73	13316	4.1
FLOAT 1.60	95.9	98.5	6.4	.93	2.86	13050	4.4
CUM(1-1/2" X 100M)	100.0	100.0	8.2	1.07	2.98	12709	4.7
100M X 0	1.3	.9	30.8	2.18	4.52	8423	10.7
TOTAL(1-1/2" X 0)	100.0	100.0	8.5	1.08	3.00	12653	4.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.3	37.4	4.2	.73	2.64	13468	3.9
FLOAT 1.40	79.4	83.9	4.4	.74	2.66	13430	4.0
FLOAT 1.60	94.9	98.0	6.0	.89	2.83	13126	4.3
CUM(3/8" X 100M)	100.0	100.0	8.2	1.07	2.99	12709	4.7
100M X 0	2.2	1.7	23.7	1.94	4.26	9769	8.7
TOTAL(3/8" X 0)	100.0	100.0	8.5	1.09	3.02	12644	4.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.8	18.0	3.4	.55	2.54	13619	3.7
FLOAT 1.40	85.5	90.4	4.5	.57	2.54	13411	3.8
FLOAT 1.60	94.3	98.2	5.5	.75	2.71	13221	4.1
CUM(14M X 0)	100.0	100.0	8.3	1.10	3.06	12690	4.8

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	9.9
AS RECEIVED	6.9

STATE: ILLINOIS
COUNTY: KNOX

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 581

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	6.90	3.80	2.70	--	--	--	--	--	--
ASH	8.04	5.19	55.27	8.63	5.40	56.81	--	--	--
VOLATILE MATTER	37.60	38.90	--	40.38	40.44	--	44.20	42.75	--
FIXED CARBON	47.47	52.10	--	50.98	54.16	--	55.80	57.25	--
BTU/LB	11756	12737	--	12627	13240	--	13820	13996	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.84	2.49	8.65	3.06	2.59	8.89	3.34	2.74	20.57
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	8.04	5.19	55.27	8.63	5.40	56.81	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.02	.67	6.70	1.10	.70	6.89	1.20	.74	15.95
SULFATIC	.18	.18	.19	.20	.19	.20	.21	.20	.46
ORGANIC	1.64	1.64	1.75	1.76	1.70	1.80	1.93	1.80	4.16
TOTAL	2.84	2.49	8.65	3.06	2.59	8.89	3.34	2.74	20.57

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.62	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2020	2000	--
SOFTENING TEMPERATURE	(ST)	2070	2050	--
FLUID TEMPERATURE	(FT)	2280	2280	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.04	--	--
MINERAL MATTER (PARR)	11.00	7.26	66.24

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	1	1 1/2	--
HARDGROVE GRINDABILITY	(HGI)	56	53	--

STATE: ILLINOIS
COUNTY: KNOX

BED: NO.6
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 582

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.9	61.2	5.6	1.44	3.30	13412	4.9
FLOAT 1.40	68.9	83.3	6.7	1.80	3.67	13225	5.5
FLOAT 1.60	77.6	92.1	8.2	2.25	4.11	12971	6.3
FLOAT 1.90	81.7	95.2	9.6	2.68	4.58	12733	7.2
CUM(1-1/2" X 100M)	100.0	100.0	20.2	5.66	7.69	10933	14.1
100M X 0	.3	.2	46.0	6.12	8.14	6552	24.8
TOTAL(1-1/2" X 0)	100.0	100.0	20.3	5.66	7.69	10920	14.1

SAMPLE CRUSHED TO PASS 3/8"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.2	52.4	3.8	1.09	2.94	13718	4.3
FLOAT 1.40	69.2	84.5	5.1	1.37	3.27	13497	4.8
FLOAT 1.60	78.2	93.8	6.5	1.71	3.64	13259	5.5
FLOAT 1.90	81.7	95.2	9.6	2.68	4.58	12733	7.2
CUM(3/8" X 100M)	100.0	100.0	19.5	5.39	7.58	11052	13.7
100M X 0	.9	.7	35.6	9.88	11.62	8318	27.9
TOTAL(3/8" X 0)	100.0	100.0	19.6	5.43	7.62	11027	13.8

SAMPLE CRUSHED TO PASS 14M

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.7	40.4	3.6	.83	2.67	13752	3.9
FLOAT 1.40	66.3	82.9	5.2	1.08	2.93	13480	4.3
FLOAT 1.60	75.8	93.2	6.5	1.43	3.34	13259	5.0
FLOAT 1.90	81.7	95.2	9.6	2.68	4.58	12733	7.2
CUM(14M X 0)	100.0	100.0	21.1	5.92	8.20	10780	15.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

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

MOISTURE, %

TOTAL	3.0
AS RECEIVED	1.1

STATE: ILLINOIS
COUNTY: KNOX

BED: NO.6
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 582

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.10	--	--	--	--	--	--	--	--
ASH	20.03	--	--	20.26	--	--	--	--	--
VOLATILE MATTER	37.28	--	--	37.70	--	--	47.27	--	--
FIXED CARBON	41.58	--	--	42.04	--	--	52.72	--	--
BTU/LB	11006	--	--	11129	--	--	13955	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	7.20	--	--	7.28	--	--	9.13	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	20.03	--	--	20.26	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	5.54	--	--	5.60	--	--	7.02	--	--
SULFATIC	.22	--	--	.22	--	--	.28	--	--
ORGANIC	1.44	--	--	1.46	--	--	1.83	--	--
TOTAL	7.20	--	--	7.28	--	--	9.13	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	1.35	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.20	--	--
MINERAL MATTER (PARR)	25.88	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: MACOUPIN

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 583

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.2	63.9	5.5	.54	3.91	13429	5.8
FLOAT 1.40	82.5	88.7	7.1	.81	4.06	13157	6.2
FLOAT 1.60	91.2	96.6	8.2	1.39	4.56	12971	7.0
CUM(1-1/2" X 100M)	100.0	100.0	12.5	2.71	5.73	12240	9.4
100M X 0	1.4	1.4	13.2	1.71	3.59	12122	5.9
TOTAL(1-1/2" X 0)	100.0	100.0	12.5	2.70	5.70	12239	9.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.4	53.3	4.0	.42	3.89	13684	5.7
FLOAT 1.40	77.8	85.1	6.2	.69	4.00	13310	6.0
FLOAT 1.60	89.6	95.8	7.9	1.22	4.44	13022	6.8
CUM(3/8" X 100M)	100.0	100.0	12.9	2.72	5.78	12172	9.5
100M X 0	2.6	2.5	15.5	3.08	5.50	11731	9.4
TOTAL(3/8" X 0)	100.0	100.0	13.0	2.73	5.77	12161	9.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	12.4	14.1	2.9	.50	4.11	13871	5.9
FLOAT 1.40	76.8	84.8	5.5	.58	3.97	13429	5.9
FLOAT 1.60	88.5	95.5	7.3	.98	4.17	13123	6.4
CUM(14M X 0)	100.0	100.0	13.0	2.91	6.01	12155	9.9

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	7.4
AS RECEIVED	4.3

STATE: ILLINOIS
COUNTY: MACOUPIN

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 583

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.30	3.44	3.80	--	--	--	--	--	--
ASH	12.73	7.15	54.45	13.30	7.40	56.60	--	--	--
VOLATILE MATTER	40.48	43.65	--	42.30	45.20	--	48.79	48.81	--
FIXED CARBON	42.49	45.77	--	44.40	47.40	--	51.21	51.19	--
BTU/LB	11388	12669	--	11900	13120	--	13725	14168	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	5.59	3.97	19.42	5.84	4.11	20.19	6.74	4.44	46.52
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	12.73	7.15	54.45	13.30	7.40	56.60	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.78	.94	17.09	2.91	.97	17.76	3.36	1.05	40.93
SULFATIC	.03	.01	.05	.03	.01	.05	.03	.01	.12
ORGANIC	2.78	3.02	2.29	2.90	3.13	2.38	3.34	3.38	5.48
TOTAL	5.59	3.97	19.42	5.84	4.11	20.19	6.74	4.44	46.52

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.19	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1990	2080	--
SOFTENING TEMPERATURE (ST)	2040	2170	--
FLUID TEMPERATURE (FT)	2100	2310	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.02	--	--
MINERAL MATTER (PARR)	17.58	10.25	72.23

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: MONTGOMERY

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 584

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.8	47.6	5.5	.51	3.23	13429	4.8
FLOAT 1.40	83.3	86.7	7.2	1.08	3.42	13140	5.2
FLOAT 1.60	95.3	97.5	8.5	1.21	3.68	12920	5.7
CUM(1-1/2" X 100M)	100.0	100.0	10.2	1.54	3.96	12631	6.3
100M X 0	3.1	2.6	21.4	1.98	4.04	10729	7.5
TOTAL(1-1/2" X 0)	100.0	100.0	10.5	1.55	3.96	12572	6.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.6	40.9	6.1	.88	3.50	13327	5.3
FLOAT 1.40	78.4	82.5	6.7	1.07	3.67	13225	5.5
FLOAT 1.60	94.1	96.9	8.4	1.11	3.87	12937	6.0
CUM(3/8" X 100M)	100.0	100.0	10.6	1.48	4.15	12563	6.6
100M X 0	3.2	2.8	20.4	2.07	4.21	10899	7.7
TOTAL(3/8" X 0)	100.0	100.0	10.9	1.50	4.15	12510	6.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	18.9	20.9	3.7	.52	3.11	13735	4.5
FLOAT 1.40	74.3	79.9	5.9	.68	3.30	13361	4.9
FLOAT 1.60	93.1	96.9	8.4	1.01	3.45	12937	5.3
CUM(14M X 0)	100.0	100.0	11.4	1.54	4.00	12427	6.4

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	11.0
AS RECEIVED	8.0

STATE: ILLINOIS
COUNTY: MONTGOMERY

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 584

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	8.00	6.40	2.50	--	--	--	--	--	--
ASH	10.49	7.39	58.66	11.40	7.90	60.17	--	--	--
VOLATILE MATTER	37.81	39.22	--	41.10	41.90	--	46.39	45.49	--
FIXED CARBON	43.70	46.99	--	47.50	50.20	--	53.61	54.51	--
BTU/LB	11215	12477	--	12190	13330	--	13758	14473	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.68	3.22	11.15	4.00	3.44	11.44	4.51	3.74	28.71
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	10.49	7.39	58.66	11.40	7.90	60.17	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.42	.95	8.47	1.54	1.01	8.69	1.74	1.10	21.82
SULFATIC	.13	.12	.16	.15	.13	.16	.16	.14	.40
ORGANIC	2.13	2.15	2.52	2.31	2.30	2.58	2.61	2.50	6.49
TOTAL	3.68	3.22	11.15	4.00	3.44	11.44	4.51	3.74	28.71

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.39	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1950	2010	--
SOFTENING TEMPERATURE (ST)	2000	2070	--
FLUID TEMPERATURE (FT)	2050	2250	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.03	--	--
MINERAL MATTER (PARR)	14.51	10.42	71.27

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3 1/2	3 1/2	--
HARDGROVE GRINDABILITY (HGI)	57	56	--

STATE: ILLINOIS
COUNTY: MONTGOMERY

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 585

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.1	32.9	4.7	.65	3.01	13565	4.4
FLOAT 1.40	74.5	84.4	7.2	1.04	3.33	13140	5.1
FLOAT 1.60	85.2	94.4	8.9	1.35	3.60	12852	5.6
FLOAT 1.90	90.0	97.8	10.4	1.62	3.82	12597	6.1
CUM(1-1/2" X 100M)	100.0	100.0	16.3	2.85	4.92	11595	8.5
100M X 0	.7	.7	19.1	2.19	4.03	11120	7.2
TOTAL(1-1/2" X 0)	100.0	100.0	16.3	2.85	4.91	11592	8.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.5	19.7	3.4	.49	2.87	13786	4.2
FLOAT 1.40	71.4	82.4	6.0	.88	3.25	13344	4.9
FLOAT 1.60	84.1	94.5	8.1	1.16	3.48	12988	5.4
FLOAT 1.90	90.0	97.8	10.4	1.62	3.82	12597	6.1
CUM(3/8" X 100M)	100.0	100.0	16.5	2.94	5.05	11561	8.7
100M X 0	1.1	1.0	20.4	2.61	4.39	10899	8.1
TOTAL(3/8" X 0)	100.0	100.0	16.5	2.94	5.04	11554	8.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	18.2	22.0	2.6	.40	2.73	13921	3.9
FLOAT 1.40	60.1	70.5	5.2	.69	3.02	13480	4.5
FLOAT 1.60	85.1	94.8	9.2	1.15	3.33	12801	5.2
FLOAT 1.90	90.0	97.8	10.4	1.62	3.82	12597	6.1
CUM(14M X 0)	100.0	100.0	16.9	2.83	4.89	11493	8.5

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.7

MOISTURE, %

TOTAL	22.4
AS RECEIVED	11.8

STATE: ILLINOIS
COUNTY: MONTGOMERY

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 585

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	11.80	--	--	--	--	--	--	--	--
ASH	15.08	--	--	17.10	--	--	--	--	--
VOLATILE MATTER	33.34	--	--	37.80	--	--	45.60	--	--
FIXED CARBON	39.78	--	--	45.10	--	--	54.40	--	--
BTU/LB	11528	--	--	13070	--	--	15766	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.41	--	--	5.00	--	--	6.03	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	15.08	--	--	17.10	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.67	--	--	3.03	--	--	3.66	--	--
SULFATIC	.06	--	--	.07	--	--	.08	--	--
ORGANIC	1.68	--	--	1.90	--	--	2.29	--	--
TOTAL	4.41	--	--	5.00	--	--	6.03	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	1.30	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.16	--	--
MINERAL MATTER (PARR)	21.22	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: PEORIA

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 586

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.0	80.0	4.9	.70	2.70	13443	4.0
FLOAT 1.40	75.9	88.4	5.7	.78	2.76	13314	4.1
FLOAT 1.60	82.4	94.3	7.2	.92	2.85	13072	4.4
CUM(1-1/2" X 100M)	100.0	100.0	17.4	2.61	4.28	11427	7.5
100M X 0	1.1	1.0	23.2	2.23	3.72	10491	7.1
TOTAL(1-1/2" X 0)	100.0	100.0	17.5	2.61	4.27	11417	7.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.4	66.0	3.9	.56	2.50	13604	3.7
FLOAT 1.40	72.9	86.0	4.7	.63	2.60	13475	3.9
FLOAT 1.60	81.0	93.6	6.4	.76	2.68	13201	4.1
CUM(3/8" X 100M)	100.0	100.0	17.4	2.76	4.42	11427	7.7
100M X 0	4.1	3.7	24.4	2.75	4.35	10298	8.4
TOTAL(3/8" X 0)	100.0	100.0	17.7	2.76	4.42	11381	7.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	7.9	9.6	2.8	.47	2.39	13782	3.5
FLOAT 1.40	57.7	69.2	3.7	.37	2.47	13637	3.6
FLOAT 1.60	79.6	92.7	6.2	.65	2.66	13233	4.0
CUM(14M X 0)	100.0	100.0	17.8	2.73	4.37	11362	7.7

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	80.0
3/8" X 14M	15.1
14M X 100M	3.8
100M X 0	1.1

MOISTURE, %

TOTAL	12.3
AS RECEIVED	9.4

STATE: ILLINOIS
COUNTY: PEORIA

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 586

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	9.40	6.80	4.20	--	--	--	--	--	--
ASH	16.22	5.87	58.00	17.90	6.30	60.54	--	--	--
VOLATILE MATTER	35.26	41.46	16.63	38.92	44.48	17.36	47.40	47.48	43.99
FIXED CARBON	39.13	45.87	21.17	43.18	49.22	22.10	52.60	52.52	56.01
BTU/LB	10265	12330	4284	11330	13230	4472	13800	14120	11333

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.94	2.36	10.63	4.35	2.53	11.09	5.30	2.70	28.11
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	16.22	5.87	58.00	17.90	6.30	60.54	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.26	.64	10.39	2.49	.69	10.85	3.03	.74	27.49
SULFATIC	.09	.05	.02	.10	.05	.02	.12	.05	.06
ORGANIC	1.59	1.67	.21	1.76	1.79	.22	2.14	1.91	.56
TOTAL	3.94	2.36	10.63	4.35	2.53	11.09	5.30	2.70	28.11

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2130	2250	2140
SOFTENING TEMPERATURE	(ST)	2180	2330	2260
FLUID TEMPERATURE	(FT)	2280	2410	2470

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	21.72	8.20	71.48

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	3	3 1/2	--
HARDGROVE GRINDABILITY	(HGI)	59	35	--

STATE: ILLINOIS
COUNTY: PERRY

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 587

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.6	55.7	4.2	.52	2.68	13699	3.9
FLOAT 1.40	83.3	90.2	7.0	.75	2.79	13217	4.2
FLOAT 1.60	90.4	96.5	8.1	.93	2.94	13027	4.5
CUM(1-1/2" X 100M)	100.0	100.0	12.9	1.73	3.56	12200	5.8
100M X 0	2.1	1.9	18.5	1.30	2.62	11234	4.7
TOTAL(1-1/2" X 0)	100.0	100.0	13.0	1.72	3.54	12179	5.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.9	61.7	3.6	.44	2.53	13803	3.7
FLOAT 1.40	79.9	87.4	5.7	.60	2.63	13441	3.9
FLOAT 1.60	89.8	96.2	7.3	.75	2.74	13165	4.2
CUM(3/8" X 100M)	100.0	100.0	12.4	1.78	3.58	12286	5.8
100M X 0	7.9	7.4	16.7	1.66	3.32	11545	5.8
TOTAL(3/8" X 0)	100.0	100.0	12.7	1.77	3.56	12227	5.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.1	50.4	2.6	.35	2.54	13975	3.6
FLOAT 1.40	73.6	82.2	4.4	.51	2.64	13665	3.9
FLOAT 1.60	87.5	95.1	6.5	.63	2.68	13303	4.0
CUM(14M X 0)	100.0	100.0	12.7	1.57	3.48	12234	5.7

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	70.1
3/8" X 14M	21.2
14M X 100M	6.6
100M X 0	2.1

MOISTURE, %

TOTAL	11.9
AS RECEIVED	9.1

STATE: ILLINOIS
COUNTY: PERRY

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 587

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	9.10	3.20	3.40	--	--	--	--	--	--
ASH	12.09	6.54	56.36	13.30	6.76	58.34	--	--	--
VOLATILE MATTER	35.86	40.55	21.69	39.45	41.89	22.46	45.51	44.92	53.91
FIXED CARBON	42.95	49.71	18.55	47.25	51.35	19.20	54.49	55.08	46.09
BTU/LB	11081	12784	4210	12190	13206	4359	14060	14164	10463

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	62.63	72.79	23.69	68.90	75.19	24.52	79.47	80.64	58.86
HYDROGEN	5.18	5.21	1.83	4.58	5.02	1.50	5.28	5.38	3.60
NITROGEN	1.18	1.38	.39	1.30	1.43	.40	1.50	1.53	.96
SULFUR	2.89	2.49	8.79	3.17	2.57	9.10	3.66	2.76	21.83
OXYGEN	16.04	11.59	8.95	8.75	9.03	6.14	10.09	9.69	14.74
ASH	12.09	6.54	56.36	13.30	6.76	58.34	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.42	.62	7.87	1.56	.64	8.15	1.80	.69	19.57
SULFATIC	.03	.02	.05	.04	.02	.05	.04	.02	.12
ORGANIC	1.43	1.85	.86	1.58	1.91	.90	1.82	2.05	2.15
TOTAL	2.89	2.49	8.79	3.17	2.57	9.10	3.66	2.76	21.83

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.71	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.80	.80
OXYGEN/CARBON	.10	.09
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2080	2300	1980
SOFTENING TEMPERATURE (ST)	2130	2360	2030
FLUID TEMPERATURE (FT)	2190	2460	2080

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.07	--	--
NA (SODIUM) (CALCULATED)	.07	--	--
MINERAL MATTER (PARR)	16.07	8.71	68.01

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3 1/2	4	--
HARDGROVE GRINDABILITY (HGI)	54	56	--

STATE: ILLINOIS
COUNTY: PERRY

BED: NO.6
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 588

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.9	39.3	3.7	.48	2.61	13529	3.9
FLOAT 1.40	74.5	82.8	7.5	.84	2.83	12972	4.4
FLOAT 1.60	86.5	94.1	9.4	1.17	3.08	12694	4.9
CUM(1-1/2" X 100M)	100.0	100.0	16.4	2.45	4.19	11669	7.2
100M X 0	1.0	.9	22.1	2.30	3.57	10835	6.6
TOTAL(1-1/2" X 0)	100.0	100.0	16.5	2.45	4.18	11661	7.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.0	53.9	3.3	.50	2.58	13587	3.8
FLOAT 1.40	73.7	83.8	6.0	.73	2.74	13192	4.2
FLOAT 1.60	83.7	93.1	8.0	.90	2.83	12899	4.4
CUM(3/8" X 100M)	100.0	100.0	16.9	2.60	4.28	11596	7.4
100M X 0	2.5	2.4	20.3	2.82	4.26	11098	7.7
TOTAL(3/8" X 0)	100.0	100.0	17.0	2.61	4.28	11584	7.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.9	50.3	2.7	.39	2.45	13675	3.6
FLOAT 1.40	68.2	78.0	4.9	.63	2.60	13353	3.9
FLOAT 1.60	83.8	92.7	7.9	.82	2.72	12914	4.2
CUM(14M X 0)	100.0	100.0	16.4	2.68	4.33	11669	7.4

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	6.4
AS RECEIVED	3.3

STATE: ILLINOIS
COUNTY: PERRY

BED: NO.6
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 588

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.30	3.30	3.30	--	--	--	--	--	--
ASH	16.05	7.33	58.41	16.60	7.58	60.40	--	--	--
VOLATILE MATTER	36.07	39.62	--	37.30	40.97	--	44.72	44.34	--
FIXED CARBON	44.58	49.74	--	46.10	51.44	--	55.28	55.66	--
BTU/LB	11256	12532	--	11640	12960	--	13957	14024	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.03	2.62	12.26	4.17	2.71	12.67	4.99	2.93	32.00
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	16.05	7.33	58.41	16.60	7.58	60.40	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.37	.75	11.90	2.45	.78	12.30	2.94	.84	31.06
SULFATIC	.03	.02	.05	.04	.02	.05	.04	.02	.13
ORGANIC	1.62	1.85	.31	1.68	1.91	.32	2.01	2.07	.81
TOTAL	4.03	2.62	12.26	4.17	2.71	12.67	4.99	2.93	32.00

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	1.25	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2090	2080	--
SOFTENING TEMPERATURE (ST)	2140	2180	--
FLUID TEMPERATURE (FT)	2200	2300	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.15	--	--
MINERAL MATTER (PARR)	20.22	9.68	72.20

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: RANDOLPH

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 589

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.5	32.4	4.6	.61	2.27	13335	3.4
FLOAT 1.40	70.4	82.5	8.2	.92	2.76	12791	4.3
FLOAT 1.60	82.5	94.4	10.2	1.15	2.99	12488	4.8
CUM(1-1/2" X 100M)	100.0	100.0	20.6	2.29	3.84	10916	7.0
100M X 0	2.4	2.1	29.4	2.02	3.40	9585	7.1
TOTAL(1-1/2" X 0)	100.0	100.0	20.8	2.28	3.83	10884	7.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.8	41.6	3.9	.57	2.59	13441	3.9
FLOAT 1.40	69.2	82.0	7.1	.81	2.79	12957	4.3
FLOAT 1.60	81.4	94.1	9.2	1.01	2.94	12640	4.7
CUM(3/8" X 100M)	100.0	100.0	20.5	2.35	3.97	10931	7.3
100M X 0	5.1	4.4	30.2	2.00	3.37	9464	7.1
TOTAL(3/8" X 0)	100.0	100.0	21.0	2.33	3.94	10856	7.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.6	27.9	4.1	.55	2.56	13411	3.8
FLOAT 1.40	57.9	70.0	5.9	.74	2.67	13139	4.1
FLOAT 1.60	78.5	91.7	8.8	.92	2.79	12700	4.4
CUM(14M X 0)	100.0	100.0	20.9	2.41	3.96	10870	7.3

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	63.5
3/8" X 14M	24.3
14M X 100M	9.8
100M X 0	2.4

MOISTURE, %

TOTAL	10.1
AS RECEIVED	7.1

STATE: ILLINOIS
COUNTY: RANDOLPH

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 589

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	7.10	4.30	2.50	--	--	--	--	--	--
ASH	19.51	8.18	62.28	21.00	8.55	63.88	--	--	--
VOLATILE MATTER	34.54	42.25	12.30	37.18	44.14	12.62	47.06	48.27	34.94
FIXED CARBON	38.85	45.27	22.91	41.82	47.31	23.50	52.94	51.73	65.06
BTU/LB	10088	12188	4260	10859	12735	4369	13745	13926	12096

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.87	2.63	8.05	4.17	2.75	8.25	5.28	3.01	22.85
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	19.51	8.18	62.28	21.00	8.55	63.88	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.25	.85	7.65	2.42	.89	7.85	3.06	.97	21.73
SULFATIC	.03	.01	.05	.03	.01	.05	.04	.01	.14
ORGANIC	1.60	1.77	.34	1.72	1.85	.35	2.18	2.02	.97
TOTAL	3.87	2.63	8.05	4.17	2.75	8.25	5.28	3.01	22.85

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.30	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.05	--	--
MINERAL MATTER (PARR)	24.97	10.75	73.53

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3 1/2	3 1/2	--
HARDGROVE GRINDABILITY (HGI)	54	53	--

STATE: ILLINOIS
COUNTY: RANDOLPH

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 590

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.8	44.0	4.7	.49	2.63	13329	3.9
FLOAT 1.40	76.7	83.6	8.1	.77	2.78	12808	4.3
FLOAT 1.60	88.8	94.7	9.9	1.20	3.10	12531	4.9
CUM(1-1/2" X 100M)	100.0	100.0	15.0	2.59	4.39	11749	7.5
100M X 0	1.2	1.2	16.8	2.03	3.77	11473	6.6
TOTAL(1-1/2" X 0)	100.0	100.0	15.0	2.58	4.38	11745	7.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.4	49.5	3.8	.30	2.65	13468	3.9
FLOAT 1.40	74.6	82.4	6.6	.56	2.74	13038	4.2
FLOAT 1.60	87.7	94.3	8.8	.81	2.92	12700	4.6
CUM(3/8" X 100M)	100.0	100.0	14.6	2.55	4.47	11810	7.6
100M X 0	4.2	4.1	16.4	2.36	4.08	11534	7.1
TOTAL(3/8" X 0)	100.0	100.0	14.7	2.54	4.45	11799	7.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.2	54.6	4.8	.29	2.65	13314	4.0
FLOAT 1.40	67.5	75.7	5.6	.44	2.70	13191	4.1
FLOAT 1.60	88.0	94.5	9.2	.88	3.00	12639	4.7
CUM(14M X 0)	100.0	100.0	14.9	2.56	4.50	11764	7.7

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	70.4
3/8" X 14M	22.8
14M X 100M	5.6
100M X 0	1.2

MOISTURE, %

TOTAL	9.5
AS RECEIVED	6.5

STATE: ILLINOIS
COUNTY: RANDOLPH

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 590

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	6.50	4.00	4.30	--	--	--	--	--	--
ASH	13.65	8.48	52.09	14.60	8.83	54.43	--	--	--
VOLATILE MATTER	37.11	41.73	12.31	39.69	43.47	12.87	46.48	47.68	28.24
FIXED CARBON	42.74	45.79	31.29	45.71	47.70	32.70	53.52	52.32	71.76
BTU/LB	11080	12154	5448	11850	12661	5692	13876	13887	12492

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.27	2.69	14.85	4.57	2.80	15.52	5.35	3.07	34.05
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	13.65	8.48	52.09	14.60	8.83	54.43	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.54	.76	14.24	2.72	.79	14.88	3.19	.87	32.65
SULFATIC	.01	.00	.03	.02	.00	.03	.02	.00	.07
ORGANIC	1.71	1.93	.58	1.83	2.01	.61	2.14	2.20	1.33
TOTAL	4.27	2.69	14.85	4.57	2.80	15.52	5.35	3.07	34.05

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.13	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.01	--	--
MINERAL MATTER (PARR)	18.28	11.08	67.32

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	2 1/2	3	1
HARDGROVE GRINDABILITY (HGI)	54	53	--

STATE: ILLINOIS
COUNTY: SALINE

BED: NO.6
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 484
SAMPLE NO. 591

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.3	39.5	3.4	.49	2.28	13786	3.3
FLOAT 1.40	69.3	83.4	7.1	.88	2.70	13157	4.1
FLOAT 1.60	79.9	93.7	9.1	1.10	2.89	12818	4.5
FLOAT 1.90	84.6	97.0	10.8	1.30	3.07	12529	4.9
CUM(1-1/2" X 100M)	100.0	100.0	20.2	3.34	5.20	10933	9.5
100M X 0	.3	.3	28.9	3.12	3.92	9455	8.3
TOTAL(1-1/2" X 0)	100.0	100.0	20.2	3.34	5.20	10928	9.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.7	58.8	3.2	.48	2.19	13820	3.2
FLOAT 1.40	69.6	85.7	5.1	.70	2.44	13497	3.6
FLOAT 1.60	78.0	93.8	6.9	.85	2.57	13191	3.9
FLOAT 1.90	84.6	97.0	10.8	1.30	3.07	12529	4.9
CUM(3/8" X 100M)	100.0	100.0	20.0	3.30	5.05	10967	9.2
100M X 0	1.3	1.2	27.1	3.85	5.34	9761	10.9
TOTAL(3/8" X 0)	100.0	100.0	20.1	3.31	5.05	10951	9.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.0	48.2	3.1	.46	2.16	13837	3.1
FLOAT 1.40	62.0	76.7	5.1	.69	2.42	13497	3.6
FLOAT 1.60	77.6	92.8	7.7	.92	2.63	13055	4.0
FLOAT 1.90	84.6	97.0	10.8	1.30	3.07	12529	4.9
CUM(14M X 0)	100.0	100.0	20.3	3.15	4.94	10916	9.1

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	2.7
AS RECEIVED	1.6

STATE: ILLINOIS
COUNTY: SALINE

BED: NO.6
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 484
SAMPLE NO. 591

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.60	--	--	--	--	--	--	--	--
ASH	20.17	--	--	20.50	--	--	--	--	--
VOLATILE MATTER	33.06	--	--	33.60	--	--	42.26	--	--
FIXED CARBON	45.17	--	--	45.90	--	--	57.74	--	--
BTU/LB	11311	--	--	11495	--	--	14459	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.97	--	--	5.05	--	--	6.35	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	20.17	--	--	20.50	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.48	--	--	3.54	--	--	4.45	--	--
SULFATIC	.18	--	--	.18	--	--	.23	--	--
ORGANIC	1.31	--	--	1.33	--	--	1.67	--	--
TOTAL	4.97	--	--	5.05	--	--	6.35	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.80	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.12	--	--
MINERAL MATTER (PARR)	24.92	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: ST CLAIR

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 592

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	36.9	42.9	5.1	.53	3.29	13553	4.9
FLOAT 1.40	72.9	81.2	8.4	.89	3.60	12986	5.5
FLOAT 1.60	86.3	93.5	10.4	1.66	4.37	12643	6.9
CUM(1-1/2" X 100M)	100.0	100.0	16.1	3.82	6.30	11664	10.8
100M X 0	1.3	1.2	23.0	2.54	4.30	10479	8.2
TOTAL(1-1/2" X 0)	100.0	100.0	16.2	3.80	6.27	11649	10.8

SAMPLE CRUSHED TO PASS 3/8"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.0	46.0	3.9	.49	3.33	13759	4.8
FLOAT 1.40	69.6	79.2	6.7	.78	3.49	13278	5.3
FLOAT 1.60	84.3	93.0	9.1	1.35	3.99	12866	6.2
CUM(3/8" X 100M)	100.0	100.0	16.1	3.77	6.22	11664	10.7
100M X 0	4.9	4.4	23.1	2.90	4.90	10462	9.4
TOTAL(3/8" X 0)	100.0	100.0	16.4	3.73	6.16	11605	10.6

SAMPLE CRUSHED TO PASS 14M

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.1	27.2	4.2	.45	3.30	13708	4.8
FLOAT 1.40	54.3	62.6	6.0	.65	3.46	13399	5.2
FLOAT 1.60	79.6	88.1	9.1	1.12	3.72	12866	5.8
CUM(14M X 0)	100.0	100.0	16.3	3.74	6.13	11630	10.5

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	79.5
3/8" X 14M	15.3
14M X 100M	3.9
100M X 0	1.3

MOISTURE, %

TOTAL	10.1
AS RECEIVED	7.1

STATE: ILLINOIS
COUNTY: ST CLAIR

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 592

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	7.10	3.60	3.40	--	--	--	--	--	--
ASH	15.33	8.42	43.18	16.50	8.74	44.70	--	--	--
VOLATILE MATTER	38.10	43.07	26.37	41.01	44.68	27.30	49.11	48.95	49.37
FIXED CARBON	39.47	44.91	27.05	42.49	46.59	28.00	50.89	51.05	50.63
BTU/LB	10739	12490	6530	11560	12956	6760	13844	14197	12224

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	5.71	3.61	15.05	6.15	3.74	15.58	7.36	4.10	28.17
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	15.33	8.42	43.18	16.50	8.74	44.70	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.39	1.08	13.49	3.65	1.12	13.96	4.37	1.23	25.25
SULFATIC	.05	.01	.10	.06	.01	.10	.07	.01	.18
ORGANIC	2.27	2.52	1.46	2.44	2.61	1.52	2.92	2.86	2.74
TOTAL	5.71	3.61	15.05	6.15	3.74	15.58	7.36	4.10	28.17

MINERAL ANALYSIS OF ASH, %

OXIDES	RAW	FL 1.60	SK 1.60
SIO2 (SILICON OXIDE)	--	--	--
AL2O3 (ALUMINUM OXIDE)	--	--	--
FE2O3 (IRON OXIDE)	--	--	--
TIO2 (TITANIUM OXIDE)	--	--	--
CAO (CALCIUM OXIDE)	--	--	--
MGO (MAGNESIUM OXIDE)	--	--	--
NA2O (SODIUM OXIDE)	1.08	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1990	2130	1980
SOFTENING TEMPERATURE (ST)	2040	2180	2030
FLUID TEMPERATURE (FT)	2090	2260	2080

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.13	--	--
MINERAL MATTER (PARR)	21.20	11.49	56.84

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4 1/2	4	--
HARDGROVE GRINDABILITY (HGI)	57	56	--

STATE: ILLINOIS
COUNTY: ST. CLAIR

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 593

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.6	40.9	5.7	.80	2.94	13513	4.4
FLOAT 1.40	82.9	85.5	8.0	.97	3.13	13134	4.8
FLOAT 1.60	96.9	98.0	9.5	1.26	3.39	12888	5.3
CUM(1-1/2" X 100M)	100.0	100.0	10.4	1.44	3.55	12740	5.6
100M X 0	1.1	.9	21.7	1.85	3.44	10881	6.3
TOTAL(1-1/2" X 0)	100.0	100.0	10.5	1.44	3.55	12719	5.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.4	40.6	3.9	.54	2.71	13809	3.9
FLOAT 1.40	79.5	83.4	6.7	.74	2.94	13348	4.4
FLOAT 1.60	94.8	96.9	8.8	.94	3.11	13003	4.8
CUM(3/8" X 100M)	100.0	100.0	10.5	1.33	3.46	12723	5.4
100M X 0	2.2	2.0	17.0	1.66	3.79	11654	6.5
TOTAL(3/8" X 0)	100.0	100.0	10.6	1.34	3.47	12700	5.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	17.3	18.8	3.2	.51	2.66	13924	3.8
FLOAT 1.40	77.2	80.7	6.6	.75	2.87	13365	4.3
FLOAT 1.60	93.6	96.6	7.6	.84	3.12	13200	4.7
CUM(14M X 0)	100.0	100.0	10.1	1.43	3.69	12789	5.8

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	9.0
AS RECEIVED	6.0

STATE: ILLINOIS
COUNTY: ST. CLAIR

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 593

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	6.00	4.90	1.90	--	--	--	--	--	--
ASH	9.96	7.52	45.32	10.60	7.90	46.20	--	--	--
VOLATILE MATTER	38.16	38.93	--	40.60	40.93	--	45.41	44.44	--
FIXED CARBON	45.87	48.66	--	48.80	51.16	--	54.59	55.56	--
BTU/LB	11577	12298	--	12316	12932	--	13776	14041	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.36	2.88	11.81	3.58	3.02	12.04	4.00	3.28	22.38
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	9.96	7.52	45.32	10.60	7.90	46.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.38	.83	9.87	1.47	.87	10.06	1.64	.95	18.70
SULFATIC	.13	.11	.15	.14	.12	.15	.15	.13	.28
ORGANIC	1.85	1.93	1.80	1.97	2.03	1.83	2.20	2.20	3.41
TOTAL	3.36	2.88	11.81	3.58	3.02	12.04	4.00	3.28	22.38

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.59	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2050	2150	--
SOFTENING TEMPERATURE (ST)	2100	2210	--
FLUID TEMPERATURE (FT)	2190	2410	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.05	--	--
MINERAL MATTER (PARR)	13.41	10.20	56.52

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4 1/2	3 1/2	--
HARDGROVE GRINDABILITY (HGI)	55	56	--

STATE: ILLINOIS
COUNTY: STARK

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 594

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	73.4	86.2	4.9	.48	2.48	13255	3.7
FLOAT 1.40	78.1	91.6	5.0	.51	2.49	13240	3.8
FLOAT 1.60	82.6	96.0	5.8	.58	2.52	13116	3.8
CUM(1-1/2" X 100M)	100.0	100.0	17.6	2.34	3.96	11289	7.0
100M X 0	.8	.7	27.9	5.85	7.06	9694	14.6
TOTAL(1-1/2" X 0)	100.0	100.0	17.7	2.37	3.98	11276	7.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.4	62.9	2.8	.46	2.36	13580	3.5
FLOAT 1.40	70.2	84.0	3.1	.50	2.37	13534	3.5
FLOAT 1.60	80.1	94.6	4.3	.62	2.44	13348	3.7
CUM(3/8" X 100M)	100.0	100.0	17.5	2.48	3.98	11305	7.0
100M X 0	5.2	4.7	24.1	3.28	4.62	10283	9.0
TOTAL(3/8" X 0)	100.0	100.0	17.8	2.52	4.01	11251	7.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.1	26.3	3.5	.47	2.33	13472	3.5
FLOAT 1.40	62.1	73.7	3.6	.46	2.33	13457	3.5
FLOAT 1.60	81.1	94.7	5.0	.62	2.48	13240	3.7
CUM(14M X 0)	100.0	100.0	17.3	2.48	3.99	11336	7.0

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	81.3
3/8" X 14M	14.6
14M X 100M	3.3
100M X 0	.8

MOISTURE, %

TOTAL	8.1
AS RECEIVED	5.0

STATE: ILLINOIS
COUNTY: STARK

BED: NO.6
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 484
SAMPLE NO. 594

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.00	3.90	4.50	--	--	--	--	--	--
ASH	17.10	4.71	64.25	18.00	4.90	67.28	--	--	--
VOLATILE MATTER	34.74	42.02	8.33	36.57	43.73	8.72	44.60	45.98	26.66
FIXED CARBON	43.16	49.37	22.92	45.43	51.37	24.00	55.40	54.02	73.34
BTU/LB	10564	12820	3458	11120	13340	3621	13561	14027	11064

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.79	2.32	10.00	3.99	2.41	10.47	4.87	2.53	32.00
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	17.10	4.71	64.25	18.00	4.90	67.28	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.45	.66	9.99	2.58	.68	10.46	3.15	.72	31.97
SULFATIC	.00	.00	.00	.00	.00	.00	.00	.00	.00
ORGANIC	1.34	1.66	.01	1.41	1.73	.01	1.72	1.82	.03
TOTAL	3.79	2.32	10.00	3.99	2.41	10.47	4.87	2.53	32.00

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	21.63	6.62	78.42

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3 1/2	4 1/2	--
HARDGROVE GRINDABILITY (HGI)	58	56	--

STATE: ILLINOIS
COUNTY: WILLIAMSON

BED: NO.6
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 484
SAMPLE NO. 595

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.8	34.0	3.8	.58	1.56	13825	2.3
FLOAT 1.40	77.2	90.0	7.8	.82	1.82	13167	2.8
FLOAT 1.60	84.4	96.8	9.1	.93	1.92	12953	3.0
FLOAT 1.90	87.1	98.6	10.1	1.03	2.01	12789	3.1
CUM(1-1/2" X 100M)	100.0	100.0	19.2	1.57	2.47	11292	4.4
100M X 0	.3	.3	21.6	2.01	2.70	10898	5.0
TOTAL(1-1/2" X 0)	100.0	100.0	19.2	1.57	2.47	11291	4.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.0	51.5	3.6	.43	1.41	13858	2.0
FLOAT 1.40	75.3	89.4	6.3	.64	1.63	13414	2.4
FLOAT 1.60	83.2	97.0	7.8	.75	1.74	13167	2.6
FLOAT 1.90	87.1	98.6	10.1	1.03	2.01	12789	3.1
CUM(3/8" X 100M)	100.0	100.0	19.2	1.51	2.41	11292	4.3
100M X 0	.8	.7	26.0	2.54	3.32	10174	6.5
TOTAL(3/8" X 0)	100.0	100.0	19.3	1.52	2.42	11283	4.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.8	29.5	3.5	.30	1.23	13874	1.8
FLOAT 1.40	66.4	80.0	6.0	.53	1.49	13463	2.2
FLOAT 1.60	81.2	94.7	8.6	.68	1.63	13036	2.5
FLOAT 1.90	87.1	98.6	10.1	1.03	2.01	12789	3.1
CUM(14M X 0)	100.0	100.0	19.9	1.49	2.34	11177	4.2

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	4.0
AS RECEIVED	2.1

STATE: ILLINOIS
COUNTY: WILLIAMSON

BED: NO.6
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 484
SAMPLE NO. 595

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.10	--	--	--	--	--	--	--	--
ASH	19.19	--	--	19.60	--	--	--	--	--
VOLATILE MATTER	30.94	--	--	31.60	--	--	39.30	--	--
FIXED CARBON	47.78	--	--	48.80	--	--	60.70	--	--
BTU/LB	11493	--	--	11740	--	--	14602	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.22	--	--	2.26	--	--	2.81	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	19.19	--	--	19.60	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.57	--	--	1.60	--	--	1.99	--	--
SULFATIC	.06	--	--	.06	--	--	.07	--	--
ORGANIC	.59	--	--	.60	--	--	.75	--	--
TOTAL	2.22	--	--	2.26	--	--	2.81	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.19	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.03	--	--
MINERAL MATTER (PARR)	22.41	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: WILLIAMSON

BED: NO.6
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 596

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.6	55.3	3.6	.47	1.55	13961	2.2
FLOAT 1.40	82.3	90.9	6.1	.69	1.79	13559	2.6
FLOAT 1.60	89.1	97.0	7.3	.82	1.90	13367	2.8
CUM(1-1/2" X 100M)	100.0	100.0	14.1	1.67	2.65	12274	4.3
100M X 0	3.6	3.4	19.2	2.17	2.93	11455	5.1
TOTAL(1-1/2" X 0)	100.0	100.0	14.3	1.69	2.66	12244	4.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.2	62.9	3.3	.42	1.56	14009	2.2
FLOAT 1.40	81.8	90.9	5.5	.64	1.75	13656	2.6
FLOAT 1.60	89.1	97.4	6.9	.76	1.84	13431	2.7
CUM(3/8" X 100M)	100.0	100.0	14.0	1.66	2.64	12290	4.3
100M X 0	7.7	7.4	16.7	1.93	3.03	11856	5.1
TOTAL(3/8" X 0)	100.0	100.0	14.2	1.68	2.67	12257	4.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.0	50.7	2.7	.46	1.45	14106	2.1
FLOAT 1.40	79.5	89.4	4.8	.62	1.60	13768	2.3
FLOAT 1.60	88.5	97.9	6.2	.71	1.67	13543	2.5
CUM(14M X 0)	100.0	100.0	14.3	1.68	2.55	12242	4.2

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	55.6
3/8" X 14M	30.1
14M X 100M	10.7
100M X 0	3.6

MOISTURE, %

TOTAL	7.6
AS RECEIVED	4.5

STATE: ILLINOIS
COUNTY: WILLIAMSON

BED: NO.6
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 596

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.50	2.70	3.90	--	--	--	--	--	--
ASH	13.11	5.94	42.28	13.73	6.10	44.00	--	--	--
VOLATILE MATTER	33.48	37.08	22.30	35.06	38.10	23.20	40.64	40.58	41.43
FIXED CARBON	48.91	54.29	31.52	51.21	55.80	32.80	59.36	59.42	58.57
BTU/LB	11826	13155	7169	12383	13520	7460	14353	14398	13321

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.53	1.70	8.96	2.65	1.75	9.32	3.07	1.86	16.65
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	13.11	5.94	42.28	13.73	6.10	44.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.48	.62	8.79	1.55	.64	9.14	1.80	.68	16.33
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	1.04	1.07	.16	1.09	1.10	.17	1.26	1.17	.30
TOTAL	2.53	1.70	8.96	2.65	1.75	9.32	3.07	1.86	16.65

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2090	2080	--
SOFTENING TEMPERATURE	(ST)	2140	2280	2080
FLUID TEMPERATURE	(FT)	2440	2460	2140

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	--	--	--
NA (SODIUM)	(CALCULATED)	--	--	--
MINERAL MATTER	(PARR)	16.28	7.55	52.65

PHYSICAL PARAMETERS, INDEX

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

STATE: ILLINOIS
COUNTY: WILLIAMSON

BED: NO.6
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 597

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.4	40.5	3.4	.38	1.65	14087	2.3
FLOAT 1.40	80.1	87.3	7.4	.66	1.98	13412	3.0
FLOAT 1.60	91.3	97.4	9.1	.86	2.17	13126	3.3
CUM(1-1/2" X 100M)	100.0	100.0	14.0	1.95	3.19	12299	5.2
100M X 0	1.3	1.3	16.6	2.09	3.16	11861	5.3
TOTAL(1-1/2" X 0)	100.0	100.0	14.0	1.95	3.19	12294	5.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.0	49.5	3.0	.30	1.63	14154	2.3
FLOAT 1.40	78.2	86.7	6.1	.57	1.90	13632	2.8
FLOAT 1.60	88.0	95.4	7.9	.71	1.99	13328	3.0
CUM(3/8" X 100M)	100.0	100.0	14.0	1.99	3.16	12299	5.1
100M X 0	2.2	2.1	17.6	3.00	3.99	11692	6.8
TOTAL(3/8" X 0)	100.0	100.0	14.1	2.01	3.18	12286	5.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.4	71.7	3.1	.34	1.69	14138	2.4
FLOAT 1.40	75.6	85.7	4.3	.44	1.79	13935	2.6
FLOAT 1.60	80.1	89.7	5.3	.50	1.84	13767	2.7
CUM(14M X 0)	100.0	100.0	14.0	1.97	3.11	12299	5.1

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	5.3
AS RECEIVED	2.1

STATE: ILLINOIS
COUNTY: WILLIAMSON

BED: NO.6
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 597

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.10	2.30	2.20	--	--	--	--	--	--
ASH	13.41	5.39	47.73	13.70	5.51	48.80	--	--	--
VOLATILE MATTER	35.44	38.75	--	36.20	39.67	--	41.95	41.98	--
FIXED CARBON	49.05	53.56	--	50.10	54.82	--	58.05	58.02	--
BTU/LB	12091	13415	--	12350	13731	--	14311	14532	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.06	1.89	8.06	3.13	1.93	8.24	3.62	2.04	16.09
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	13.41	5.39	47.73	13.70	5.51	48.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.87	.54	7.71	1.91	.55	7.89	2.21	.58	15.40
SULFATIC	.02	.01	.04	.03	.01	.04	.03	.01	.08
ORGANIC	1.17	1.34	.30	1.19	1.37	.31	1.38	1.45	.61
TOTAL	3.06	1.89	8.06	3.13	1.93	8.24	3.62	2.04	16.09

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2080	2130	--
SOFTENING TEMPERATURE (ST)	2130	2190	--
FLUID TEMPERATURE (FT)	2180	2290	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	16.51	7.02	57.23

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	5 1/2	4 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: ILLINOIS
COUNTY: WILLIAMSON

BED: NO.6
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 598

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.6	49.8	3.7	.50	2.22	13994	3.2
FLOAT 1.40	85.3	89.3	7.2	.71	2.41	13412	3.6
FLOAT 1.60	94.5	97.2	8.6	.99	2.66	13179	4.0
CUM(1-1/2" X 100M)	100.0	100.0	10.8	1.68	3.31	12812	5.2
100M X 0	1.5	1.4	14.0	2.09	3.46	12280	5.6
TOTAL(1-1/2" X 0)	100.0	100.0	10.8	1.69	3.31	12804	5.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.9	56.7	3.5	.32	2.16	14028	3.1
FLOAT 1.40	84.7	89.8	6.1	.59	2.35	13595	3.5
FLOAT 1.60	93.3	97.1	7.6	.79	2.52	13345	3.8
CUM(3/8" X 100M)	100.0	100.0	10.7	1.71	3.32	12829	5.2
100M X 0	2.8	2.7	13.5	2.29	4.02	12363	6.5
TOTAL(3/8" X 0)	100.0	100.0	10.8	1.73	3.34	12816	5.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	67.0	72.8	4.0	.36	2.20	13945	3.2
FLOAT 1.40	84.3	89.9	5.6	.53	2.27	13678	3.3
FLOAT 1.60	92.7	96.9	7.2	.75	2.45	13412	3.7
CUM(14M X 0)	100.0	100.0	10.7	1.74	3.34	12829	5.2

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	65.3
3/8" X 14M	25.9
14M X 100M	7.3
100M X 0	1.5

MOISTURE, %

TOTAL	6.3
AS RECEIVED	3.2

STATE: ILLINOIS
COUNTY: WILLIAMSON

BED: NO.6
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 598

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.20	1.90	2.80	--	--	--	--	--	--
ASH	10.36	6.77	51.46	10.70	6.90	52.94	--	--	--
VOLATILE MATTER	37.34	39.76	15.90	38.57	40.53	16.36	43.20	43.53	34.76
FIXED CARBON	49.10	51.58	29.84	50.73	52.57	30.70	56.80	56.47	65.24
BTU/LB	12410	13214	5635	12820	13470	5798	14356	14468	12319

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.48	2.46	14.23	3.60	2.51	14.64	4.03	2.70	31.11
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	10.36	6.77	51.46	10.70	6.90	52.94	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.81	.75	13.91	1.87	.76	14.31	2.09	.82	30.41
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	1.66	1.71	.31	1.72	1.74	.32	1.93	1.87	.68
TOTAL	3.48	2.46	14.23	3.60	2.51	14.64	4.03	2.70	31.11

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.16	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.01	--	--
MINERAL MATTER (PARR)	13.54	8.83	65.23

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3 1/2	4 1/2	1
HARDGROVE GRINDABILITY (HGI)	56	55	--

STATE: ILLINOIS
COUNTY: WILLIAMSON

BED: NO.6
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 484
SAMPLE NO. 599

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.4	51.3	4.2	.46	2.37	13759	3.4
FLOAT 1.40	72.7	84.6	7.4	.64	2.50	13233	3.8
FLOAT 1.60	83.6	94.7	9.5	.89	2.74	12888	4.3
FLOAT 1.90	87.6	97.5	10.9	1.09	2.94	12657	4.6
CUM(1-1/2" X 100M)	100.0	100.0	18.7	2.59	4.35	11375	7.6
100M X 0	.3	.3	29.8	2.72	3.66	9549	7.7
TOTAL(1-1/2" X 0)	100.0	100.0	18.7	2.59	4.35	11369	7.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.8	58.7	3.7	.42	2.33	13841	3.4
FLOAT 1.40	74.1	86.3	6.4	.57	2.44	13397	3.6
FLOAT 1.60	82.2	93.9	7.9	.69	2.52	13151	3.8
FLOAT 1.90	87.6	97.5	10.9	1.09	2.94	12657	4.6
CUM(3/8" X 100M)	100.0	100.0	17.9	2.49	4.21	11506	7.3
100M X 0	.9	.8	25.8	3.51	4.71	10207	9.2
TOTAL(3/8" X 0)	100.0	100.0	18.0	2.50	4.21	11494	7.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.1	48.1	3.5	.41	2.30	13874	3.3
FLOAT 1.40	62.2	74.8	5.4	.52	2.38	13562	3.5
FLOAT 1.60	80.4	92.7	8.8	.74	2.53	13003	3.9
FLOAT 1.90	87.6	97.5	10.9	1.09	2.94	12657	4.6
CUM(14M X 0)	100.0	100.0	19.3	2.87	4.53	11276	8.0

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	3.0
AS RECEIVED	1.9

STATE: ILLINOIS
COUNTY: WILLIAMSON

BED: NO.6
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 484
SAMPLE NO. 599

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.90	--	--	--	--	--	--	--	--
ASH	19.23	--	--	19.60	--	--	--	--	--
VOLATILE MATTER	33.94	--	--	34.60	--	--	43.03	--	--
FIXED CARBON	44.93	--	--	45.80	--	--	56.97	--	--
BTU/LB	11145	--	--	11361	--	--	14131	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.30	--	--	4.38	--	--	5.45	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	19.23	--	--	19.60	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.77	--	--	2.82	--	--	3.51	--	--
SULFATIC	.21	--	--	.21	--	--	.26	--	--
ORGANIC	1.32	--	--	1.35	--	--	1.68	--	--
TOTAL	4.30	--	--	4.38	--	--	5.45	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.35	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.05	--	--
MINERAL MATTER (PARR)	23.58	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: INDIANA
COUNTY: CLAY

BED: NO.III
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 502
SAMPLE NO. 600

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.5	51.5	4.7	.79	3.77	13433	5.6
FLOAT 1.40	77.2	81.8	6.6	1.18	4.13	13131	6.3
FLOAT 1.60	95.0	97.3	9.3	1.49	4.33	12701	6.8
CUM(1-1/2" X 100M)	100.0	100.0	11.2	1.65	4.47	12399	7.2
100M X 0	1.3	1.1	24.8	1.51	5.81	10236	11.4
TOTAL(1-1/2" X 0)	100.0	100.0	11.4	1.65	4.49	12371	7.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.1	58.5	4.8	.81	3.85	13417	5.7
FLOAT 1.40	77.4	82.6	6.0	1.06	4.06	13226	6.1
FLOAT 1.60	93.0	96.3	8.4	1.32	4.21	12845	6.6
CUM(3/8" X 100M)	100.0	100.0	11.2	1.62	4.47	12399	7.2
100M X 0	2.1	1.8	20.8	1.60	5.87	10872	10.8
TOTAL(3/8" X 0)	100.0	100.0	11.4	1.62	4.50	12367	7.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.4	36.3	4.3	.56	3.33	13497	4.9
FLOAT 1.40	79.0	84.3	5.8	.86	3.74	13258	5.6
FLOAT 1.60	91.8	95.4	7.9	1.14	3.93	12924	6.1
CUM(14M X 0)	100.0	100.0	11.0	1.59	4.29	12431	6.9

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	6.2
AS RECEIVED	4.5

STATE: INDIANA
COUNTY: CLAY

BED: NO.III
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 502
SAMPLE NO. 600

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.50	4.30	4.40	--	--	--	--	--	--
ASH	10.93	7.46	43.69	11.44	7.80	45.70	--	--	--
VOLATILE MATTER	41.33	42.11	--	43.27	44.00	--	48.86	47.72	--
FIXED CARBON	43.25	46.13	--	45.29	48.20	--	51.14	52.28	--
BTU/LB	11805	12384	--	12361	12940	--	13958	14035	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.17	3.74	8.01	4.37	3.91	8.38	4.93	4.24	15.43
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	10.93	7.46	43.69	11.44	7.80	45.70	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.57	1.01	6.34	1.64	1.06	6.63	1.85	1.15	12.21
SULFATIC	.26	.27	.17	.27	.29	.18	.31	.31	.32
ORGANIC	2.35	2.45	1.51	2.46	2.57	1.58	2.77	2.78	2.90
TOTAL	4.17	3.74	8.01	4.37	3.91	8.38	4.93	4.24	15.43

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2010	2050	--
SOFTENING TEMPERATURE	(ST)	2110	2130	--
FLUID TEMPERATURE	(FT)	2300	2280	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	14.76	10.57	53.97

PHYSICAL PARAMETERS, INDEX

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

STATE: INDIANA
COUNTY: GREENE

BED: NO.III
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 502
SAMPLE NO. 601

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.5	61.6	4.8	1.64	3.32	13737	4.8
FLOAT 1.40	85.5	91.5	6.2	2.25	3.97	13488	5.9
FLOAT 1.60	90.7	96.2	6.9	2.55	4.30	13363	6.4
CUM(1-1/2" X 100M)	100.0	100.0	11.2	4.48	6.13	12598	9.7
100M X 0	2.2	1.8	25.0	10.48	11.78	10143	23.2
TOTAL(1-1/2" X 0)	100.0	100.0	11.5	4.61	6.25	12544	10.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.2	64.0	4.2	1.30	2.92	13844	4.2
FLOAT 1.40	82.9	89.7	5.5	1.82	3.50	13612	5.1
FLOAT 1.60	89.6	95.9	6.3	2.17	3.87	13470	5.7
CUM(3/8" X 100M)	100.0	100.0	11.3	4.55	6.08	12580	9.7
100M X 0	4.9	4.1	22.3	10.08	11.76	10623	22.1
TOTAL(3/8" X 0)	100.0	100.0	11.8	4.82	6.36	12484	10.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.5	45.4	3.5	.88	2.60	13968	3.7
FLOAT 1.40	75.6	83.1	4.9	1.48	3.18	13719	4.6
FLOAT 1.60	84.9	92.0	6.0	1.91	3.57	13523	5.3
CUM(14M X 0)	100.0	100.0	11.9	4.76	6.33	12474	10.1

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	72.8
3/8" X 14M	20.7
14M X 100M	4.3
100M X 0	2.2

MOISTURE, %

TOTAL	8.8
AS RECEIVED	7.2

STATE: INDIANA
COUNTY: GREENE

BED: NO.III
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 502
SAMPLE NO. 601

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	7.20	3.80	4.60	--	--	--	--	--	--
ASH	10.76	5.87	43.50	11.60	6.10	45.60	--	--	--
VOLATILE MATTER	39.20	43.34	23.47	42.24	45.06	24.60	47.79	47.98	45.22
FIXED CARBON	42.83	46.99	28.43	46.16	48.84	29.80	52.21	52.02	54.78
BTU/LB	11674	12949	6172	12580	13460	6470	14231	14334	11893

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	5.88	3.57	20.91	6.34	3.71	21.91	7.17	3.95	40.28
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	10.76	5.87	43.50	11.60	6.10	45.60	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.32	1.90	19.83	4.66	1.97	20.78	5.27	2.10	38.21
SULFATIC	.22	.16	.11	.24	.17	.11	.27	.18	.21
ORGANIC	1.34	1.51	.97	1.44	1.57	1.02	1.63	1.67	1.87
TOTAL	5.88	3.57	20.91	6.34	3.71	21.91	7.17	3.95	40.28

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	16.01	8.63	61.30

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	2 1/2	4	--
HARDGROVE GRINDABILITY (HGI)	51	53	--

STATE: INDIANA
COUNTY: GREENE

BED: NO.III
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 502
SAMPLE NO. 602

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.0	51.9	5.7	1.33	3.16	13583	4.7
FLOAT 1.40	77.0	84.8	7.6	1.86	3.77	13249	5.7
FLOAT 1.60	87.5	94.3	9.2	2.26	4.17	12968	6.4
CUM(1-1/2" X 100M)	100.0	100.0	14.5	5.43	7.14	12035	11.9
100M X 0	1.5	1.4	21.1	7.99	9.46	10874	17.4
TOTAL(1-1/2" X 0)	100.0	100.0	14.6	5.47	7.17	12018	11.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.0	51.4	4.6	1.12	3.10	13777	4.5
FLOAT 1.40	75.4	83.8	6.8	1.58	3.53	13390	5.3
FLOAT 1.60	84.9	92.8	8.0	1.89	3.84	13179	5.8
CUM(3/8" X 100M)	100.0	100.0	14.4	5.40	7.14	12053	11.8
100M X 0	3.9	3.7	18.7	7.01	8.63	11296	15.3
TOTAL(3/8" X 0)	100.0	100.0	14.6	5.46	7.20	12023	12.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.5	37.5	4.3	1.00	2.99	13830	4.3
FLOAT 1.40	63.0	71.7	5.4	1.28	3.25	13636	4.8
FLOAT 1.60	82.9	91.3	7.9	1.74	3.63	13196	5.5
CUM(14M X 0)	100.0	100.0	14.8	5.56	7.23	11982	12.1

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	77.2
3/8" X 14M	17.5
14M X 100M	3.8
100M X 0	1.5

MOISTURE, %

TOTAL	7.9
AS RECEIVED	6.2

STATE: INDIANA
COUNTY: GREENE

BED: NO.III
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 502
SAMPLE NO. 602

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	6.20	4.20	3.70	--	--	--	--	--	--
ASH	14.07	7.38	45.57	15.00	7.70	47.32	--	--	--
VOLATILE MATTER	38.35	42.98	21.84	40.88	44.86	22.68	48.10	48.61	43.05
FIXED CARBON	41.38	45.44	28.89	44.12	47.44	30.00	51.90	51.39	56.95
BTU/LB	11277	12617	6016	12022	13170	6247	14144	14269	11858

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	7.13	3.54	23.83	7.61	3.70	24.75	8.95	4.01	46.98
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	14.07	7.38	45.57	15.00	7.70	47.32	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	5.33	1.66	23.19	5.68	1.73	24.08	6.68	1.87	45.71
SULFATIC	.18	.12	.25	.20	.13	.26	.23	.14	.49
ORGANIC	1.62	1.76	.39	1.73	1.84	.41	2.04	1.99	.78
TOTAL	7.13	3.54	23.83	7.61	3.70	24.75	8.95	4.01	46.98

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	20.38	10.35	64.72

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3 1/2	3 1/2	--
HARDGROVE GRINDABILITY (HGI)	55	59	--

STATE: INDIANA
COUNTY: PIKE

BED: NO.IV
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 493
SAMPLE NO. 603

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	70.8	73.1	4.9	.72	1.89	13810	2.7
FLOAT 1.40	94.8	96.6	6.0	1.00	2.21	13633	3.2
FLOAT 1.60	97.8	99.2	6.3	1.10	2.32	13570	3.4
CUM(1-1/2" X 100M)	100.0	100.0	7.5	1.20	2.42	13380	3.6
100M X 0	2.3	1.8	24.4	2.10	2.87	10399	5.5
TOTAL(1-1/2" X 0)	100.0	100.0	7.9	1.22	2.43	13311	3.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	67.2	70.0	4.3	.66	2.08	13910	3.0
FLOAT 1.40	93.1	95.4	5.7	.86	2.34	13679	3.4
FLOAT 1.60	97.3	99.0	6.2	.99	2.48	13590	3.6
CUM(3/8" X 100M)	100.0	100.0	7.6	1.15	2.64	13350	4.0
100M X 0	4.1	3.5	19.5	2.70	4.22	11257	7.5
TOTAL(3/8" X 0)	100.0	100.0	8.1	1.21	2.70	13264	4.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.0	63.2	3.6	.66	2.04	14010	2.9
FLOAT 1.40	87.6	90.8	5.1	.81	2.21	13771	3.2
FLOAT 1.60	96.0	98.4	6.0	.97	2.39	13630	3.5
CUM(14M X 0)	100.0	100.0	7.9	1.24	2.64	13291	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	76.3
3/8" X 14M	16.8
14M X 100M	4.6
100M X 0	2.3

MOISTURE, %

TOTAL	9.2
AS RECEIVED	8.1

STATE: INDIANA
COUNTY: PIKE

BED: NO.IV
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 493
SAMPLE NO. 603

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	8.10	4.50	3.70	--	--	--	--	--	--
ASH	7.08	5.92	53.58	7.70	6.20	55.64	--	--	--
VOLATILE MATTER	41.37	43.63	22.30	45.01	45.69	23.16	48.77	48.71	52.21
FIXED CARBON	43.46	45.95	20.42	47.29	48.11	21.20	51.23	51.29	47.79
BTU/LB	12241	12989	4740	13320	13601	4923	14431	14500	11097

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	67.69	71.80	23.49	73.65	75.18	24.39	79.80	80.15	54.98
HYDROGEN	5.68	5.56	2.34	5.20	5.29	2.00	5.63	5.64	4.51
NITROGEN	1.50	1.59	.48	1.63	1.67	.50	1.77	1.78	1.13
SULFUR	2.42	2.51	8.32	2.63	2.63	8.64	2.85	2.80	19.48
OXYGEN	15.64	12.62	11.79	9.19	9.03	8.83	9.95	9.63	19.91
ASH	7.08	5.92	53.58	7.70	6.20	55.64	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.07	.99	7.43	1.16	1.04	7.72	1.26	1.11	17.40
SULFATIC	.14	.14	.14	.15	.15	.15	.16	.16	.34
ORGANIC	1.21	1.37	.74	1.32	1.44	.77	1.43	1.53	1.74
TOTAL	2.42	2.51	8.32	2.63	2.63	8.64	2.85	2.80	19.48

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.85	.84
OXYGEN/CARBON	.09	.09
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2140	2140	--
SOFTENING TEMPERATURE (ST)	2190	2190	--
FLUID TEMPERATURE (FT)	2400	2400	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.00	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	9.76	8.21	64.84

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3 1/2	4	0
HARDGROVE GRINDABILITY (HGI)	64	--	--

STATE: INDIANA
COUNTY: GIBSON

BED: NO.V
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 604

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	75.8	78.5	3.7	.35	1.08	13882	1.6
FLOAT 1.40	94.9	96.6	5.1	.61	1.37	13645	2.0
FLOAT 1.60	97.5	98.9	5.4	.69	1.45	13594	2.1
CUM(1-1/2" X 100M)	100.0	100.0	6.5	1.19	1.93	13408	2.9
100M X 0	.4	.4	13.3	1.38	2.14	12258	3.5
TOTAL(1-1/2" X 0)	100.0	100.0	6.5	1.19	1.93	13404	2.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	76.1	79.0	3.4	.36	1.17	13933	1.7
FLOAT 1.40	93.7	95.8	4.6	.55	1.37	13730	2.0
FLOAT 1.60	97.3	98.9	5.1	.62	1.44	13645	2.1
CUM(3/8" X 100M)	100.0	100.0	6.4	1.13	1.93	13425	2.9
100M X 0	.9	.8	11.8	1.74	2.43	12512	3.9
TOTAL(3/8" X 0)	100.0	100.0	6.4	1.14	1.93	13417	2.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.1	35.9	2.1	.29	1.12	14153	1.6
FLOAT 1.40	90.3	93.3	3.6	.44	1.27	13899	1.8
FLOAT 1.60	96.6	98.7	4.5	.50	1.31	13747	1.9
CUM(14M X 0)	100.0	100.0	6.2	1.14	1.94	13459	2.9

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	9.5
AS RECEIVED	6.9

STATE: INDIANA
COUNTY: GIBSON

BED: NO.V
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 604

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	6.90	3.90	2.40	--	--	--	--	--	--
ASH	6.00	4.42	52.02	6.45	4.60	53.30	--	--	--
VOLATILE MATTER	36.90	38.18	--	39.64	39.73	--	42.37	41.64	--
FIXED CARBON	50.19	53.50	--	53.91	55.67	--	57.63	58.36	--
BTU/LB	12501	13160	--	13428	13694	--	14353	14354	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.83	1.25	19.37	1.97	1.30	19.84	2.10	1.36	42.49
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	6.00	4.42	52.02	6.45	4.60	53.30	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.13	.52	18.86	1.21	.54	19.32	1.30	.57	41.38
SULFATIC	.01	.01	.02	.02	.01	.02	.02	.01	.04
ORGANIC	.69	.72	.49	.74	.75	.50	.79	.79	1.07
TOTAL	1.83	1.25	19.37	1.97	1.30	19.84	2.10	1.36	42.49

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.72	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1950	2190	--
SOFTENING TEMPERATURE (ST)	2000	2460	--
FLUID TEMPERATURE (FT)	2050	2520	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.03	--	--
MINERAL MATTER (PARR)	8.05	5.68	68.48

PHYSICAL PARAMETERS, INDEX

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

STATE: INDIANA
COUNTY: GREENE

BED: NO.V
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 489
SAMPLE NO. 605

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.8	41.8	4.9	.64	2.34	13811	3.4
FLOAT 1.40	87.2	90.7	7.8	.94	2.67	13327	4.0
FLOAT 1.60	95.4	97.9	8.9	1.19	2.86	13144	4.4
CUM(1-1/2" X 100M)	100.0	100.0	10.9	1.86	3.52	12810	5.5
100M X 0	1.7	1.6	16.7	4.45	5.57	11843	9.4
TOTAL(1-1/2" X 0)	100.0	100.0	11.0	1.90	3.55	12794	5.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.7	48.4	4.1	.55	2.32	13944	3.3
FLOAT 1.40	85.1	89.0	7.0	.77	2.50	13461	3.7
FLOAT 1.60	95.1	97.7	8.4	1.03	2.71	13227	4.1
CUM(3/8" X 100M)	100.0	100.0	10.5	1.64	3.29	12877	5.1
100M X 0	6.2	5.7	16.3	5.01	6.08	11910	10.2
TOTAL(3/8" X 0)	100.0	100.0	10.9	1.85	3.46	12817	5.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.2	31.0	3.0	.52	2.25	14128	3.2
FLOAT 1.40	70.4	75.0	5.7	.71	2.44	13677	3.6
FLOAT 1.60	94.1	97.0	8.3	1.12	2.82	13244	4.3
CUM(14M X 0)	100.0	100.0	10.7	1.83	3.52	12844	5.5

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	72.6
3/8" X 14M	21.5
14M X 100M	4.2
100M X 0	1.7

MOISTURE, %

TOTAL	11.3
AS RECEIVED	8.7

STATE: INDIANA
COUNTY: GREENE

BED: NO.V
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 489
SAMPLE NO. 605

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	8.70	8.20	3.20	--	--	--	--	--	--
ASH	9.68	7.71	45.51	10.60	8.40	47.02	--	--	--
VOLATILE MATTER	37.05	38.58	16.15	40.58	42.02	16.68	45.39	45.87	31.49
FIXED CARBON	44.57	45.51	35.14	48.82	49.58	36.30	54.61	54.13	68.51
BTU/LB	11778	12108	6569	12900	13190	6786	14430	14400	12808

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.02	2.71	14.23	3.31	2.95	14.70	3.70	3.22	27.74
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	9.68	7.71	45.51	10.60	8.40	47.02	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.56	1.06	12.73	1.71	1.15	13.15	1.91	1.25	24.83
SULFATIC	.01	.00	.03	.02	.00	.03	.02	.00	.06
ORGANIC	1.44	1.65	1.47	1.58	1.80	1.52	1.77	1.97	2.86
TOTAL	3.02	2.71	14.23	3.31	2.95	14.70	3.70	3.22	27.74

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	1.36	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2040	2180	1950
SOFTENING TEMPERATURE (ST)	2090	2480	2000
FLUID TEMPERATURE (FT)	2140	2570	2050

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.11	--	--
MINERAL MATTER (PARR)	13.27	10.69	58.87

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4	3 1/2	1
HARDGROVE GRINDABILITY (HGI)	51	52	--

STATE: INDIANA
COUNTY: PIKE

BED: NO.V
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 606

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	70.8	73.2	5.1	.45	2.68	13645	3.9
FLOAT 1.40	92.8	94.2	6.5	.62	2.81	13408	4.2
FLOAT 1.60	98.5	99.1	7.2	.78	2.93	13290	4.4
CUM(1-1/2" X 100M)	100.0	100.0	7.7	.97	3.09	13205	4.7
100M X 0	1.4	1.3	11.8	.63	3.26	12512	5.2
TOTAL(1-1/2" X 0)	100.0	100.0	7.8	.97	3.09	13196	4.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	74.8	77.4	5.1	.50	2.82	13645	4.1
FLOAT 1.40	92.2	94.0	6.3	.59	2.88	13442	4.3
FLOAT 1.60	98.0	98.9	7.1	.70	2.98	13307	4.5
CUM(3/8" X 100M)	100.0	100.0	7.8	.94	3.20	13188	4.9
100M X 0	2.1	2.0	10.9	.86	3.41	12664	5.4
TOTAL(3/8" X 0)	100.0	100.0	7.9	.94	3.20	13177	4.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	71.6	74.4	4.6	.54	2.80	13730	4.1
FLOAT 1.40	90.4	92.7	5.7	.49	2.77	13544	4.1
FLOAT 1.60	97.1	98.2	6.8	.60	3.03	13358	4.5
CUM(14M X 0)	100.0	100.0	7.7	.90	3.26	13205	4.9

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	6.5
AS RECEIVED	3.8

STATE: INDIANA
COUNTY: PIKE

BED: NO.V
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 606

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.80	3.20	2.20	--	--	--	--	--	--
ASH	7.60	6.58	36.28	7.90	6.80	37.10	--	--	--
VOLATILE MATTER	42.95	43.23	--	44.65	44.66	--	48.47	47.91	--
FIXED CARBON	45.65	46.99	--	47.45	48.54	--	51.53	52.09	--
BTU/LB	12803	13040	--	13309	13471	--	14451	14454	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.76	2.64	10.72	2.87	2.73	10.96	3.11	2.93	17.43
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	7.60	6.58	36.28	7.90	6.80	37.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.91	.56	10.70	.95	.58	10.94	1.03	.62	17.40
SULFATIC	.00	.00	.00	.00	.00	.00	.00	.00	.00
ORGANIC	1.84	2.08	.02	1.92	2.15	.02	2.08	2.30	.03
TOTAL	2.76	2.64	10.72	2.87	2.73	10.96	3.11	2.93	17.43

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2220	2180	--
SOFTENING TEMPERATURE (ST)	2340	2480	--
FLUID TEMPERATURE (FT)	2520	2590	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	10.07	8.70	46.10

PHYSICAL PARAMETERS, INDEX

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

STATE: INDIANA
COUNTY: PIKE

BED: NO.V
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 607

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.9	64.1	5.9	.81	2.92	13510	4.3
FLOAT 1.40	92.5	93.8	7.5	1.06	3.12	13239	4.7
FLOAT 1.60	98.5	99.0	8.2	1.26	3.31	13121	5.0
CUM(1-1/2" X 100M)	100.0	100.0	8.6	1.49	3.51	13053	5.4
100M X 0	.9	.8	13.1	.66	3.34	12292	5.4
TOTAL(1-1/2" X 0)	100.0	100.0	8.6	1.48	3.51	13046	5.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.9	63.7	5.2	.88	2.69	13628	3.9
FLOAT 1.40	86.4	88.8	6.6	1.00	2.73	13391	4.1
FLOAT 1.60	97.8	98.8	7.9	1.19	2.89	13172	4.4
CUM(3/8" X 100M)	100.0	100.0	8.7	1.48	3.18	13036	4.9
100M X 0	1.9	1.8	11.8	1.49	3.70	12512	5.9
TOTAL(3/8" X 0)	100.0	100.0	8.8	1.48	3.19	13026	4.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.8	38.1	3.9	.53	2.46	13848	3.6
FLOAT 1.40	87.0	90.1	6.1	.74	2.82	13476	4.2
FLOAT 1.60	97.0	98.6	7.5	.93	2.91	13239	4.4
CUM(14M X 0)	100.0	100.0	8.8	1.33	3.44	13019	5.3

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	7.1
AS RECEIVED	4.4

STATE: INDIANA
COUNTY: PIKE

BED: NO.V
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 607

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.40	5.00	3.80	--	--	--	--	--	--
ASH	8.41	7.13	48.87	8.80	7.50	50.80	--	--	--
VOLATILE MATTER	40.42	40.20	--	42.29	42.32	--	46.37	45.75	--
FIXED CARBON	46.76	47.67	--	48.91	50.18	--	53.63	54.25	--
BTU/LB	12596	12700	--	13176	13368	--	14447	14452	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.27	2.78	19.81	3.43	2.93	20.59	3.76	3.17	41.85
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	8.41	7.13	48.87	8.80	7.50	50.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.27	.88	13.72	1.33	.93	14.26	1.46	1.01	28.99
SULFATIC	.22	.21	.24	.24	.22	.25	.26	.24	.51
ORGANIC	1.78	1.69	5.85	1.86	1.78	6.08	2.04	1.92	12.35
TOTAL	3.27	2.78	19.81	3.43	2.93	20.59	3.76	3.17	41.85

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	1.36	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2140	2140	--
SOFTENING TEMPERATURE (ST)	2190	2190	--
FLUID TEMPERATURE (FT)	2450	2450	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.09	--	--
MINERAL MATTER (PARR)	11.39	9.71	66.19

PHYSICAL PARAMETERS, INDEX

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

STATE: INDIANA
COUNTY: PIKE

BED: NO.V
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 489
SAMPLE NO. 608

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.2	46.3	5.0	.88	2.58	13681	3.8
FLOAT 1.40	89.7	93.1	7.6	1.19	2.85	13237	4.3
FLOAT 1.60	95.3	97.8	8.4	1.33	2.99	13101	4.6
CUM(1-1/2" X 100M)	100.0	100.0	10.4	2.41	4.07	12760	6.4
100M X 0	1.0	.9	14.6	1.96	3.16	12043	5.2
TOTAL(1-1/2" X 0)	100.0	100.0	10.4	2.41	4.06	12752	6.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.1	50.7	4.1	.76	2.51	13834	3.6
FLOAT 1.40	87.1	90.9	6.5	1.01	2.75	13425	4.1
FLOAT 1.60	95.0	97.9	7.5	1.17	2.88	13254	4.3
CUM(3/8" X 100M)	100.0	100.0	9.8	2.21	3.92	12862	6.1
100M X 0	3.0	2.8	14.0	2.78	4.30	12146	7.1
TOTAL(3/8" X 0)	100.0	100.0	9.9	2.23	3.93	12840	6.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.3	34.4	2.6	.32	2.20	14090	3.1
FLOAT 1.40	79.2	84.0	5.4	.78	2.48	13612	3.6
FLOAT 1.60	93.4	97.0	7.1	.93	2.64	13322	4.0
CUM(14M X 0)	100.0	100.0	10.0	2.20	3.85	12828	6.0

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	78.9
3/8" X 14M	16.8
14M X 100M	3.3
100M X 0	1.0

MOISTURE, %

TOTAL	11.6
AS RECEIVED	9.1

STATE: INDIANA
COUNTY: PIKE

BED: NO.V
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 489
SAMPLE NO. 608

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	9.10	6.60	2.90	--	--	--	--	--	--
ASH	9.09	6.91	49.42	10.00	7.40	50.90	--	--	--
VOLATILE MATTER	37.21	39.10	25.73	40.94	41.86	26.50	45.49	45.21	53.97
FIXED CARBON	44.60	47.39	21.94	49.06	50.74	22.60	54.51	54.79	46.03
BTU/LB	11572	12480	5688	12731	13362	5858	14146	14430	11930

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.64	2.54	20.38	4.01	2.72	20.99	4.45	2.93	42.75
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	9.09	6.91	49.42	10.00	7.40	50.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.13	.94	19.59	2.34	1.01	20.17	2.60	1.09	41.08
SULFATIC	.06	.05	.08	.07	.05	.08	.07	.05	.16
ORGANIC	1.45	1.55	.71	1.60	1.66	.74	1.78	1.79	1.50
TOTAL	3.64	2.54	20.38	4.01	2.72	20.99	4.45	2.93	42.75

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	1.01	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2010	2130	2120
SOFTENING TEMPERATURE (ST)	2060	2180	2170
FLUID TEMPERATURE (FT)	2110	2240	2230

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.07	--	--
MINERAL MATTER (PARR)	13.00	9.49	66.52

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3	4	--
HARDGROVE GRINDABILITY (HGI)	56	52	--

STATE: INDIANA
COUNTY: PIKE

BED: NO.V
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 609

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.1	66.3	4.9	.67	2.56	13673	3.7
FLOAT 1.40	88.8	92.7	6.6	.87	2.63	13382	3.9
FLOAT 1.60	92.8	96.2	7.2	.95	2.72	13279	4.1
CUM(1-1/2" X 100M)	100.0	100.0	9.9	2.89	4.53	12816	7.1
100M X 0	1.9	1.7	17.1	4.73	6.02	11583	10.4
TOTAL(1-1/2" X 0)	100.0	100.0	10.0	2.92	4.56	12793	7.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.9	58.4	3.8	.49	2.50	13862	3.6
FLOAT 1.40	86.3	90.9	6.0	.68	2.58	13485	3.8
FLOAT 1.60	92.9	96.6	7.0	.81	2.65	13313	4.0
CUM(3/8" X 100M)	100.0	100.0	10.0	2.84	4.56	12799	7.1
100M X 0	4.1	3.9	13.1	3.50	5.12	12268	8.3
TOTAL(3/8" X 0)	100.0	100.0	10.1	2.87	4.58	12777	7.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.6	46.6	2.7	.41	2.38	14050	3.4
FLOAT 1.40	78.9	84.0	4.9	.61	2.50	13673	3.7
FLOAT 1.60	92.6	96.6	6.5	.81	2.55	13399	3.8
CUM(14M X 0)	100.0	100.0	9.7	2.77	4.43	12851	6.9

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	70.8
3/8" X 14M	22.7
14M X 100M	4.6
100M X 0	1.9

MOISTURE, %

TOTAL	7.9
AS RECEIVED	5.2

STATE: INDIANA
COUNTY: PIKE

BED: NO.V
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 609

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.20	4.40	4.50	--	--	--	--	--	--
ASH	9.56	6.46	45.65	10.09	6.76	47.80	--	--	--
VOLATILE MATTER	38.45	40.19	22.44	40.56	42.04	23.50	45.11	45.09	45.02
FIXED CARBON	46.79	48.94	27.41	49.35	51.20	28.70	54.89	54.91	54.98
BTU/LB	12158	12731	6034	12825	13317	6319	14264	14283	12105

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.38	2.56	26.73	4.62	2.68	27.99	5.14	2.88	53.61
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	9.56	6.46	45.65	10.09	6.76	47.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.78	.85	26.07	2.93	.89	27.30	3.26	.96	52.29
SULFATIC	.16	.13	.19	.17	.14	.20	.19	.15	.38
ORGANIC	1.44	1.58	.47	1.52	1.65	.49	1.69	1.77	.94
TOTAL	4.38	2.56	26.73	4.62	2.68	27.99	5.14	2.88	53.61

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2030	2050	2080
SOFTENING TEMPERATURE (ST)	2080	2100	2130
FLUID TEMPERATURE (FT)	2260	2400	2280

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	13.44	8.78	67.02

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6	4 1/2	--
HARDGROVE GRINDABILITY (HGI)	53	55	--

STATE: INDIANA
COUNTY: SULLIVAN

BED: NO.V
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 610

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.0	32.9	5.4	.58	2.36	13594	3.5
FLOAT 1.40	61.1	72.4	7.6	1.14	3.00	13222	4.5
FLOAT 1.60	81.9	93.8	10.2	1.99	3.87	12782	6.1
FLOAT 1.90	86.2	97.2	11.4	2.41	4.31	12579	6.9
CUM(1-1/2" X 100M)	100.0	100.0	19.8	3.89	5.64	11158	10.1
100M X 0	.3	.3	22.5	3.93	5.32	10702	9.9
TOTAL(1-1/2" X 0)	100.0	100.0	19.8	3.89	5.64	11157	10.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.0	29.4	4.1	.53	2.29	13814	3.3
FLOAT 1.40	60.8	72.9	5.7	.84	2.59	13544	3.8
FLOAT 1.60	80.6	93.6	8.2	1.40	3.23	13121	4.9
FLOAT 1.90	86.2	97.2	11.4	2.41	4.31	12579	6.9
CUM(3/8" X 100M)	100.0	100.0	19.0	3.67	5.43	11294	9.6
100M X 0	1.0	.9	23.3	4.41	5.83	10566	11.0
TOTAL(3/8" X 0)	100.0	100.0	19.0	3.68	5.43	11286	9.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	21.8	27.2	3.6	.45	2.21	13899	3.2
FLOAT 1.40	60.9	73.2	6.6	.75	2.49	13391	3.7
FLOAT 1.60	80.4	92.7	9.8	1.32	3.12	12850	4.9
FLOAT 1.90	86.2	97.2	11.4	2.41	4.31	12579	6.9
CUM(14M X 0)	100.0	100.0	19.9	3.94	5.75	11142	10.3

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	10.8
AS RECEIVED	6.0

STATE: INDIANA
COUNTY: SULLIVAN

BED: NO.V
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 610

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	6.00	--	--	--	--	--	--	--	--
ASH	18.05	--	--	19.20	--	--	--	--	--
VOLATILE MATTER	36.66	--	--	39.00	--	--	48.27	--	--
FIXED CARBON	39.29	--	--	41.80	--	--	51.73	--	--
BTU/LB	11650	--	--	12394	--	--	15339	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	5.24	--	--	5.57	--	--	6.89	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	18.05	--	--	19.20	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.70	--	--	3.94	--	--	4.88	--	--
SULFATIC	.08	--	--	.09	--	--	.11	--	--
ORGANIC	1.45	--	--	1.54	--	--	1.91	--	--
TOTAL	5.24	--	--	5.57	--	--	6.89	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.88	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	--	--	--
NA (SODIUM)	(CALCULATED)	.13	--	--
MINERAL MATTER	(PARR)	23.80	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: INDIANA
COUNTY: WARRICK

BED: NO.V
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 489
SAMPLE NO. 611

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.0	40.2	5.1	.67	2.79	13600	4.1
FLOAT 1.40	81.3	85.7	7.4	1.15	3.31	13206	5.0
FLOAT 1.60	92.2	95.6	8.7	1.71	3.90	12984	6.0
CUM(1-1/2" X 100M)	100.0	100.0	11.4	2.40	4.47	12522	7.1
100M X 0	1.3	1.1	24.3	5.30	6.92	10317	13.4
TOTAL(1-1/2" X 0)	100.0	100.0	11.6	2.44	4.50	12494	7.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.4	41.1	4.1	.62	2.65	13771	3.8
FLOAT 1.40	79.8	84.9	6.6	1.10	3.16	13343	4.7
FLOAT 1.60	91.1	95.2	8.0	1.59	3.66	13104	5.6
CUM(3/8" X 100M)	100.0	100.0	11.3	2.61	4.57	12539	7.3
100M X 0	5.0	4.4	19.7	3.30	5.34	11103	9.6
TOTAL(3/8" X 0)	100.0	100.0	11.7	2.64	4.61	12468	7.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.3	33.9	3.0	.51	2.71	13959	3.9
FLOAT 1.40	73.0	78.6	6.0	.99	3.16	13446	4.7
FLOAT 1.60	88.9	93.5	7.8	1.40	3.57	13138	5.4
CUM(14M X 0)	100.0	100.0	11.6	2.40	4.64	12488	7.4

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	76.2
3/8" X 14M	17.6
14M X 100M	4.9
100M X 0	1.3

MOISTURE, %

TOTAL	10.0
AS RECEIVED	7.4

STATE: INDIANA
COUNTY: WARRICK

BED: NO.V
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 489
SAMPLE NO. 611

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	7.40	7.50	4.20	--	--	--	--	--	--
ASH	10.74	7.31	39.37	11.60	7.90	41.10	--	--	--
VOLATILE MATTER	37.98	39.48	26.73	41.01	42.69	27.90	46.40	46.35	47.37
FIXED CARBON	43.88	45.71	29.70	47.39	49.41	31.00	53.60	53.65	52.63
BTU/LB	11603	12103	7127	12530	13084	7439	14174	14206	12630

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.31	3.22	12.71	4.66	3.48	13.26	5.27	3.78	22.52
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	10.74	7.31	39.37	11.60	7.90	41.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.23	1.21	9.97	2.41	1.31	10.41	2.73	1.42	17.67
SULFATIC	.20	.15	.26	.22	.16	.27	.24	.17	.46
ORGANIC	1.88	1.86	2.48	2.03	2.01	2.59	2.30	2.18	4.39
TOTAL	4.31	3.22	12.71	4.66	3.48	13.26	5.27	3.78	22.52

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1970	2000	1950
SOFTENING TEMPERATURE (ST)	2020	2050	2000
FLUID TEMPERATURE (FT)	2070	2150	2050

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	15.09	10.45	51.68

PHYSICAL PARAMETERS, INDEX

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

STATE: INDIANA
COUNTY: SULLIVAN

BED: NO.VI
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 483
SAMPLE NO. 612

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.9	68.8	4.8	.68	1.68	13666	2.5
FLOAT 1.40	82.0	91.9	6.8	.88	1.88	13333	2.8
FLOAT 1.60	87.8	97.0	7.9	1.00	1.99	13150	3.0
CUM(1-1/2" X 100M)	100.0	100.0	15.4	1.96	2.87	11903	4.8
100M X 0	.9	.8	20.1	1.73	2.27	11122	4.1
TOTAL(1-1/2" X 0)	100.0	100.0	15.4	1.96	2.86	11896	4.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.9	64.0	3.7	.63	1.63	13849	2.4
FLOAT 1.40	78.6	89.3	5.8	.85	1.87	13499	2.8
FLOAT 1.60	87.0	96.9	7.4	1.00	2.01	13233	3.0
CUM(3/8" X 100M)	100.0	100.0	15.5	1.91	2.85	11887	4.8
100M X 0	2.4	2.3	18.6	2.58	3.42	11371	6.0
TOTAL(3/8" X 0)	100.0	100.0	15.6	1.93	2.86	11874	4.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.3	41.0	2.4	.41	1.38	14065	2.0
FLOAT 1.40	70.8	81.8	5.3	.74	1.73	13583	2.5
FLOAT 1.60	85.4	95.9	7.6	.92	1.91	13200	2.9
CUM(14M X 0)	100.0	100.0	16.3	2.04	2.93	11754	5.0

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	4.4
AS RECEIVED	3.0

STATE: INDIANA
COUNTY: SULLIVAN

BED: NO.VI
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 483
SAMPLE NO. 612

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.00	2.45	1.90	--	--	--	--	--	--
ASH	15.13	7.12	66.32	15.60	7.30	67.60	--	--	--
VOLATILE MATTER	37.05	40.09	--	38.20	41.10	--	45.26	44.34	--
FIXED CARBON	44.81	50.34	--	46.20	51.60	--	54.74	55.66	--
BTU/LB	11514	12925	--	11870	13250	--	14064	14293	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.70	1.79	8.74	2.79	1.84	8.91	3.30	1.98	27.50
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	15.13	7.12	66.32	15.60	7.30	67.60	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.83	.86	8.43	1.89	.88	8.59	2.24	.95	26.52
SULFATIC	.03	.02	.05	.04	.02	.05	.04	.02	.15
ORGANIC	.83	.92	.26	.86	.94	.27	1.02	1.01	.83
TOTAL	2.70	1.79	8.74	2.79	1.84	8.91	3.30	1.98	27.50

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2020	1980	--
SOFTENING TEMPERATURE	(ST)	2070	2020	--
FLUID TEMPERATURE	(FT)	2180	2140	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	18.38	8.90	77.91

PHYSICAL PARAMETERS, INDEX

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

STATE: INDIANA
COUNTY: SULLIVAN

BED: NO.VI
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 483
SAMPLE NO. 613

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.4	55.8	5.2	.67	2.14	13628	3.1
FLOAT 1.40	77.5	88.4	7.7	.88	2.33	13205	3.5
FLOAT 1.60	86.0	95.9	9.4	1.09	2.52	12918	3.9
CUM(1-1/2" X 100M)	100.0	100.0	17.3	2.01	3.39	11581	5.9
100M X 0	.7	.6	25.2	2.64	4.44	10245	8.7
TOTAL(1-1/2" X 0)	100.0	100.0	17.4	2.01	3.40	11572	5.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.1	53.7	4.5	.60	1.95	13747	2.8
FLOAT 1.40	75.7	87.6	6.8	.81	2.18	13358	3.3
FLOAT 1.60	84.7	95.9	8.5	.97	2.35	13070	3.6
CUM(3/8" X 100M)	100.0	100.0	17.5	2.05	3.36	11548	5.8
100M X 0	5.2	4.6	25.3	2.75	4.28	10228	8.4
TOTAL(3/8" X 0)	100.0	100.0	17.9	2.09	3.41	11479	5.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.0	31.5	3.0	.48	1.79	14000	2.6
FLOAT 1.40	69.5	81.0	6.1	.71	2.04	13476	3.0
FLOAT 1.60	86.0	96.1	9.4	1.01	2.39	12918	3.7
CUM(14M X 0)	100.0	100.0	17.4	2.10	3.38	11564	5.8

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	79.0
3/8" X 14M	15.5
14M X 100M	4.8
100M X 0	.7

MOISTURE, %

TOTAL	10.3
AS RECEIVED	9.0

STATE: INDIANA
COUNTY: SULLIVAN

BED: NO.VI
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 483
SAMPLE NO. 613

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	9.00	7.80	2.40	--	--	--	--	--	--
ASH	15.38	8.32	62.35	16.90	9.02	63.88	--	--	--
VOLATILE MATTER	35.30	39.56	13.88	38.79	42.91	14.22	46.68	47.17	39.37
FIXED CARBON	40.32	44.32	21.37	44.31	48.07	21.90	53.32	52.83	60.63
BTU/LB	10820	11976	4253	11890	12989	435/	14308	14278	12064

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.00	2.11	9.26	3.30	2.29	9.49	3.97	2.52	26.28
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	15.38	8.32	62.35	16.90	9.02	63.88	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.85	.90	8.58	2.03	.98	8.80	2.44	1.08	24.35
SULFATIC	.09	.06	.13	.10	.07	.13	.12	.08	.36
ORGANIC	1.06	1.14	.55	1.17	1.24	.57	1.41	1.36	1.57
TOTAL	3.00	2.11	9.26	3.30	2.29	9.49	3.97	2.52	26.28

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2060	2130	2080
SOFTENING TEMPERATURE	(ST)	2100	2180	2120
FLUID TEMPERATURE	(FT)	2140	2240	2160

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	20.07	11.01	74.21

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	3 1/2	4	--
HARDGROVE GRINDABILITY	(HGI)	52	50	--

STATE: INDIANA
COUNTY: VERMILLION

BED: NO.VI
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 483
SAMPLE NO. 614

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.9	47.8	4.3	.84	2.18	13923	3.1
FLOAT 1.40	63.7	73.2	7.6	1.03	2.32	13350	3.5
FLOAT 1.60	89.2	94.4	13.7	1.27	2.51	12290	4.1
CUM(1-1/2" X 100M)	100.0	100.0	17.6	2.32	3.58	11612	6.2
100M X 0	1.7	1.6	21.0	4.73	6.00	11021	10.9
TOTAL(1-1/2" X 0)	100.0	100.0	17.7	2.36	3.62	11602	6.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.0	48.4	3.7	.63	2.02	14028	2.9
FLOAT 1.40	64.8	75.5	6.7	.85	2.20	13506	3.3
FLOAT 1.60	84.1	92.2	11.3	1.07	2.36	12707	3.7
CUM(3/8" X 100M)	100.0	100.0	17.7	2.25	3.57	11594	6.2
100M X 0	4.3	3.9	23.2	3.97	5.16	10638	9.7
TOTAL(3/8" X 0)	100.0	100.0	17.9	2.32	3.64	11553	6.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.8	33.9	3.0	.54	1.91	14149	2.7
FLOAT 1.40	53.5	64.3	4.1	.60	2.02	13958	2.9
FLOAT 1.60	77.9	88.5	8.5	.94	2.28	13193	3.5
CUM(14M X 0)	100.0	100.0	17.6	2.32	3.55	11612	6.1

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	73.2
3/8" X 14M	19.9
14M X 100M	5.2
100M X 0	1.7

MOISTURE, %

TOTAL	10.1
AS RECEIVED	8.8

STATE: INDIANA
COUNTY: VERMILLION

BED: NO.VI
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 483
SAMPLE NO. 614

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	8.80	7.04	2.90	--	--	--	--	--	--
ASH	16.32	8.22	48.55	17.90	8.84	50.00	--	--	--
VOLATILE MATTER	34.93	39.31	22.72	38.30	42.29	23.40	46.66	46.39	46.80
FIXED CARBON	39.94	45.43	25.83	43.80	48.87	26.60	53.34	53.61	53.20
BTU/LB	10543	12209	5807	11560	13134	5980	14080	14408	11960

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.11	2.05	7.83	3.41	2.21	8.07	4.15	2.42	16.13
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	16.32	8.22	48.55	17.90	8.84	50.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.00	.88	6.98	2.19	.95	7.18	2.67	1.04	14.37
SULFATIC	.07	.04	.12	.08	.04	.12	.10	.04	.24
ORGANIC	1.04	1.13	.74	1.14	1.22	.76	1.39	1.34	1.52
TOTAL	3.11	2.05	7.83	3.41	2.21	8.07	4.15	2.42	16.13

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	21.21	10.76	58.44

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3 1/2	3	--
HARDGROVE GRINDABILITY (HGI)	52	53	--

STATE: INDIANA
COUNTY: WARRICK

BED: NO.VI
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 483
SAMPLE NO. 615

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.2	38.3	4.7	1.28	2.66	13713	3.9
FLOAT 1.40	80.4	84.3	7.6	1.88	3.25	13222	4.9
FLOAT 1.60	96.1	98.0	9.7	2.21	3.60	12867	5.6
CUM(1-1/2" X 100M)	100.0	100.0	11.2	2.38	3.75	12613	5.9
100M X 0	.7	.6	25.4	2.24	5.16	10211	10.1
TOTAL(1-1/2" X 0)	100.0	100.0	11.3	2.38	3.76	12596	6.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.4	38.8	4.2	1.11	2.55	13797	3.7
FLOAT 1.40	74.7	79.6	6.5	1.69	3.13	13408	4.7
FLOAT 1.60	93.7	96.7	9.0	2.05	3.47	12985	5.3
CUM(3/8" X 100M)	100.0	100.0	11.4	2.35	3.75	12579	6.0
100M X 0	2.2	2.0	19.0	2.99	5.12	11294	9.1
TOTAL(3/8" X 0)	100.0	100.0	11.6	2.36	3.78	12551	6.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.8	18.6	3.2	.73	2.17	13967	3.1
FLOAT 1.40	72.9	78.5	5.5	1.38	2.82	13578	4.2
FLOAT 1.60	92.5	96.0	8.4	1.83	3.18	13087	4.9
CUM(14M X 0)	100.0	100.0	11.2	2.32	3.69	12613	5.9

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	77.4
3/8" X 14M	18.5
14M X 100M	3.4
100M X 0	.7

MOISTURE, %

TOTAL	8.8
AS RECEIVED	7.5

STATE: INDIANA
COUNTY: WARRICK

BED: NO.VI
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 483
SAMPLE NO. 615

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	7.50	4.30	1.50	--	--	--	--	--	--
ASH	10.64	7.85	44.23	11.50	8.20	44.90	--	--	--
VOLATILE MATTER	37.74	39.62	--	40.80	41.40	--	46.10	45.10	--
FIXED CARBON	44.12	48.23	--	47.70	50.40	--	53.90	54.90	--
BTU/LB	11541	12386	--	12477	12943	--	14098	14099	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.49	2.95	9.87	3.78	3.08	10.03	4.27	3.36	18.19
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	10.64	7.85	44.23	11.50	8.20	44.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.16	1.66	8.24	2.34	1.73	8.36	2.64	1.88	15.18
SULFATIC	.12	.09	.18	.14	.09	.18	.15	.10	.33
ORGANIC	1.20	1.21	1.46	1.30	1.26	1.48	1.47	1.37	2.69
TOTAL	3.49	2.95	9.87	3.78	3.08	10.03	4.27	3.36	18.19

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2020	1990	--
SOFTENING TEMPERATURE (ST)	2060	2050	--
FLUID TEMPERATURE (FT)	2230	2200	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	14.50	10.55	54.01

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	2 1/2	4 1/2	--
HARDGROVE GRINDABILITY (HGI)	57	57	--

STATE: INDIANA
COUNTY: WARRICK

BED: NO.VI
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 483
SAMPLE NO. 616

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.1	68.4	4.8	.97	2.86	13471	4.2
FLOAT 1.40	83.9	90.5	6.5	1.34	3.22	13195	4.9
FLOAT 1.60	91.0	96.9	7.5	1.58	3.44	13032	5.3
CUM(1-1/2" X 100M)	100.0	100.0	12.4	2.32	4.07	12236	6.7
100M X 0	1.5	1.4	17.7	3.92	5.60	11375	9.8
TOTAL(1-1/2" X 0)	100.0	100.0	12.5	2.34	4.09	12223	6.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.0	59.7	3.4	.80	2.70	13698	3.9
FLOAT 1.40	80.6	88.3	5.6	1.18	3.08	13341	4.6
FLOAT 1.60	89.4	96.3	7.0	1.43	3.31	13114	5.0
CUM(3/8" X 100M)	100.0	100.0	12.8	2.27	4.02	12171	6.6
100M X 0	3.8	3.5	17.9	3.63	5.28	11343	9.3
TOTAL(3/8" X 0)	100.0	100.0	13.0	2.32	4.07	12140	6.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.2	53.8	3.7	.89	2.81	13650	4.1
FLOAT 1.40	69.7	77.3	4.2	.92	2.83	13569	4.2
FLOAT 1.60	87.9	95.0	6.3	1.29	3.15	13227	4.8
CUM(14M X 0)	100.0	100.0	12.4	2.24	3.99	12236	6.5

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	80.4
3/8" X 14M	14.4
14M X 100M	3.7
100M X 0	1.5

MOISTURE, %

TOTAL	8.3
AS RECEIVED	7.0

STATE: INDIANA
COUNTY: WARRICK

BED: NO.VI
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 483
SAMPLE NO. 616

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	7.00	5.90	5.90	--	--	--	--	--	--
ASH	11.35	6.02	51.23	12.20	6.40	54.44	--	--	--
VOLATILE MATTER	37.39	40.65	17.55	40.20	43.20	18.66	45.79	46.15	40.95
FIXED CARBON	44.27	47.43	25.31	47.60	50.40	26.90	54.21	53.85	59.05
BTU/LB	11411	12431	5086	12270	13210	5405	13975	14113	11865

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.60	2.93	9.52	3.88	3.11	10.12	4.41	3.32	22.21
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	11.35	6.02	51.23	12.20	6.40	54.44	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.00	1.22	8.60	2.15	1.30	9.14	2.45	1.39	20.07
SULFATIC	.06	.04	.08	.07	.04	.09	.07	.04	.20
ORGANIC	1.54	1.67	.83	1.66	1.77	.89	1.89	1.89	1.94
TOTAL	3.60	2.93	9.52	3.88	3.11	10.12	4.41	3.32	22.21

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.22	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2030	2030	2040
SOFTENING TEMPERATURE	(ST)	2080	2080	2080
FLUID TEMPERATURE	(FT)	2140	2140	2140

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	--	--	--
NA (SODIUM)	(CALCULATED)	.02	--	--
MINERAL MATTER	(PARR)	15.31	8.62	64.36

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	3	4	--
HARDGROVE GRINDABILITY	(HGI)	51	55	--

STATE: INDIANA
COUNTY: WARRICK

BED: NO.VI
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 483
SAMPLE NO. 617

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.0	39.5	4.1	.48	1.87	13579	2.8
FLOAT 1.40	77.0	83.5	7.2	.95	2.54	13061	3.9
FLOAT 1.60	90.0	95.5	8.9	1.28	2.92	12777	4.6
CUM(1-1/2" X 100M)	100.0	100.0	13.3	2.98	4.52	12041	7.5
100M X 0	.8	.8	17.7	2.63	4.28	11306	7.6
TOTAL(1-1/2" X 0)	100.0	100.0	13.3	2.98	4.52	12036	7.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.2	45.9	3.2	.49	2.00	13729	2.9
FLOAT 1.40	74.4	82.3	5.8	.88	2.47	13295	3.7
FLOAT 1.60	88.0	94.8	7.8	1.22	2.80	12960	4.3
CUM(3/8" X 100M)	100.0	100.0	13.4	3.02	4.47	12025	7.4
100M X 0	4.7	4.5	17.2	3.20	4.66	11390	8.2
TOTAL(3/8" X 0)	100.0	100.0	13.6	3.03	4.48	11995	7.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.2	38.4	2.2	.38	1.95	13896	2.8
FLOAT 1.40	67.3	75.9	4.2	.70	2.33	13562	3.4
FLOAT 1.60	85.9	93.5	7.0	1.17	2.75	13094	4.2
CUM(14M X 0)	100.0	100.0	13.4	2.98	4.46	12025	7.4

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	76.7
3/8" X 14M	16.9
14M X 100M	5.6
100M X 0	.8

MOISTURE, %

TOTAL	8.9
AS RECEIVED	7.6

STATE: INDIANA
COUNTY: WARRICK

BED: NO.VI
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 483
SAMPLE NO. 617

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	7.60	5.10	3.80	--	--	--	--	--	--
ASH	12.01	6.45	49.35	13.00	6.80	51.30	--	--	--
VOLATILE MATTER	38.61	40.82	32.80	41.79	43.01	34.10	48.03	46.15	70.02
FIXED CARBON	41.78	47.63	14.05	45.21	50.19	14.60	51.97	53.85	29.98
BTU/LB	10975	12632	5505	11878	13311	5722	13653	14283	11750

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.89	2.51	14.36	4.21	2.65	14.92	4.83	2.84	30.64
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	12.01	6.45	49.35	13.00	6.80	51.30	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.52	1.08	13.47	2.73	1.14	14.01	3.14	1.22	28.76
SULFATIC	.10	.06	.14	.11	.06	.15	.12	.06	.31
ORGANIC	1.27	1.38	.74	1.37	1.45	.77	1.57	1.56	1.57
TOTAL	3.89	2.51	14.36	4.21	2.65	14.92	4.83	2.84	30.64

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	16.35	8.80	63.61

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	2 1/2	3 1/2	--
HARDGROVE GRINDABILITY (HGI)	50	52	--

STATE: INDIANA
COUNTY: SULLIVAN

BED: NO.VII
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 480
SAMPLE NO. 618

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.6	57.9	4.9	.03	.33	13685	.5
FLOAT 1.40	92.1	94.4	7.8	.06	.33	13217	.5
FLOAT 1.60	97.2	98.5	8.7	.09	.36	13071	.6
CUM(1-1/2" X 100M)	100.0	100.0	9.8	.43	.70	12894	1.1
100M X 0	2.5	2.4	13.8	1.14	1.48	12249	2.4
TOTAL(1-1/2" X 0)	100.0	100.0	9.9	.45	.72	12878	1.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.3	57.0	4.2	.07	.32	13798	.5
FLOAT 1.40	88.2	91.5	6.8	.07	.34	13378	.5
FLOAT 1.60	96.6	98.4	8.3	.07	.34	13136	.5
CUM(3/8" X 100M)	100.0	100.0	9.8	.39	.65	12894	1.0
100M X 0	4.9	4.7	13.7	1.13	1.25	12265	2.0
TOTAL(3/8" X 0)	100.0	100.0	10.0	.43	.68	12863	1.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.4	43.4	3.8	.03	.31	13862	.4
FLOAT 1.40	85.2	88.8	6.3	.06	.32	13459	.5
FLOAT 1.60	96.5	98.6	8.0	.12	.33	13184	.5
CUM(14M X 0)	100.0	100.0	9.7	.41	.67	12910	1.0

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	58.4
3/8" X 14M	30.4
14M X 100M	8.7
100M X 0	2.5

MOISTURE, %

TOTAL	15.1
AS RECEIVED	13.1

STATE: INDIANA
COUNTY: SULLIVAN

BED: NO.VII
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 480
SAMPLE NO. 618

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	13.10	10.10	1.70	--	--	--	--	--	--
ASH	8.69	7.19	53.39	10.00	8.00	54.31	--	--	--
VOLATILE MATTER	31.63	33.62	14.34	36.40	37.40	14.59	40.44	40.65	31.93
FIXED CARBON	46.58	49.08	30.57	53.60	54.60	31.10	59.56	59.35	68.07
BTU/LB	11254	11777	5612	12950	13100	5709	14389	14239	12495

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	.54	.30	8.89	.62	.33	9.04	.69	.36	19.78
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	8.69	7.19	53.39	10.00	8.00	54.31	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.33	.12	7.44	.39	.13	7.57	.43	.14	16.56
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.20	.17	1.44	.23	.19	1.46	.25	.20	3.21
TOTAL	.54	.30	8.89	.62	.33	9.04	.69	.36	19.78

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2570	2870	2050
SOFTENING TEMPERATURE	(ST)	2620	2910+	2100
FLUID TEMPERATURE	(FT)	2680	--	2150

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	--	--	--
NA (SODIUM)	(CALCULATED)	--	--	--
MINERAL MATTER	(PARR)	10.99	8.82	59.12

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	4	4	--
HARDGROVE GRINDABILITY	(HGI)	52	53	--

STATE: INDIANA
COUNTY: SULLIVAN

BED: NO.VII
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 480
SAMPLE NO. 619

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	83.0	86.7	7.5	.54	1.19	13444	1.8
FLOAT 1.40	92.4	95.5	8.3	.56	1.21	13295	1.8
FLOAT 1.60	96.2	98.7	8.8	.63	1.28	13202	1.9
CUM(1-1/2" X 100M)	100.0	100.0	10.6	1.16	1.82	12869	2.8
100M X 0	1.7	1.6	14.0	2.10	2.50	12238	4.1
TOTAL(1-1/2" X 0)	100.0	100.0	10.7	1.18	1.83	12858	2.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	69.6	74.7	5.4	.42	1.08	13833	1.6
FLOAT 1.40	86.3	90.9	6.8	.45	1.10	13574	1.6
FLOAT 1.60	95.0	98.3	8.1	.50	1.14	13332	1.7
CUM(3/8" X 100M)	100.0	100.0	10.5	1.23	1.87	12887	2.9
100M X 0	2.4	2.3	13.5	2.17	2.46	12331	4.0
TOTAL(3/8" X 0)	100.0	100.0	10.6	1.25	1.88	12874	2.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.8	26.6	2.2	.23	.81	14427	1.1
FLOAT 1.40	75.0	80.5	5.3	.32	.97	13852	1.4
FLOAT 1.60	94.3	98.1	7.6	.38	1.02	13425	1.5
CUM(14M X 0)	100.0	100.0	10.4	1.19	1.84	12906	2.9

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	5.7
AS RECEIVED	3.5

STATE: INDIANA
COUNTY: SULLIVAN

BED: NO.VII
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 480
SAMPLE NO. 619

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.50	2.80	.70	--	--	--	--	--	--
ASH	10.33	7.09	56.10	10.70	7.30	56.50	--	--	--
VOLATILE MATTER	38.02	41.80	--	39.40	43.01	--	44.12	46.39	--
FIXED CARBON	48.15	48.30	--	49.90	49.69	--	55.88	53.61	--
BTU/LB	12400	13104	--	12850	13481	--	14390	14543	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.78	.90	13.77	1.84	.93	13.87	2.06	1.00	31.87
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	10.33	7.09	56.10	10.70	7.30	56.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.10	.38	13.04	1.14	.39	13.13	1.28	.42	30.19
SULFATIC	.00	.00	.07	.01	.00	.07	.01	.00	.17
ORGANIC	.68	.52	.66	.70	.54	.66	.78	.58	1.52
TOTAL	1.78	.90	13.77	1.84	.93	13.87	2.06	1.00	31.87

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2310	2680	--
SOFTENING TEMPERATURE	(ST)	2350	2730	--
FLUID TEMPERATURE	(FT)	2390	2780	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	12.57	8.39	68.60

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	5 1/2	4 1/2	--
HARDGROVE GRINDABILITY	(HGI)	--	--	--

STATE: INDIANA
COUNTY: VIGO

BED: NO.VII
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 480
SAMPLE NO. 620

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	74.7	79.8	6.8	.38	.90	13358	1.3
FLOAT 1.40	89.4	93.9	8.1	.41	.91	13138	1.4
FLOAT 1.60	94.3	98.0	8.9	.43	.94	13002	1.4
CUM(1-1/2" X 100M)	100.0	100.0	11.8	.95	1.46	12512	2.3
100M X 0	1.8	1.8	13.4	1.35	1.72	12241	2.8
TOTAL(1-1/2" X 0)	100.0	100.0	11.8	.96	1.46	12507	2.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.6	71.7	5.1	.29	.85	13645	1.2
FLOAT 1.40	84.5	90.6	6.7	.34	.87	13375	1.3
FLOAT 1.60	92.5	97.3	8.2	.38	.91	13121	1.4
CUM(3/8" X 100M)	100.0	100.0	12.0	1.01	1.54	12478	2.5
100M X 0	2.8	2.6	16.4	2.16	2.55	11734	4.3
TOTAL(3/8" X 0)	100.0	100.0	12.1	1.04	1.57	12457	2.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.7	43.0	2.6	.15	.68	14068	1.0
FLOAT 1.40	78.7	86.7	5.5	.21	.73	13578	1.1
FLOAT 1.60	89.9	95.9	8.0	.27	.77	13155	1.2
CUM(14M X 0)	100.0	100.0	12.9	1.03	1.52	12326	2.5

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	6.9
AS RECEIVED	4.7

STATE: INDIANA
COUNTY: VIGO

BED: NO.VII
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 480
SAMPLE NO. 620

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.70	4.50	4.50	--	--	--	--	--	--
ASH	12.10	7.33	53.86	12.70	7.68	56.40	--	--	--
VOLATILE MATTER	37.74	41.03	--	39.60	42.96	--	45.36	46.54	--
FIXED CARBON	45.46	47.14	--	47.70	49.36	--	54.64	53.46	--
BTU/LB	11874	12652	--	12460	13249	--	14273	14351	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.45	.71	7.84	1.52	.74	8.21	1.74	.80	18.82
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	12.10	7.33	53.86	12.70	7.68	56.40	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.01	.23	7.44	1.06	.24	7.79	1.21	.26	17.88
SULFATIC	.02	.01	.03	.02	.01	.03	.02	.01	.07
ORGANIC	.42	.47	.36	.44	.49	.38	.50	.53	.87
TOTAL	1.45	.71	7.84	1.52	.74	8.21	1.74	.80	18.82

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2030	2300	--
SOFTENING TEMPERATURE	(ST)	2080	2350	--
FLUID TEMPERATURE	(FT)	2130	2410	--

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	--	--	--
NA (SODIUM)	(CALCULATED)	--	--	--
MINERAL MATTER (PARR)		14.55	8.70	65.43

PHYSICAL PARAMETERS, INDEX

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

STATE: IOWA
COUNTY: MAHASKA

BED: CLIFFLAND
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 539
SAMPLE NO. 621

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.0	69.7	6.1	1.46	6.14	13443	9.1
FLOAT 1.40	71.6	82.1	7.1	1.64	6.22	13261	9.4
FLOAT 1.60	84.5	93.8	9.4	1.98	6.39	12841	10.0
CUM(1-1/2" X 100M)	100.0	100.0	16.4	3.50	7.52	11565	13.0
100M X 0	1.1	.8	34.4	5.88	8.45	8282	20.4
TOTAL(1-1/2" X 0)	100.0	100.0	16.6	3.53	7.53	11529	13.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.0	56.9	4.0	1.16	5.87	13826	8.5
FLOAT 1.40	70.2	81.4	5.7	1.36	5.93	13516	8.8
FLOAT 1.60	82.2	92.7	7.7	1.61	6.03	13151	9.2
CUM(3/8" X 100M)	100.0	100.0	15.9	3.54	7.46	11656	12.8
100M X 0	4.8	3.2	36.6	6.04	8.40	7881	21.3
TOTAL(3/8" X 0)	100.0	100.0	16.9	3.66	7.51	11475	13.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.2	41.6	2.6	.86	5.55	14081	7.9
FLOAT 1.40	61.9	73.3	4.7	1.15	5.63	13698	8.2
FLOAT 1.60	80.1	91.6	7.3	1.47	5.77	13224	8.7
CUM(14M X 0)	100.0	100.0	16.4	3.82	7.44	11565	12.9

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	76.1
3/8" X 14M	17.6
14M X 100M	5.2
100M X 0	1.1

MOISTURE, %

TOTAL	11.5
AS RECEIVED	5.1

STATE: IOWA
COUNTY: MAHASKA

BED: CLIFFLAND
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 539
SAMPLE NO. 621

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.10	4.60	3.80	--	--	--	--	--	--
ASH	16.32	7.24	50.79	17.20	7.59	52.80	--	--	--
VOLATILE MATTER	41.38	45.71	26.55	43.60	47.92	27.60	52.66	51.85	58.47
FIXED CARBON	37.20	42.44	18.86	39.20	44.49	19.60	47.34	48.15	41.53
BTU/LB	10866	12542	4733	11450	13146	4920	13829	14227	10424

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	59.51	67.98	27.36	62.71	71.26	28.44	75.74	77.12	60.25
HYDROGEN	4.89	5.55	2.15	4.55	5.28	1.80	5.50	5.72	3.81
NITROGEN	.88	1.03	.38	.93	1.08	.40	1.12	1.17	.85
SULFUR	7.36	5.67	13.65	7.76	5.94	14.19	9.37	6.43	30.07
OXYGEN	11.03	12.53	5.66	6.85	8.84	2.37	8.27	9.57	5.02
ASH	16.32	7.24	50.79	17.20	7.59	52.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.57	1.49	12.77	3.76	1.56	13.28	4.54	1.69	28.13
SULFATIC	.09	.06	.12	.09	.06	.12	.11	.06	.25
ORGANIC	3.71	4.12	.76	3.91	4.32	.79	4.72	4.67	1.68
TOTAL	7.36	5.67	13.65	7.76	5.94	14.19	9.37	6.43	30.07

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.20	.20	.20
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.87	.89
OXYGEN/CARBON	.08	.09
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2020	2000	1910
SOFTENING TEMPERATURE (ST)	2070	2050	1960
FLUID TEMPERATURE (FT)	2120	2100	2010

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.02	--	--
NA (SODIUM) (CALCULATED)	.03	.01	.08
MINERAL MATTER (PARR)	22.84	11.47	64.83

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	5	4	0
HARDGROVE GRINDABILITY (HGI)	52	48	--

STATE: IOWA
COUNTY: MAHASKA

BED: HASTIE
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 550
SAMPLE NO. 622

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.1	53.4	5.4	1.35	4.63	13410	6.9
FLOAT 1.40	71.2	78.3	7.8	1.83	5.03	13010	7.7
FLOAT 1.60	84.8	90.9	9.8	2.46	5.64	12677	8.9
CUM(1-1/2" X 100M)	100.0	100.0	14.9	4.79	8.05	11828	13.6
100M X 0	1.6	1.2	31.7	9.14	11.50	9031	25.5
TOTAL(1-1/2" X 0)	100.0	100.0	15.2	4.86	8.11	11784	13.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.3	48.5	4.2	1.11	4.29	13610	6.3
FLOAT 1.40	67.3	75.2	6.3	1.51	4.64	13260	7.0
FLOAT 1.60	83.4	90.7	8.5	2.15	5.28	12894	8.2
CUM(3/8" X 100M)	100.0	100.0	14.7	4.68	7.90	11862	13.3
100M X 0	3.7	3.1	26.8	8.78	11.87	9847	24.1
TOTAL(3/8" X 0)	100.0	100.0	15.1	4.83	8.05	11787	13.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.5	38.0	2.8	.89	4.19	13843	6.1
FLOAT 1.40	62.2	70.5	5.3	1.42	4.59	13427	6.8
FLOAT 1.60	82.4	90.3	8.0	2.17	5.25	12977	8.1
CUM(14M X 0)	100.0	100.0	14.8	5.08	8.20	11845	13.8

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	76.3
3/8" X 14M	17.4
14M X 100M	4.7
100M X 0	1.6

MOISTURE, %

TOTAL	16.5
AS RECEIVED	12.4

STATE: IOWA
COUNTY: MAHASKA

BED: HASTIE
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 550
SAMPLE NO. 622

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	12.40	6.00	4.30	--	--	--	--	--	--
ASH	13.48	7.82	44.12	15.39	8.32	46.10	--	--	--
VOLATILE MATTER	38.87	44.60	29.28	44.37	47.45	30.60	52.44	51.75	56.77
FIXED CARBON	35.25	41.58	22.30	40.24	44.23	23.30	47.56	48.25	43.23
BTU/LB	9943	12451	6419	11350	13246	6707	13415	14448	12444

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	55.79	66.17	26.60	63.68	70.39	27.79	75.27	76.78	51.56
HYDROGEN	5.48	5.66	2.30	4.68	5.31	1.90	5.54	5.79	3.53
NITROGEN	.99	1.21	.48	1.14	1.29	.50	1.34	1.40	.93
SULFUR	7.26	4.85	21.11	8.28	5.16	22.06	9.79	5.63	40.92
OXYGEN	16.99	14.29	5.40	6.82	9.53	1.65	8.06	10.40	3.07
ASH	13.48	7.82	44.12	15.39	8.32	46.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.53	2.12	17.90	5.17	2.25	18.70	6.11	2.46	34.70
SULFATIC	.25	.23	.32	.29	.24	.34	.34	.26	.62
ORGANIC	2.48	2.51	2.89	2.83	2.67	3.02	3.34	2.91	5.60
TOTAL	7.26	4.85	21.11	8.28	5.16	22.06	9.79	5.63	40.92

MINERAL ANALYSIS OF ASH, %

OXIDES	RAW	FL 1.60	SK 1.60
SIO2 (SILICON OXIDE)	--	--	--
AL2O3 (ALUMINUM OXIDE)	--	--	--
FE2O3 (IRON OXIDE)	--	--	--
TIO2 (TITANIUM OXIDE)	--	--	--
CAO (CALCIUM OXIDE)	--	--	--
MGO (MAGNESIUM OXIDE)	--	--	--
NA2O (SODIUM OXIDE)	--	--	--
K2O (POTASSIUM OXIDE)	--	--	--
SO3 (SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.88	.91
OXYGEN/CARBON	.08	.10
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1900	1880	2300
SOFTENING TEMPERATURE (ST)	1950	1980	2330
FLUID TEMPERATURE (FT)	2000	2030	2360

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.06	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	21.18	11.82	61.92

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3	3 1/2	--
HARDGROVE GRINDABILITY (HGI)	51	49	--

STATE: IOWA
COUNTY: MONROE

BED: HASTIE
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 550
SAMPLE NO. 623

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.0	69.7	5.3	.79	4.00	13491	5.9
FLOAT 1.40	79.0	88.2	7.1	.87	4.01	13177	6.1
FLOAT 1.60	88.5	96.2	9.1	.94	4.03	12828	6.3
CUM(1-1/2" X 100M)	100.0	100.0	15.0	2.80	5.74	11799	9.7
100M X 0	1.8	1.2	39.3	3.39	6.54	7561	17.3
TOTAL(1-1/2" X 0)	100.0	100.0	15.4	2.81	5.75	11723	9.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.7	64.0	4.2	.62	4.00	13683	5.8
FLOAT 1.40	78.3	88.2	5.8	.72	4.02	13404	6.0
FLOAT 1.60	88.1	96.5	7.9	.80	4.03	13037	6.2
CUM(3/8" X 100M)	100.0	100.0	14.4	2.92	5.94	11904	10.0
100M X 0	5.5	4.2	30.8	3.20	6.18	9044	13.7
TOTAL(3/8" X 0)	100.0	100.0	15.3	2.94	5.95	11747	10.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.9	48.1	3.8	.63	4.02	13753	5.8
FLOAT 1.40	68.8	79.2	5.5	.71	4.05	13456	6.0
FLOAT 1.60	84.7	94.6	7.8	.87	4.08	13055	6.3
CUM(14M X 0)	100.0	100.0	15.6	3.08	5.84	11695	10.0

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	73.7
3/8" X 14M	18.0
14M X 100M	6.5
100M X 0	1.8

MOISTURE, %

TOTAL	17.9
AS RECEIVED	13.4

STATE: IOWA
COUNTY: MONROE

BED: HASTIE
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 550
SAMPLE NO. 623

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	13.40	4.80	2.00	--	--	--	--	--	--
ASH	13.86	7.72	59.88	16.00	8.11	61.10	--	--	--
VOLATILE MATTER	39.26	45.63	29.99	45.33	47.93	30.60	53.97	52.16	78.66
FIXED CARBON	33.49	41.85	8.13	38.67	43.96	8.30	46.03	47.84	21.34
BTU/LB	10124	12324	3675	11690	12945	3750	13917	14088	9640

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	55.48	68.12	18.23	64.07	71.55	18.60	76.27	77.87	47.81
HYDROGEN	5.54	5.56	1.40	4.67	5.28	1.20	5.57	5.74	3.08
NITROGEN	1.04	1.25	.49	1.20	1.31	.50	1.43	1.43	1.29
SULFUR	5.33	3.97	15.35	6.16	4.17	15.66	7.33	4.54	40.25
OXYGEN	18.75	13.38	4.66	7.90	9.57	2.94	9.40	10.42	7.56
ASH	13.86	7.72	59.88	16.00	8.11	61.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.65	.78	15.01	3.06	.82	15.31	3.64	.89	39.37
SULFATIC	.11	.05	.03	.13	.05	.03	.15	.05	.09
ORGANIC	2.57	3.14	.30	2.97	3.30	.31	3.54	3.59	.80
TOTAL	5.33	3.97	15.35	6.16	4.17	15.66	7.33	4.54	40.25

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.88	.89
OXYGEN/CARBON	.09	.10
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2030	2140	2050
SOFTENING TEMPERATURE (ST)	2080	2190	2100
FLUID TEMPERATURE (FT)	2130	2250	2150

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.02	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	20.67	11.05	74.60

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3	3	0
HARDGROVE GRINDABILITY (HGI)	51	49	--

STATE: IOWA
COUNTY: MARION

BED: LOWER-FORD
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 530
SAMPLE NO. 624

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	75.2	79.2	6.6	.92	1.87	13221	2.8
FLOAT 1.40	90.0	93.6	7.5	1.17	2.15	13064	3.3
FLOAT 1.60	94.3	97.5	8.0	1.37	2.38	12976	3.7
FLOAT 1.90	96.0	98.7	8.4	1.55	2.57	12907	4.0
CUM(1-1/2" X 100M)	100.0	100.0	10.4	2.24	3.28	12557	5.2
100M X 0	.2	.2	22.7	5.96	6.96	10407	13.4
TOTAL(1-1/2" X 0)	100.0	100.0	10.4	2.25	3.29	12553	5.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	77.6	82.4	5.3	.72	1.70	13448	2.5
FLOAT 1.40	89.4	94.1	6.0	.95	1.93	13326	2.9
FLOAT 1.60	92.5	96.8	6.4	1.10	2.10	13256	3.2
FLOAT 1.90	96.0	98.7	8.4	1.55	2.57	12907	4.0
CUM(3/8" X 100M)	100.0	100.0	9.8	2.21	3.21	12662	5.1
100M X 0	.6	.5	20.7	5.41	6.68	10756	12.4
TOTAL(3/8" X 0)	100.0	100.0	9.9	2.23	3.23	12650	5.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.9	61.5	4.0	.61	1.63	13676	2.4
FLOAT 1.40	82.6	89.0	5.6	.95	1.98	13396	3.0
FLOAT 1.60	90.0	95.9	6.4	1.19	2.25	13256	3.4
FLOAT 1.90	96.0	98.7	8.4	1.55	2.57	12907	4.0
CUM(14M X 0)	100.0	100.0	11.1	2.43	3.50	12434	5.6

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	4.9
AS RECEIVED	2.6

STATE: IOWA
COUNTY: MARION

BED: LOWER-FORD
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 530
SAMPLE NO. 624

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.60	--	--	--	--	--	--	--	--
ASH	10.42	--	--	10.70	--	--	--	--	--
VOLATILE MATTER	42.08	--	--	43.20	--	--	48.38	--	--
FIXED CARBON	44.90	--	--	46.10	--	--	51.62	--	--
BTU/LB	12484	--	--	12817	--	--	14353	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.51	--	--	3.61	--	--	4.04	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	10.42	--	--	10.70	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.35	--	--	2.42	--	--	2.71	--	--
SULFATIC	.07	--	--	.07	--	--	.08	--	--
ORGANIC	1.09	--	--	1.12	--	--	1.25	--	--
TOTAL	3.51	--	--	3.61	--	--	4.04	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	--	--	--
NA (SODIUM)	(CALCULATED)	--	--	--
MINERAL MATTER	(PARR)	13.54	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: IOWA
COUNTY: MARION

BED: LOWER-FORD
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 530
SAMPLE NO. 625

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.9	51.6	7.1	1.44	2.97	12898	4.6
FLOAT 1.40	69.7	76.7	8.7	1.92	3.61	12634	5.7
FLOAT 1.60	86.2	92.8	10.4	2.63	4.44	12354	7.2
CUM(1-1/2" X 100M)	100.0	100.0	15.7	5.00	6.71	11480	11.7
100M X 0	1.9	1.5	31.3	5.88	8.89	8909	20.0
TOTAL(1-1/2" X 0)	100.0	100.0	16.0	5.02	6.75	11432	11.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.8	44.6	4.9	1.07	2.56	13261	3.9
FLOAT 1.40	69.5	77.9	6.8	1.58	3.25	12947	5.0
FLOAT 1.60	83.8	92.1	8.4	2.20	3.97	12684	6.3
CUM(3/8" X 100M)	100.0	100.0	15.3	4.98	6.60	11546	11.4
100M X 0	4.1	3.2	31.0	5.19	8.71	8959	19.4
TOTAL(3/8" X 0)	100.0	100.0	15.9	4.99	6.69	11440	11.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.5	39.4	3.7	.95	2.61	13458	3.9
FLOAT 1.40	56.3	65.1	5.1	1.28	3.01	13228	4.6
FLOAT 1.60	79.4	89.2	7.3	1.91	3.70	12865	5.8
CUM(14M X 0)	100.0	100.0	15.9	4.94	6.70	11448	11.7

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	70.1
3/8" X 14M	22.7
14M X 100M	5.3
100M X 0	1.9

MOISTURE, %

TOTAL	17.6
AS RECEIVED	11.2

STATE: IOWA
COUNTY: MARION

BED: LOWER-FORD
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 530
SAMPLE NO. 625

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	11.20	7.20	1.20	--	--	--	--	--	--
ASH	14.68	7.05	48.91	16.54	7.59	49.50	--	--	--
VOLATILE MATTER	36.70	40.64	31.81	41.33	43.79	32.20	49.52	47.39	63.76
FIXED CARBON	37.41	45.11	18.08	42.13	48.61	18.30	50.48	52.61	36.24
BTU/LB	9798	12119	5904	11034	13060	5976	13220	14133	11833

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	56.61	67.78	27.73	63.75	73.04	28.07	76.38	79.04	55.58
HYDROGEN	5.18	5.63	1.62	4.43	5.21	1.50	5.31	5.64	2.97
NITROGEN	1.20	1.51	.30	1.35	1.63	.30	1.61	1.76	.59
SULFUR	5.36	3.54	16.24	6.04	3.81	16.44	7.24	4.13	32.55
OXYGEN	16.96	14.49	5.21	7.89	8.72	4.19	9.45	9.44	8.30
ASH	14.68	7.05	48.91	16.54	7.59	49.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.98	1.85	14.78	4.48	1.99	14.96	5.37	2.16	29.62
SULFATIC	.14	.17	.11	.16	.18	.11	.19	.20	.23
ORGANIC	1.24	1.52	1.35	1.40	1.64	1.37	1.68	1.77	2.71
TOTAL	5.36	3.54	16.24	6.04	3.81	16.44	7.24	4.13	32.55

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.83	.86
OXYGEN/CARBON	.11	.09
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2120	1950	2360
SOFTENING TEMPERATURE (ST)	2170	2000	2410
FLUID TEMPERATURE (FT)	2220	2050	2460

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.03	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	20.25	10.30	56.82

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	1	1 1/2	0
HARDGROVE GRINDABILITY (HGI)	54	52	--

STATE: IOWA
COUNTY: MARION

BED: LOWER-FORD
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 530
SAMPLE NO. 626

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.6	46.2	4.8	1.60	2.79	13536	4.1
FLOAT 1.40	80.0	90.4	7.2	1.72	3.31	13116	5.0
FLOAT 1.60	84.9	94.9	8.0	1.96	3.50	12976	5.4
FLOAT 1.90	87.3	96.8	8.6	2.14	3.65	12872	5.7
CUM(1-1/2" X 100M)	100.0	100.0	15.8	4.94	6.29	11613	10.8
100M X 0	1.2	1.2	15.3	5.00	5.94	11705	10.1
TOTAL(1-1/2" X 0)	100.0	100.0	15.8	4.94	6.29	11614	10.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.9	44.1	3.8	1.54	2.54	13711	3.7
FLOAT 1.40	73.4	83.4	5.6	2.04	3.04	13396	4.5
FLOAT 1.60	82.3	91.8	7.0	2.27	3.28	13151	5.0
FLOAT 1.90	87.3	96.8	8.6	2.14	3.65	12872	5.7
CUM(3/8" X 100M)	100.0	100.0	14.8	5.32	6.20	11788	10.5
100M X 0	3.5	3.5	15.0	5.15	6.01	11751	10.2
TOTAL(3/8" X 0)	100.0	100.0	14.8	5.31	6.19	11786	10.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.2	54.4	6.1	1.97	3.27	13309	4.9
FLOAT 1.40	80.7	89.7	7.3	2.32	3.57	13099	5.5
FLOAT 1.60	88.0	96.6	8.2	2.60	3.81	12941	5.9
FLOAT 1.90	87.3	96.8	8.6	2.14	3.65	12872	5.7
CUM(14M X 0)	100.0	100.0	14.8	4.93	6.04	11788	10.2

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	1.2

MOISTURE, %

TOTAL	1.9
AS RECEIVED	1.3

STATE: IOWA
COUNTY: MARION

BED: LOWER-FORD
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 530
SAMPLE NO. 627

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.4	43.3	9.1	2.84	4.81	12672	7.6
FLOAT 1.40	53.9	66.6	10.4	3.66	5.58	12433	9.0
FLOAT 1.60	66.7	80.4	12.0	4.43	6.31	12140	10.4
CUM(1-1/2" X 100M)	100.0	100.0	23.3	10.23	12.08	10068	24.0
100M X 0	1.3	1.1	30.6	14.21	14.78	8730	33.9
TOTAL(1-1/2" X 0)	100.0	100.0	23.4	10.28	12.12	10051	24.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	15.8	21.0	5.4	1.92	4.03	13350	6.0
FLOAT 1.40	47.9	61.4	8.1	2.69	4.71	12855	7.3
FLOAT 1.60	65.6	81.8	10.0	3.66	5.68	12507	9.1
CUM(3/8" X 100M)	100.0	100.0	23.5	10.40	12.02	10032	24.0
100M X 0	2.9	2.3	34.1	17.63	18.17	8088	44.9
TOTAL(3/8" X 0)	100.0	100.0	23.8	10.61	12.20	9975	24.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	7.3	9.9	3.7	1.69	3.79	13662	5.5
FLOAT 1.40	44.8	59.8	5.2	2.03	3.89	13387	5.8
FLOAT 1.60	67.4	85.6	8.7	3.47	5.43	12745	8.5
CUM(14M X 0)	100.0	100.0	23.5	10.55	12.24	10032	24.4

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	7.5
AS RECEIVED	3.5

STATE: IOWA
COUNTY: MARION

BED: LOWER-FORD
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 530
SAMPLE NO. 626

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.30	--	--	--	--	--	--	--	--
ASH	15.19	--	--	15.39	--	--	--	--	--
VOLATILE MATTER	40.22	--	--	40.75	--	--	48.16	--	--
FIXED CARBON	43.29	--	--	43.86	--	--	51.84	--	--
BTU/LB	11802	--	--	11958	--	--	14133	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	6.31	--	--	6.39	--	--	7.55	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	15.19	--	--	15.39	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	5.17	--	--	5.24	--	--	6.19	--	--
SULFATIC	.15	--	--	.15	--	--	.18	--	--
ORGANIC	.99	--	--	1.00	--	--	1.18	--	--
TOTAL	6.31	--	--	6.39	--	--	7.55	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	20.14	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: IOWA
COUNTY: MONROE

BED: LOWER-FORD
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 530
SAMPLE NO. 628

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

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

PRODUCT	RECOVERY, %		ASH, %	SULFUR, %		HEATING VALUE	SO2 EMISSION
	WEIGHT	BTU		PYRITIC	TOTAL	BTU/LB	LB/MM BTU
FLOAT 1.30	64.1	70.5	8.4	1.45	2.22	12968	3.4
FLOAT 1.40	78.4	85.7	8.9	1.64	2.45	12884	3.8
FLOAT 1.60	87.0	93.9	9.9	2.09	2.91	12715	4.6
CUM(1-1/2" X 100M)	100.0	100.0	15.4	4.32	5.23	11787	8.9
100M X 0	1.6	1.2	32.3	4.56	6.64	8935	14.9
TOTAL(1-1/2" X 0)	100.0	100.0	15.7	4.32	5.25	11741	8.9

SAMPLE CRUSHED TO PASS 3/8"

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

PRODUCT	RECOVERY, %		ASH, %	SULFUR, %		HEATING VALUE	SO2 EMISSION
	WEIGHT	BTU		PYRITIC	TOTAL	BTU/LB	LB/MM BTU
FLOAT 1.30	51.5	58.3	5.8	1.14	1.96	13407	2.9
FLOAT 1.40	77.7	86.5	7.2	1.28	2.12	13171	3.2
FLOAT 1.60	85.7	94.1	8.2	1.66	2.50	13002	3.8
CUM(3/8" X 100M)	100.0	100.0	15.1	4.59	5.31	11837	9.0
100M X 0	3.0	2.4	28.6	5.43	6.77	9559	14.2
TOTAL(3/8" X 0)	100.0	100.0	15.5	4.62	5.35	11769	9.1

SAMPLE CRUSHED TO PASS 14M

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

PRODUCT	RECOVERY, %		ASH, %	SULFUR, %		HEATING VALUE	SO2 EMISSION
	WEIGHT	BTU		PYRITIC	TOTAL	BTU/LB	LB/MM BTU
FLOAT 1.30	37.2	42.8	5.1	.99	1.94	13525	2.9
FLOAT 1.40	70.0	79.0	6.6	1.28	2.21	13272	3.3
FLOAT 1.60	84.2	93.1	8.2	1.60	2.48	13002	3.8
CUM(14M X 0)	100.0	100.0	15.6	4.60	5.35	11753	9.1

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	67.1
3/8" X 14M	24.5
14M X 100M	6.8
100M X 0	1.6

MOISTURE, %

TOTAL	20.4
AS RECEIVED	18.0

STATE: IOWA
COUNTY: MARION

BED: LOWER-FORD
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 530
SAMPLE NO. 627

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.50	3.90	2.80	--	--	--	--	--	--
ASH	22.58	8.03	52.59	23.40	8.35	54.10	--	--	--
VOLATILE MATTER	40.05	43.27	--	41.50	45.03	--	54.18	49.13	--
FIXED CARBON	33.87	44.80	--	35.10	46.62	--	45.82	50.87	--
BTU/LB	9698	12309	--	10050	12809	--	13120	13976	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	11.44	5.09	25.72	11.86	5.30	26.46	15.48	5.78	57.65
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	22.58	8.03	52.59	23.40	8.35	54.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	9.96	3.08	24.48	10.32	3.20	25.19	13.47	3.49	54.88
SULFATIC	.14	.01	.28	.15	.01	.29	.20	.01	.63
ORGANIC	1.34	2.01	.95	1.39	2.09	.98	1.81	2.28	2.14
TOTAL	11.44	5.09	25.72	11.86	5.30	26.46	15.48	5.78	57.65

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2290	1970	--
SOFTENING TEMPERATURE (ST)	2340	2000	--
FLUID TEMPERATURE (FT)	2390	2030	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	31.80	11.94	72.98

PHYSICAL PARAMETERS, INDEX

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

STATE: IOWA
COUNTY: MONROE

BED: LOWER-FORD
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 530
SAMPLE NO. 628

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	18.00	9.40	6.00	--	--	--	--	--	--
ASH	13.28	7.34	51.79	16.20	8.10	55.10	--	--	--
VOLATILE MATTER	33.96	39.94	26.98	41.41	44.09	28.70	49.42	47.97	63.92
FIXED CARBON	34.76	43.32	15.23	42.39	47.81	16.20	50.58	52.03	36.08
BTU/LB	9337	11994	4824	11386	13239	5132	13587	14406	11431

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	54.39	68.02	21.23	66.32	75.07	22.58	79.15	81.69	50.29
HYDROGEN	5.65	5.70	1.70	4.45	5.14	1.10	5.31	5.60	2.45
NITROGEN	1.22	1.52	.47	1.49	1.68	.50	1.78	1.83	1.11
SULFUR	3.93	2.05	17.47	4.79	2.27	18.58	5.71	2.47	41.38
OXYGEN	21.53	15.37	7.34	6.74	7.74	2.14	8.05	8.42	4.77
ASH	13.28	7.34	51.79	16.20	8.10	55.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.33	1.30	17.42	4.06	1.44	18.53	4.85	1.57	41.27
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.59	.74	.04	.72	.82	.04	.85	.89	.09
TOTAL	3.93	2.05	17.47	4.79	2.27	18.58	5.71	2.47	41.38

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.81	.82
OXYGEN/CARBON	.11	.08
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	1880	1880	2100
SOFTENING TEMPERATURE	(ST)	1930	1930	2150
FLUID TEMPERATURE	(FT)	1980	1980	2200

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	.01	--	--
NA (SODIUM)	(CALCULATED)	--	--	--
MINERAL MATTER	(PARR)	18.72	9.99	60.60

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	2 1/2	3 1/2	--
HARDGROVE GRINDABILITY	(HGI)	52	50	--

STATE: IOWA
COUNTY: MONROE

BED: LOWER-FORD
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 530
SAMPLE NO. 629

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.9	60.4	7.1	.98	2.32	13134	3.5
FLOAT 1.40	74.3	80.8	7.9	1.15	2.64	12994	4.1
FLOAT 1.60	88.4	94.0	9.6	1.57	3.17	12697	5.0
CUM(1-1/2" X 100M)	100.0	100.0	13.9	3.62	5.33	11945	8.9
100M X 0	1.1	.9	26.5	3.42	6.12	9742	12.6
TOTAL(1-1/2" X 0)	100.0	100.0	14.0	3.62	5.34	11921	9.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.3	58.2	5.1	.85	2.23	13483	3.3
FLOAT 1.40	72.9	81.4	6.4	1.00	2.46	13256	3.7
FLOAT 1.60	85.0	93.1	7.8	1.33	2.90	13011	4.5
CUM(3/8" X 100M)	100.0	100.0	14.3	4.16	5.78	11875	9.7
100M X 0	1.9	1.6	25.6	4.55	7.02	9900	14.2
TOTAL(3/8" X 0)	100.0	100.0	14.5	4.17	5.80	11838	9.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	3.5	4.1	2.9	.21	1.97	13868	2.8
FLOAT 1.40	70.9	81.3	4.8	.64	2.10	13536	3.1
FLOAT 1.60	84.3	93.4	7.4	1.08	2.56	13081	3.9
CUM(14M X 0)	100.0	100.0	14.7	4.04	5.60	11805	9.5

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	11.5
AS RECEIVED	7.7

STATE: IOWA
COUNTY: MONROE

BED: LOWER-FORD
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 530
SAMPLE NO. 629

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	7.70	6.16	3.20	--	--	--	--	--	--
ASH	13.11	6.67	51.79	14.20	7.10	53.50	--	--	--
VOLATILE MATTER	39.50	40.49	--	42.80	43.15	--	49.88	46.45	--
FIXED CARBON	39.69	46.68	--	43.00	49.74	--	50.12	53.55	--
BTU/LB	10587	12148	--	11470	12946	--	13368	13935	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	5.27	2.45	21.32	5.71	2.61	22.03	6.65	2.81	47.37
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	13.11	6.67	51.79	14.20	7.10	53.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.62	.91	19.30	3.92	.97	19.93	4.57	1.05	42.87
SULFATIC	.16	.15	.20	.18	.16	.21	.21	.18	.45
ORGANIC	1.48	1.38	1.82	1.61	1.47	1.89	1.87	1.59	4.05
TOTAL	5.27	2.45	21.32	5.71	2.61	22.03	6.65	2.81	47.37

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2000	1910	--
SOFTENING TEMPERATURE (ST)	2050	1940	--
FLUID TEMPERATURE (FT)	2100	1970	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	18.47	9.11	69.90

PHYSICAL PARAMETERS, INDEX

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

STATE: IOWA
COUNTY: WAPELLO

BED: LUCAS COUNTY NO.5
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 517
SAMPLE NO. 630

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.9	36.0	7.5	.96	4.51	12999	6.9
FLOAT 1.40	59.8	70.8	11.0	1.17	4.58	12365	7.4
FLOAT 1.60	80.7	90.4	14.7	1.57	4.81	11694	8.2
CUM(1-1/2" X 100M)	100.0	100.0	21.6	5.16	7.96	10444	15.2
100M X 0	.9	.7	34.5	8.38	10.67	8107	26.3
TOTAL(1-1/2" X 0)	100.0	100.0	21.7	5.19	7.98	10423	15.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.6	29.9	5.8	.84	4.44	13307	6.7
FLOAT 1.40	57.0	69.1	9.0	.99	4.50	12727	7.1
FLOAT 1.60	79.7	90.6	13.4	1.31	4.62	11930	7.7
CUM(3/8" X 100M)	100.0	100.0	21.3	4.91	7.76	10499	14.8
100M X 0	3.8	3.4	27.9	5.79	8.88	9303	19.1
TOTAL(3/8" X 0)	100.0	100.0	21.6	4.94	7.80	10453	14.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.6	21.5	4.2	.74	4.41	13597	6.5
FLOAT 1.40	51.0	63.2	7.6	.83	4.43	12981	6.8
FLOAT 1.60	77.2	90.1	11.7	1.08	4.49	12238	7.3
CUM(14M X 0)	100.0	100.0	21.4	5.01	7.80	10480	14.9

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	79.0
3/8" X 14M	15.5
14M X 100M	4.6
100M X 0	.9

MOISTURE, %

TOTAL	11.3
AS RECEIVED	8.0

STATE: IOWA
COUNTY: WAPELLO

BED: LUCAS COUNTY NO.5
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 517
SAMPLE NO. 630

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	8.00	4.60	4.60	--	--	--	--	--	--
ASH	19.78	11.61	51.80	21.50	12.17	54.30	--	--	--
VOLATILE MATTER	37.33	42.07	27.48	40.58	44.10	28.80	51.69	50.21	63.02
FIXED CARBON	34.89	41.72	16.12	37.92	43.74	16.90	48.31	49.79	36.98
BTU/LB	9621	11597	4312	10458	12157	4520	13322	13841	9891

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	54.62	64.98	23.39	59.37	68.11	24.52	75.63	77.55	53.65
HYDROGEN	4.94	5.44	2.13	4.40	5.17	1.70	5.61	5.89	3.72
NITROGEN	.94	1.14	.38	1.02	1.20	.40	1.30	1.37	.88
SULFUR	7.01	4.29	18.15	7.62	4.50	19.02	9.70	5.12	41.62
OXYGEN	12.72	12.53	4.14	6.09	8.85	.06	7.76	10.07	.13
ASH	19.78	11.61	51.80	21.50	12.17	54.30	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.27	1.08	17.47	4.64	1.13	18.32	5.91	1.29	40.08
SULFATIC	.03	.02	.05	.04	.02	.05	.04	.02	.11
ORGANIC	2.70	3.20	.63	2.94	3.35	.66	3.75	3.81	1.43
TOTAL	7.01	4.29	18.15	7.62	4.50	19.02	9.70	5.12	41.62

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.20	.20	.20
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.89	.91
OXYGEN/CARBON	.08	.10
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2030	2680	1900
SOFTENING TEMPERATURE (ST)	2080	2730	2040
FLUID TEMPERATURE (FT)	2130	2780	2090

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.02	--	--
NA (SODIUM) (CALCULATED)	.03	.02	.08
MINERAL MATTER (PARR)	27.41	15.62	69.11

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3	3	--
HARDGROVE GRINDABILITY (HGI)	50	48	--

STATE: IOWA
COUNTY: LUCAS

BED: UNCORRELATED
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 799
SAMPLE NO. 631

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.1	57.5	6.5	1.27	2.85	13307	4.3
FLOAT 1.40	71.5	79.7	8.5	1.76	3.30	12936	5.1
FLOAT 1.60	91.2	95.9	12.5	2.19	3.64	12193	6.0
CUM(1-1/2" X 100M)	100.0	100.0	15.7	2.83	4.18	11599	7.2
100M X 0	1.2	.9	29.1	5.02	6.84	9110	15.0
TOTAL(1-1/2" X 0)	100.0	100.0	15.9	2.86	4.21	11569	7.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.5	49.9	4.3	.83	2.20	13716	3.2
FLOAT 1.40	69.9	79.2	6.8	1.46	2.84	13251	4.3
FLOAT 1.60	87.8	94.5	10.4	1.85	3.21	12583	5.1
CUM(3/8" X 100M)	100.0	100.0	15.2	2.76	4.04	11691	6.9
100M X 0	3.3	2.7	25.8	4.61	6.10	9723	12.5
TOTAL(3/8" X 0)	100.0	100.0	15.5	2.82	4.11	11626	7.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.6	36.7	3.1	.51	1.82	13939	2.6
FLOAT 1.40	65.2	75.2	6.0	1.21	2.59	13400	3.9
FLOAT 1.60	83.1	92.1	8.8	1.74	3.10	12880	4.8
CUM(14M X 0)	100.0	100.0	15.6	2.92	4.18	11617	7.2

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	72.2
3/8" X 14M	21.1
14M X 100M	5.5
100M X 0	1.2

MOISTURE, %

TOTAL	22.1
AS RECEIVED	17.6

STATE: IOWA
COUNTY: LUCAS

BED: UNCORRELATED
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 799
SAMPLE NO. 631

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	17.60	9.50	1.00	--	--	--	--	--	--
ASH	13.18	8.28	50.49	16.00	9.15	51.00	--	--	--
VOLATILE MATTER	33.29	38.30	30.49	40.40	42.32	30.80	48.10	46.58	62.86
FIXED CARBON	35.92	43.92	18.02	43.60	48.53	18.20	51.90	53.42	37.14
BTU/LB	9608	11509	4974	11660	12717	5024	13881	13998	10253

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	53.38	63.82	27.86	64.78	70.52	28.14	77.12	77.62	57.43
HYDROGEN	5.70	5.62	2.09	4.55	5.04	2.00	5.42	5.55	4.08
NITROGEN	1.30	1.58	.69	1.58	1.75	.70	1.88	1.93	1.43
SULFUR	3.53	3.01	9.43	4.29	3.33	9.52	5.11	3.67	19.43
OXYGEN	22.90	17.69	9.44	8.80	10.21	8.64	10.48	11.24	17.63
ASH	13.18	8.28	50.49	16.00	9.15	51.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.29	1.65	8.64	2.78	1.82	8.72	3.31	2.00	17.80
SULFATIC	.22	.22	.08	.27	.24	.08	.32	.26	.16
ORGANIC	1.02	1.15	.71	1.24	1.27	.72	1.48	1.40	1.47
TOTAL	3.53	3.01	9.43	4.29	3.33	9.52	5.11	3.67	19.43

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.50	.70	.30
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.84	.86
OXYGEN/CARBON	.10	.11
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2080	2110	1990
SOFTENING TEMPERATURE (ST)	2120	2160	2040
FLUID TEMPERATURE (FT)	2160	2360	2090

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.05	--	--
NA (SODIUM) (CALCULATED)	.06	.05	.11
MINERAL MATTER (PARR)	19.64	11.72	60.31

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	2	3	0
HARDGROVE GRINDABILITY (HGI)	55	52	--

STATE: IOWA
COUNTY: MAHASKA

BED: UNCORRELATED
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 799
SAMPLE NO. 632

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	81.3	84.1	4.2	.50	1.22	13641	1.8
FLOAT 1.40	93.6	96.1	4.8	.55	1.27	13536	1.9
FLOAT 1.60	96.0	98.3	5.0	.67	1.42	13501	2.1
CUM(1-1/2" X 100M)	100.0	100.0	6.8	1.66	2.45	13186	3.7
100M X 0	1.6	1.5	13.1	2.31	3.24	12085	5.4
TOTAL(1-1/2" X 0)	100.0	100.0	6.9	1.67	2.46	13169	3.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	69.7	73.1	3.3	.30	1.10	13798	1.6
FLOAT 1.40	90.9	94.4	4.1	.32	1.09	13658	1.6
FLOAT 1.60	95.1	98.1	4.6	.41	1.18	13571	1.7
CUM(3/8" X 100M)	100.0	100.0	7.0	1.73	2.51	13151	3.8
100M X 0	2.4	2.2	12.3	3.20	3.97	12225	6.5
TOTAL(3/8" X 0)	100.0	100.0	7.1	1.77	2.55	13129	3.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.9	9.6	1.1	.05	.87	14183	1.2
FLOAT 1.40	89.2	93.7	3.4	.18	.94	13781	1.4
FLOAT 1.60	94.4	97.9	4.4	.21	1.00	13606	1.5
CUM(14M X 0)	100.0	100.0	7.2	1.80	2.63	13116	4.0

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	11.7
AS RECEIVED	7.6

STATE: IOWA
COUNTY: MAHASKA

BED: UNCORRELATED
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 799
SAMPLE NO. 632

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	7.60	5.80	2.30	--	--	--	--	--	--
ASH	6.56	3.98	55.27	7.10	4.22	56.58	--	--	--
VOLATILE MATTER	38.16	41.35	--	41.30	43.90	--	44.46	45.83	--
FIXED CARBON	47.68	48.87	--	51.60	51.88	--	55.54	54.17	--
BTU/LB	12238	12781	--	13245	13568	--	14257	14167	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.43	.88	29.42	2.63	.93	30.11	2.83	.97	69.34
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	6.56	3.98	55.27	7.10	4.22	56.58	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.58	.18	27.94	1.71	.19	28.60	1.84	.20	65.87
SULFATIC	.03	.03	.04	.04	.03	.04	.04	.03	.09
ORGANIC	.81	.67	1.44	.88	.71	1.47	.95	.74	3.38
TOTAL	2.43	.88	29.42	2.63	.93	30.11	2.83	.97	69.34

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	1940	2250	--
SOFTENING TEMPERATURE	(ST)	2000	2350	--
FLUID TEMPERATURE	(FT)	2250	2600	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	9.11	5.07	77.66

PHYSICAL PARAMETERS, INDEX

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

STATE: IOWA
COUNTY: MAHASKA

BED: UNCORRELATED
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 799
SAMPLE NO. 633

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.5	64.9	5.1	1.46	4.90	13638	7.2
FLOAT 1.40	80.3	87.0	6.8	1.79	5.15	13320	7.7
FLOAT 1.60	91.1	96.2	8.6	2.22	5.52	12984	8.5
CUM(1-1/2" X 100M)	100.0	100.0	12.3	3.03	6.19	12293	10.1
100M X 0	1.2	.9	27.1	5.87	7.75	9528	16.3
TOTAL(1-1/2" X 0)	100.0	100.0	12.5	3.06	6.21	12260	10.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	53.3	59.5	3.9	1.30	4.75	13862	6.9
FLOAT 1.40	79.3	86.2	5.8	1.61	4.95	13507	7.3
FLOAT 1.60	89.9	95.6	7.4	1.96	5.27	13208	8.0
CUM(3/8" X 100M)	100.0	100.0	11.6	3.05	6.19	12424	10.0
100M X 0	3.9	3.3	22.3	4.59	7.15	10425	13.7
TOTAL(3/8" X 0)	100.0	100.0	12.0	3.11	6.23	12346	10.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.2	50.5	2.8	.91	4.42	14068	6.3
FLOAT 1.40	69.5	77.7	4.4	1.19	4.59	13769	6.7
FLOAT 1.60	86.9	94.5	6.4	1.57	4.88	13395	7.3
CUM(14M X 0)	100.0	100.0	12.2	3.11	6.14	12312	10.0

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	78.4
3/8" X 14M	15.8
14M X 100M	4.6
100M X 0	1.2

MOISTURE, %

TOTAL	13.7
AS RECEIVED	11.3

STATE: IOWA
COUNTY: MAHASKA

BED: UNCORRELATED
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 799
SAMPLE NO. 633

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	11.30	6.30	3.70	--	--	--	--	--	--
ASH	11.25	6.24	48.73	12.69	6.66	50.60	--	--	--
VOLATILE MATTER	41.81	46.64	29.28	47.14	49.77	30.40	53.99	53.32	61.54
FIXED CARBON	35.63	40.83	18.30	40.17	43.57	19.00	46.01	46.68	38.46
BTU/LB	10892	12458	4940	12280	13296	5130	14064	14244	10385

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	60.07	68.55	28.97	67.73	73.16	30.08	77.57	78.37	60.89
HYDROGEN	5.63	5.79	2.05	4.93	5.43	1.70	5.65	5.82	3.44
NITROGEN	.98	1.14	.39	1.10	1.21	.40	1.26	1.30	.81
SULFUR	5.65	4.67	13.98	6.37	4.98	14.51	7.29	5.34	29.38
OXYGEN	16.42	13.62	5.90	7.19	8.56	2.71	8.23	9.17	5.48
ASH	11.25	6.24	48.73	12.69	6.66	50.60	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.87	1.54	12.83	3.24	1.64	13.33	3.71	1.76	26.98
SULFATIC	.14	.13	.16	.16	.14	.17	.18	.15	.34
ORGANIC	2.63	3.00	.98	2.97	3.20	1.02	3.40	3.43	2.06
TOTAL	5.65	4.67	13.98	6.37	4.98	14.51	7.29	5.34	29.38

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.87	.89
OXYGEN/CARBON	.08	.09
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	1890	1930	1950
SOFTENING TEMPERATURE	(ST)	1940	1980	2000
FLUID TEMPERATURE	(FT)	1990	2030	2050

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.03	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	17.20	9.93	62.63

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	3	4	--
HARDGROVE GRINDABILITY	(HGI)	46	46	--

STATE: IOWA
COUNTY: MAHASKA

BED: UNCORRELATED
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 799
SAMPLE NO. 634

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.2	54.1	7.3	1.53	4.82	13099	7.4
FLOAT 1.40	75.7	83.0	9.1	1.82	4.98	12784	7.8
FLOAT 1.60	88.4	94.9	10.6	2.28	5.35	12522	8.5
FLOAT 1.90	92.4	97.8	11.6	2.53	5.56	12347	9.0
CUM(1-1/2" X 100M)	100.0	100.0	15.5	3.33	6.22	11665	10.7
100M X 0	.2	.1	35.8	3.83	5.52	8116	13.6
TOTAL(1-1/2" X 0)	100.0	100.0	15.5	3.33	6.22	11658	10.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.7	59.7	4.4	1.01	4.37	13606	6.4
FLOAT 1.40	76.2	85.5	6.6	1.30	4.60	13221	7.0
FLOAT 1.60	84.8	93.5	7.9	1.62	4.87	12994	7.5
FLOAT 1.90	92.4	97.8	11.6	2.53	5.56	12347	9.0
CUM(3/8" X 100M)	100.0	100.0	14.8	3.29	6.21	11788	10.5
100M X 0	.6	.5	26.4	4.39	6.68	9760	13.7
TOTAL(3/8" X 0)	100.0	100.0	14.9	3.30	6.21	11775	10.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.7	47.9	3.4	.86	4.28	13781	6.2
FLOAT 1.40	69.8	79.7	5.7	1.14	4.50	13379	6.7
FLOAT 1.60	82.5	92.0	7.5	1.43	4.70	13064	7.2
FLOAT 1.90	92.4	97.8	11.6	2.53	5.56	12347	9.0
CUM(14M X 0)	100.0	100.0	15.2	3.42	6.27	11718	10.7

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	2.9
AS RECEIVED	1.8

STATE: IOWA
COUNTY: MAHASKA

BED: UNCORRELATED
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 799
SAMPLE NO. 634

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.80	--	--	--	--	--	--	--	--
ASH	15.52	--	--	15.81	--	--	--	--	--
VOLATILE MATTER	43.50	--	--	44.30	--	--	52.62	--	--
FIXED CARBON	39.17	--	--	39.89	--	--	47.38	--	--
BTU/LB	11576	--	--	11788	--	--	14001	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	6.64	--	--	6.76	--	--	8.03	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	15.52	--	--	15.81	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.43	--	--	3.49	--	--	4.15	--	--
SULFATIC	.19	--	--	.19	--	--	.23	--	--
ORGANIC	3.02	--	--	3.08	--	--	3.66	--	--
TOTAL	6.64	--	--	6.76	--	--	8.03	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	20.79	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: IOWA
COUNTY: MAHASKA

BED: UNCORRELATED
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 799
SAMPLE NO. 635

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.0	57.4	7.8	2.08	4.92	13151	7.5
FLOAT 1.40	57.2	66.5	8.3	2.25	5.08	13066	7.8
FLOAT 1.60	76.4	85.6	11.1	3.57	6.29	12592	10.0
CUM(1-1/2" X 100M)	100.0	100.0	19.1	7.82	10.35	11236	18.4
100M X 0	1.1	.9	34.1	10.29	11.73	8693	27.0
TOTAL(1-1/2" X 0)	100.0	100.0	19.3	7.85	10.37	11208	18.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.0	47.2	5.6	1.56	4.66	13524	6.9
FLOAT 1.40	56.0	66.9	6.6	1.75	4.74	13354	7.1
FLOAT 1.60	74.9	86.3	9.4	2.82	5.72	12880	8.9
CUM(3/8" X 100M)	100.0	100.0	19.4	8.01	10.31	11185	18.4
100M X 0	3.8	3.2	29.1	10.00	11.83	9540	24.8
TOTAL(3/8" X 0)	100.0	100.0	19.8	8.09	10.37	11122	18.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.5	25.7	2.4	1.02	4.37	14066	6.2
FLOAT 1.40	50.8	61.8	4.9	1.49	4.51	13643	6.6
FLOAT 1.60	72.8	85.0	8.1	2.38	5.24	13100	8.0
CUM(14M X 0)	100.0	100.0	19.2	7.77	10.38	11219	18.5

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	73.6
3/8" X 14M	20.0
14M X 100M	5.3
100M X 0	1.1

MOISTURE, %

TOTAL	17.1
AS RECEIVED	11.0

STATE: IOWA
COUNTY: MAHASKA

BED: UNCORRELATED
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 799
SAMPLE NO. 635

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	11.00	4.00	1.60	--	--	--	--	--	--
ASH	17.09	8.16	46.20	19.20	8.50	46.95	--	--	--
VOLATILE MATTER	38.83	46.15	31.83	43.63	48.07	32.35	54.00	52.53	60.98
FIXED CARBON	33.08	41.69	20.37	37.17	43.43	20.70	46.00	47.47	39.02
BTU/LB	9487	12898	6563	10660	13435	6670	13193	14684	12573

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	53.70	69.28	27.38	60.34	72.17	27.82	74.68	78.87	52.45
HYDROGEN	5.13	5.64	1.78	4.39	5.41	1.63	5.43	5.92	3.08
NITROGEN	.89	1.15	.38	1.00	1.20	.38	1.24	1.31	.72
SULFUR	9.06	5.16	22.84	10.18	5.37	23.21	12.59	5.87	43.75
OXYGEN	14.14	10.61	--	4.90	7.35	--	6.06	8.03	--
ASH	17.09	8.16	46.20	19.20	8.50	46.95	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	6.93	2.40	20.98	7.79	2.50	21.33	9.64	2.73	40.20
SULFATIC	.04	.03	.06	.05	.03	.06	.06	.03	.11
ORGANIC	2.08	2.73	1.79	2.34	2.84	1.82	2.90	3.10	3.43
TOTAL	9.06	5.16	22.84	10.18	5.37	23.21	12.59	5.87	43.75

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.20	.40	.10
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.87	.90
OXYGEN/CARBON	.06	.08
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2060	1880	2130
SOFTENING TEMPERATURE (ST)	2100	1930	2170
FLUID TEMPERATURE (FT)	2140	1980	2210

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.00	--	--
NA (SODIUM) (CALCULATED)	.03	.03	.03
MINERAL MATTER (PARR)	26.33	12.13	63.47

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	5	5	1
HARDGROVE GRINDABILITY (HGI)	53	--	--

STATE: IOWA
COUNTY: MARION

BED: UNCORRELATED
RANK: SUB BITUMINOUS B

BED CODE: 799
SAMPLE NO. 636

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.8	52.2	9.3	1.44	3.61	12581	5.7
FLOAT 1.40	72.8	79.8	10.5	1.78	3.99	12382	6.4
FLOAT 1.60	86.1	92.4	12.1	2.28	4.47	12117	7.4
CUM(1-1/2" X 100M)	100.0	100.0	17.1	4.71	6.69	11289	11.9
100M X 0	1.7	1.3	33.4	7.01	9.88	8591	23.0
TOTAL(1-1/2" X 0)	100.0	100.0	17.4	4.75	6.74	11243	12.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.1	47.7	7.4	1.10	3.48	12895	5.4
FLOAT 1.40	72.7	80.8	8.9	1.41	3.79	12647	6.0
FLOAT 1.60	83.9	91.6	10.3	1.80	4.17	12415	6.7
CUM(3/8" X 100M)	100.0	100.0	16.6	4.51	6.75	11372	11.9
100M X 0	4.8	4.1	27.2	6.16	8.58	9617	17.8
TOTAL(3/8" X 0)	100.0	100.0	17.1	4.59	6.84	11288	12.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.1	38.5	6.0	.95	3.25	13127	5.0
FLOAT 1.40	64.1	72.9	7.9	1.30	3.61	12812	5.6
FLOAT 1.60	80.2	89.4	9.4	1.67	3.95	12564	6.3
CUM(14M X 0)	100.0	100.0	17.2	4.56	6.74	11273	12.0

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	69.7
3/8" X 14M	22.9
14M X 100M	5.7
100M X 0	1.7

MOISTURE, %

TOTAL	20.0
AS RECEIVED	14.3

STATE: IOWA
COUNTY: MARION

BED: UNCORRELATED
RANK: SUB BITUMINOUS B

BED CODE: 799
SAMPLE NO. 636

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	14.30	9.30	3.70	--	--	--	--	--	--
ASH	15.33	8.87	49.11	17.89	9.78	51.00	--	--	--
VOLATILE MATTER	33.61	37.23	29.76	39.22	41.05	30.90	47.76	45.50	63.06
FIXED CARBON	36.76	44.60	17.43	42.90	49.17	18.10	52.24	54.50	36.94
BTU/LB	9353	11518	5514	10914	12698	5726	13292	14074	11685

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	53.11	62.80	28.16	61.98	69.24	29.24	75.48	76.74	59.67
HYDROGEN	5.30	5.59	1.84	4.33	5.02	1.49	5.27	5.56	3.03
NITROGEN	1.11	1.37	.38	1.30	1.52	.40	1.58	1.68	.81
SULFUR	5.86	3.67	17.22	6.83	4.05	17.88	8.32	4.48	36.49
OXYGEN	19.29	17.71	--	7.68	10.41	--	9.35	11.54	--
ASH	15.33	8.87	49.11	17.89	9.78	51.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.17	1.63	15.52	4.86	1.80	16.12	5.92	1.99	32.90
SULFATIC	.22	.24	.25	.26	.26	.26	.32	.29	.53
ORGANIC	1.47	1.80	1.45	1.71	1.99	1.50	2.08	2.21	3.06
TOTAL	5.86	3.67	17.22	6.83	4.05	17.88	8.32	4.48	36.49

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.84	.87
OXYGEN/CARBON	.09	.11
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1910	1970	2240
SOFTENING TEMPERATURE (ST)	1960	2020	2300
FLUID TEMPERATURE (FT)	2010	2080	2390

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.03	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	23.08	12.78	64.92

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	2 1/2	3 1/2	0
HARDGROVE GRINDABILITY (HGI)	62	--	--

STATE: IOWA
COUNTY: MARION

BED: UNCORRELATED
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 799
SAMPLE NO. 637

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.7	31.7	8.0	2.73	6.40	12976	9.9
FLOAT 1.40	49.2	63.6	10.6	3.21	6.76	12522	10.8
FLOAT 1.60	73.1	88.3	15.3	3.85	7.20	11700	12.3
CUM(1-1/2" X 100M)	100.0	100.0	26.8	7.45	10.43	9690	21.5
100M X 0	1.7	1.5	32.2	10.93	12.83	8746	29.3
TOTAL(1-1/2" X 0)	100.0	100.0	26.9	7.51	10.47	9674	21.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	17.3	23.5	6.1	1.96	5.92	13309	8.9
FLOAT 1.40	41.0	54.4	7.9	2.39	6.17	12994	9.5
FLOAT 1.60	68.1	84.3	12.9	3.35	6.86	12120	11.3
CUM(3/8" X 100M)	100.0	100.0	26.2	7.00	10.20	9795	20.8
100M X 0	3.5	3.0	34.3	10.23	12.85	8379	30.7
TOTAL(3/8" X 0)	100.0	100.0	26.5	7.11	10.29	9745	21.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	7.1	10.0	5.4	1.27	4.69	13431	7.0
FLOAT 1.40	34.1	47.6	6.0	1.70	5.54	13326	8.3
FLOAT 1.60	60.1	78.5	10.9	2.56	6.13	12469	9.8
CUM(14M X 0)	100.0	100.0	27.6	7.55	10.52	9550	22.0

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	6.8
AS RECEIVED	2.5

STATE: IOWA
COUNTY: MARION

BED: UNCORRELATED
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 799
SAMPLE NO. 637

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.50	3.10	2.80	--	--	--	--	--	--
ASH	26.62	10.98	51.32	27.30	11.34	52.80	--	--	--
VOLATILE MATTER	35.20	41.16	--	36.10	42.48	--	49.66	47.91	--
FIXED CARBON	35.69	44.75	--	36.60	46.19	--	50.34	52.09	--
BTU/LB	9865	11902	--	10118	12283	--	13917	13853	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	10.12	6.06	16.65	10.38	6.26	17.13	14.28	7.06	36.30
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	26.62	10.98	51.32	27.30	11.34	52.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	7.10	2.60	14.64	7.28	2.68	15.07	10.01	3.02	31.92
SULFATIC	.00	.00	.00	.00	.00	.00	.00	.00	.00
ORGANIC	3.02	3.47	2.01	3.10	3.58	2.07	4.26	4.04	4.38
TOTAL	10.12	6.06	16.65	10.38	6.26	17.13	14.28	7.06	36.30

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2080	2030	--
SOFTENING TEMPERATURE (ST)	2130	2080	--
FLUID TEMPERATURE (FT)	2250	2130	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	35.19	15.69	66.45

PHYSICAL PARAMETERS, INDEX

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

STATE: KANSAS
COUNTY: CRAWFORD

BED: BEVIER
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 492
SAMPLE NO. 638

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.3	28.4	6.0	1.05	2.48	14242	3.5
FLOAT 1.40	55.1	74.3	9.0	1.61	2.99	13714	4.4
FLOAT 1.60	70.6	91.4	12.1	2.18	3.53	13168	5.4
FLOAT 1.90	77.6	96.8	14.8	2.51	3.83	12693	6.0
CUM(1-1/2" X 100M)	100.0	100.0	29.1	3.59	4.72	10176	9.3
100M X 0	.2	.2	42.0	3.82	4.63	7905	11.7
TOTAL(1-1/2" X 0)	100.0	100.0	29.1	3.59	4.72	10171	9.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	16.6	23.3	5.2	.97	2.33	14383	3.2
FLOAT 1.40	52.0	70.2	8.2	1.56	2.90	13855	4.2
FLOAT 1.60	66.9	86.6	11.4	2.06	3.35	13291	5.0
FLOAT 1.90	77.6	96.8	14.8	2.51	3.83	12693	6.0
CUM(3/8" X 100M)	100.0	100.0	28.6	3.30	4.35	10264	8.5
100M X 0	.6	.4	52.8	3.44	4.85	6004	16.2
TOTAL(3/8" X 0)	100.0	100.0	28.7	3.30	4.35	10238	8.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	14.2	20.5	4.6	.71	2.17	14488	3.0
FLOAT 1.40	51.1	70.9	7.7	1.25	2.70	13943	3.9
FLOAT 1.60	63.3	83.9	11.2	1.69	3.07	13326	4.6
FLOAT 1.90	77.6	96.8	14.8	2.51	3.83	12693	6.0
CUM(14M X 0)	100.0	100.0	29.8	3.63	4.74	10052	9.4

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	1.9
AS RECEIVED	1.2

STATE: KANSAS
COUNTY: CRAWFORD

BED: BEVIER
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 492
SAMPLE NO. 638

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.20	--	--	--	--	--	--	--	--
ASH	30.53	--	--	30.90	--	--	--	--	--
VOLATILE MATTER	30.04	--	--	30.40	--	--	43.99	--	--
FIXED CARBON	38.24	--	--	38.70	--	--	56.01	--	--
BTU/LB	10066	--	--	10188	--	--	14744	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.38	--	--	4.43	--	--	6.41	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	30.53	--	--	30.90	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.29	--	--	3.33	--	--	4.82	--	--
SULFATIC	.11	--	--	.11	--	--	.16	--	--
ORGANIC	.98	--	--	.99	--	--	1.43	--	--
TOTAL	4.38	--	--	4.43	--	--	6.41	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	35.81	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: KANSAS
COUNTY: CRAWFORD

BED: CROWEBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 496
SAMPLE NO. 639

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.2	30.8	5.5	1.52	2.93	14391	4.1
FLOAT 1.40	72.5	79.4	8.2	2.11	3.50	13906	5.0
FLOAT 1.60	88.8	94.2	10.6	2.50	3.89	13474	5.8
CUM(1-1/2" X 100M)	100.0	100.0	14.9	2.72	4.10	12700	6.5
100M X 0	.9	.7	26.8	6.09	8.36	10560	15.8
TOTAL(1-1/2" X 0)	100.0	100.0	15.0	2.75	4.14	12681	6.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.6	36.0	4.9	1.77	3.00	14499	4.1
FLOAT 1.40	73.9	81.3	7.7	2.42	3.61	13996	5.2
FLOAT 1.60	87.1	93.4	9.7	2.52	3.86	13636	5.7
CUM(3/8" X 100M)	100.0	100.0	14.8	2.90	4.23	12718	6.7
100M X 0	5.1	4.9	18.1	2.98	4.91	12125	8.1
TOTAL(3/8" X 0)	100.0	100.0	15.0	2.90	4.26	12688	6.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.1	31.4	4.2	1.24	2.62	14625	3.6
FLOAT 1.40	72.1	80.2	7.4	2.12	3.54	14049	5.0
FLOAT 1.60	86.6	93.8	9.5	2.61	3.99	13672	5.8
CUM(14M X 0)	100.0	100.0	15.3	2.98	4.34	12628	6.9

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	74.6
3/8" X 14M	18.9
14M X 100M	5.6
100M X 0	.9

MOISTURE, %

TOTAL	4.5
AS RECEIVED	3.5

STATE: KANSAS
COUNTY: CRAWFORD

BED: CROWEBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 496
SAMPLE NO. 639

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.50	1.60	1.80	--	--	--	--	--	--
ASH	14.19	8.97	52.64	14.70	9.12	53.60	--	--	--
VOLATILE MATTER	36.67	37.97	33.78	38.00	38.59	34.40	44.55	42.46	74.14
FIXED CARBON	45.64	51.45	11.78	47.30	52.29	12.00	55.45	57.54	25.86
BTU/LB	12014	13767	5671	12450	13990	5775	14596	15394	12445

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	67.55	74.11	27.93	70.00	75.32	28.44	82.06	82.88	61.29
HYDROGEN	4.94	5.24	1.87	4.71	5.15	1.70	5.52	5.66	3.66
NITROGEN	1.19	1.33	.39	1.23	1.36	.40	1.44	1.49	.86
SULFUR	3.88	3.70	6.46	4.02	3.76	6.58	4.71	4.14	14.18
OXYGEN	8.26	6.64	10.71	5.34	5.30	9.28	6.25	5.83	20.00
ASH	14.19	8.97	52.64	14.70	9.12	53.60	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.69	2.37	5.27	2.79	2.41	5.37	3.27	2.65	11.58
SULFATIC	.16	.09	.24	.17	.09	.24	.19	.10	.52
ORGANIC	1.03	1.24	.95	1.07	1.26	.97	1.25	1.39	2.09
TOTAL	3.88	3.70	6.46	4.02	3.76	6.58	4.71	4.14	14.18

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.40	.60	.30
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.81	.82
OXYGEN/CARBON	.06	.05
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1980	1980	2410
SOFTENING TEMPERATURE (ST)	2030	2030	2460
FLUID TEMPERATURE (FT)	2080	2080	2520

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.26	--	--
NA (SODIUM) (CALCULATED)	.04	.04	.12
MINERAL MATTER (PARR)	18.09	11.92	61.51

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7	7 1/2	1
HARDGROVE GRINDABILITY (HGI)	58	58	--

STATE: KANSAS
COUNTY: CRAWFORD

BED: CROWEBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 496
SAMPLE NO. 640

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	17.0	26.2	6.0	1.12	2.55	14242	3.6
FLOAT 1.40	48.6	72.1	9.0	1.71	3.09	13714	4.5
FLOAT 1.60	64.8	91.2	13.0	2.25	3.60	13010	5.5
FLOAT 1.90	72.2	97.5	16.0	2.63	3.93	12482	6.3
CUM(1-1/2" X 100M)	100.0	100.0	34.4	3.23	4.24	9243	9.2
100M X 0	.2	.1	60.3	2.89	3.37	4683	14.4
TOTAL(1-1/2" X 0)	100.0	100.0	34.5	3.23	4.24	9233	9.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.5	43.7	5.4	1.08	2.44	14347	3.4
FLOAT 1.40	48.6	72.7	7.5	1.44	2.76	13978	3.9
FLOAT 1.60	64.3	91.2	11.6	2.00	3.30	13256	5.0
FLOAT 1.90	72.2	97.5	16.0	2.63	3.93	12482	6.3
CUM(3/8" X 100M)	100.0	100.0	33.8	3.14	4.15	9348	8.9
100M X 0	1.0	.7	50.8	3.04	3.79	6356	11.9
TOTAL(3/8" X 0)	100.0	100.0	34.0	3.14	4.15	9318	8.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.4	16.5	4.9	.84	2.11	14435	2.9
FLOAT 1.40	41.3	63.5	7.5	1.29	2.51	13978	3.6
FLOAT 1.60	59.9	87.1	11.9	1.82	3.03	13203	4.6
FLOAT 1.90	72.2	97.5	16.0	2.63	3.93	12482	6.3
CUM(14M X 0)	100.0	100.0	35.3	3.12	4.12	9084	9.1

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	2.7
AS RECEIVED	1.8

STATE: KANSAS
COUNTY: CRAWFORD

BED: CROWEBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 496
SAMPLE NO. 640

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.80	--	--	--	--	--	--	--	--
ASH	33.19	--	--	33.80	--	--	--	--	--
VOLATILE MATTER	29.46	--	--	30.00	--	--	45.32	--	--
FIXED CARBON	35.55	--	--	36.20	--	--	54.68	--	--
BTU/LB	9651	--	--	9828	--	--	14846	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.10	--	--	4.18	--	--	6.31	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	33.19	--	--	33.80	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.22	--	--	3.28	--	--	4.95	--	--
SULFATIC	.09	--	--	.09	--	--	.14	--	--
ORGANIC	.80	--	--	.81	--	--	1.22	--	--
TOTAL	4.10	--	--	4.18	--	--	6.31	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	38.80	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: KANSAS
COUNTY: BOURBON

BED: FLEMING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 499
SAMPLE NO. 641

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	19.4	22.7	5.9	1.70	2.89	14400	4.0
FLOAT 1.40	75.0	84.8	8.8	2.72	3.84	13890	5.5
FLOAT 1.60	82.7	92.3	9.9	2.99	4.11	13700	6.0
CUM(1-1/2" X 100M)	100.0	100.0	18.4	4.74	5.93	12280	9.7
100M X 0	3.1	2.3	35.6	8.33	10.57	9130	23.2
TOTAL(1-1/2" X 0)	100.0	100.0	18.9	4.85	6.07	12182	10.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.6	48.3	6.2	1.76	2.88	14320	4.0
FLOAT 1.40	72.6	83.0	7.7	2.30	3.45	14090	4.9
FLOAT 1.60	82.5	92.8	8.9	2.68	3.84	13870	5.5
CUM(3/8" X 100M)	100.0	100.0	18.0	4.42	5.78	12330	9.4
100M X 0	5.0	4.0	32.0	7.81	9.85	9840	20.0
TOTAL(3/8" X 0)	100.0	100.0	18.7	4.59	5.98	12206	9.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.8	34.3	8.1	1.83	3.08	13960	4.4
FLOAT 1.40	73.4	83.1	9.1	2.08	3.38	13750	4.9
FLOAT 1.60	84.2	93.6	10.6	2.61	3.90	13500	5.8
CUM(14M X 0)	100.0	100.0	18.7	4.73	6.12	12140	10.1

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	56.9
3/8" X 14M	32.3
14M X 100M	7.7
100M X 0	3.1

MOISTURE, %

TOTAL	3.5
AS RECEIVED	3.2

STATE: KANSAS
COUNTY: BOURBON

BED: FLEMING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 499
SAMPLE NO. 641

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.20	2.30	2.10	--	--	--	--	--	--
ASH	18.20	9.94	60.80	18.80	10.18	62.10	--	--	--
VOLATILE MATTER	36.03	38.73	24.77	37.22	39.64	25.30	45.84	44.13	66.75
FIXED CARBON	42.57	49.03	12.34	43.98	50.18	12.60	54.16	55.87	33.25
BTU/LB	11737	13252	4760	12125	13564	4862	14932	15101	12829

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	63.94	72.12	20.39	66.05	73.81	20.83	81.34	82.18	54.96
HYDROGEN	4.86	5.37	1.73	4.65	5.23	1.53	5.73	5.82	4.04
NITROGEN	.94	1.08	.25	.97	1.10	.26	1.20	1.23	.67
SULFUR	6.19	3.43	15.82	6.39	3.51	16.16	7.87	3.91	42.63
OXYGEN	5.88	8.07	--	3.13	6.17	--	3.86	6.86	--
ASH	18.20	9.94	60.80	18.80	10.18	62.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.87	2.29	14.12	5.03	2.35	14.42	6.19	2.62	38.06
SULFATIC	.04	.03	.05	.04	.03	.05	.05	.03	.13
ORGANIC	1.28	1.10	1.65	1.32	1.13	1.68	1.63	1.26	4.43
TOTAL	6.19	3.43	15.82	6.39	3.51	16.16	7.87	3.91	42.63

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	28.01	41.76	20.46
AL2O3	(ALUMINUM OXIDE)	10.38	15.46	8.67
FE2O3	(IRON OXIDE)	37.00	33.46	35.75
TIO2	(TITANIUM OXIDE)	1.13	1.13	.27
CAO	(CALCIUM OXIDE)	11.34	2.29	15.80
MGO	(MAGNESIUM OXIDE)	1.41	.93	1.53
NA2O	(SODIUM OXIDE)	.91	.30	.19
K2O	(POTASSIUM OXIDE)	1.88	2.24	.99
SO3	(SULFITES)	8.40	1.32	11.21

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	1.33	.67
DOLOMITE	.24	.08
HYDROGEN/CARBON	.85	.85
OXYGEN/CARBON	.04	.06
R250	.44	.62
SILICA	.36	.53
SILICA/ALUMINA	2.70	2.70

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1820	1820	1870
SOFTENING TEMPERATURE (ST)	1900	1930	1950
FLUID TEMPERATURE (FT)	1990	2020	2030

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.40	--	--
NA (SODIUM) (CALCULATED)	.13	.02	.09
MINERAL MATTER (PARR)	23.82	12.79	75.47

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8 1/2	8 1/2	--
HARDGROVE GRINDABILITY (HGI)	47	49	--

STATE: KANSAS
COUNTY: CHEROKEE

BED: FLEMING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 499
SAMPLE NO. 642

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.5	57.1	4.3	1.07	2.80	14541	3.9
FLOAT 1.40	68.2	77.0	6.1	1.41	3.10	14224	4.4
FLOAT 1.60	79.0	87.1	8.0	2.07	3.68	13890	5.3
CUM(1-1/2" X 100M)	100.0	100.0	15.3	3.62	5.01	12605	7.9
100M X 0	1.3	1.0	29.9	3.63	5.76	10035	11.5
TOTAL(1-1/2" X 0)	100.0	100.0	15.5	3.62	5.02	12571	8.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.2	69.5	4.3	1.08	2.75	14541	3.8
FLOAT 1.40	71.4	81.5	5.3	1.39	3.06	14365	4.3
FLOAT 1.60	79.1	88.7	6.7	1.89	3.54	14119	5.0
CUM(3/8" X 100M)	100.0	100.0	15.4	3.70	5.16	12587	8.2
100M X 0	2.6	2.3	23.6	3.72	5.37	11144	9.6
TOTAL(3/8" X 0)	100.0	100.0	15.6	3.70	5.17	12550	8.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.6	73.0	3.7	.91	2.66	14647	3.6
FLOAT 1.40	71.8	83.0	4.5	1.19	2.93	14506	4.0
FLOAT 1.60	79.8	90.3	6.2	1.77	3.45	14207	4.9
CUM(14M X 0)	100.0	100.0	15.6	3.64	5.17	12552	8.2

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	2.2
AS RECEIVED	1.4

STATE: KANSAS
COUNTY: CHEROKEE

BED: FLEMING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 499
SAMPLE NO. 642

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.40	1.40	1.40	--	--	--	--	--	--
ASH	15.68	6.36	52.06	15.90	6.45	52.80	--	--	--
VOLATILE MATTER	39.14	40.78	--	39.70	41.36	--	47.21	44.21	--
FIXED CARBON	43.78	51.47	--	44.40	52.20	--	52.79	55.79	--
BTU/LB	11911	13807	--	12080	14003	--	14364	14968	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	5.11	3.50	11.83	5.18	3.55	11.99	6.16	3.79	25.41
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	15.68	6.36	52.06	15.90	6.45	52.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.67	1.85	10.87	3.72	1.88	11.03	4.42	2.01	23.36
SULFATIC	.04	.01	.07	.04	.01	.07	.05	.01	.15
ORGANIC	1.40	1.64	.88	1.42	1.66	.90	1.69	1.77	1.90
TOTAL	5.11	3.50	11.83	5.18	3.55	11.99	6.16	3.79	25.41

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2190	1940	--
SOFTENING TEMPERATURE (ST)	2250	1980	--
FLUID TEMPERATURE (FT)	2350	2030	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	20.02	8.92	63.62

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8 1/2	9	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KANSAS
COUNTY: CRAWFORD

BED: KNIFETON
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 540
SAMPLE NO. 643

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.8	3.6	4.4	1.03	2.31	14570	3.2
FLOAT 1.40	29.8	34.9	12.2	2.78	4.15	13168	6.3
FLOAT 1.60	84.3	90.5	18.3	3.56	4.89	12071	8.1
CUM(1-1/2" X 100M)	100.0	100.0	22.9	5.17	6.54	11244	11.6
100M X 0	1.1	.9	33.3	14.28	16.77	9375	35.8
TOTAL(1-1/2" X 0)	100.0	100.0	23.0	5.27	6.65	11224	11.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.0	10.4	4.1	.95	2.32	14624	3.2
FLOAT 1.40	40.6	48.5	10.8	2.09	3.51	13420	5.2
FLOAT 1.60	81.9	90.1	16.6	2.68	4.07	12377	6.6
CUM(3/8" X 100M)	100.0	100.0	22.9	5.09	6.61	11244	11.8
100M X 0	6.3	5.9	26.7	10.71	12.46	10561	23.6
TOTAL(3/8" X 0)	100.0	100.0	23.1	5.44	6.98	11201	12.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	15.0	19.6	3.9	.86	2.17	14660	3.0
FLOAT 1.40	43.2	53.0	8.9	1.72	3.06	13761	4.4
FLOAT 1.60	73.6	84.1	14.2	2.35	3.68	12808	5.7
CUM(14M X 0)	100.0	100.0	23.1	5.49	6.80	11208	12.1

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	75.4
3/8" X 14M	19.1
14M X 100M	4.4
100M X 0	1.1

MOISTURE, %

TOTAL	5.0
AS RECEIVED	3.3

STATE: KANSAS
COUNTY: CRAWFORD

BED: KNIFETON
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 540
SAMPLE NO. 643

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.34	1.40	2.60	--	--	--	--	--	--
ASH	22.14	14.30	46.75	22.90	14.50	48.00	--	--	--
VOLATILE MATTER	30.91	34.23	23.08	31.98	34.71	23.70	41.48	40.60	45.58
FIXED CARBON	43.61	50.08	27.56	45.12	50.79	28.30	58.52	59.40	54.42
BTU/LB	10526	12838	6644	10890	13020	6821	14125	15228	13117

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	59.21	69.39	31.85	61.25	70.38	32.70	79.45	82.31	62.88
HYDROGEN	4.41	4.89	2.53	4.17	4.80	2.30	5.41	5.62	4.42
NITROGEN	.94	1.11	.49	.97	1.12	.50	1.26	1.31	.96
SULFUR	6.31	3.73	15.20	6.53	3.78	15.60	8.46	4.42	30.01
OXYGEN	7.00	6.58	3.18	4.17	5.41	.90	5.41	6.33	1.72
ASH	22.14	14.30	46.75	22.90	14.50	48.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.96	2.38	13.87	5.13	2.41	14.24	6.65	2.82	27.39
SULFATIC	.13	.21	.13	.14	.21	.14	.18	.25	.26
ORGANIC	1.21	1.14	1.19	1.26	1.16	1.22	1.63	1.36	2.35
TOTAL	6.31	3.73	15.20	6.53	3.78	15.60	8.46	4.42	30.01

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.82	.82
OXYGEN/CARBON	.05	.06
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1970	2130	1990
SOFTENING TEMPERATURE (ST)	2020	2180	2040
FLUID TEMPERATURE (FT)	2070	2270	2090

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.17	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	28.32	17.74	60.42

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7	8	1
HARDGROVE GRINDABILITY (HGI)	59	58	--

STATE: KANSAS
COUNTY: CHEROKEE

BED: MINERAL
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 504
SAMPLE NO. 644

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	19.8	22.0	5.2	.81	2.38	14383	3.3
FLOAT 1.40	84.9	89.9	9.1	1.41	2.85	13696	4.2
FLOAT 1.60	91.5	95.9	9.9	1.55	2.99	13555	4.4
CUM(1-1/2" X 100M)	100.0	100.0	13.4	2.54	4.03	12939	6.2
100M X 0	1.1	1.0	23.1	1.98	3.77	11232	6.7
TOTAL(1-1/2" X 0)	100.0	100.0	13.5	2.53	4.03	12920	6.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.2	34.5	5.1	.87	2.42	14400	3.4
FLOAT 1.40	85.3	90.6	8.3	1.31	2.79	13837	4.0
FLOAT 1.60	91.0	95.8	9.0	1.45	2.93	13714	4.3
CUM(3/8" X 100M)	100.0	100.0	12.9	2.44	3.91	13027	6.0
100M X 0	2.3	2.1	17.8	2.46	4.08	12165	6.7
TOTAL(3/8" X 0)	100.0	100.0	13.0	2.44	3.91	13007	6.0

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.9	28.1	4.6	.57	2.15	14488	3.0
FLOAT 1.40	72.0	78.7	7.1	.87	2.39	14048	3.4
FLOAT 1.60	88.7	95.5	8.3	1.14	2.62	13837	3.8
CUM(14M X 0)	100.0	100.0	13.9	2.58	4.12	12851	6.4

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	3.4
AS RECEIVED	2.6

STATE: KANSAS
COUNTY: CHEROKEE

BED: MINERAL
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 504
SAMPLE NO. 644

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.60	2.50	2.50	--	--	--	--	--	--
ASH	13.00	8.00	56.55	13.34	8.20	58.00	--	--	--
VOLATILE MATTER	35.08	35.78	--	36.02	36.70	--	41.56	39.98	--
FIXED CARBON	49.33	53.72	--	50.64	55.10	--	58.44	60.02	--
BTU/LB	12375	13494	--	12705	13840	--	14661	15076	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.00	2.51	15.53	4.11	2.57	15.92	4.74	2.80	37.92
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	13.00	8.00	56.55	13.34	8.20	58.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.52	1.12	13.54	2.59	1.15	13.88	2.99	1.25	33.06
SULFATIC	.04	.01	.07	.04	.01	.07	.05	.01	.17
ORGANIC	1.44	1.37	1.92	1.48	1.41	1.97	1.71	1.54	4.69
TOTAL	4.00	2.51	15.53	4.11	2.57	15.92	4.74	2.80	37.92

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	1940	2020	--
SOFTENING TEMPERATURE	(ST)	1980	2080	--
FLUID TEMPERATURE	(FT)	2020	2280	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	16.67	10.27	71.40

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	8	8 1/2	--
HARDGROVE GRINDABILITY	(HGI)	--	--	--

STATE: KANSAS
COUNTY: CRAWFORD

BED: MINERAL
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 504
SAMPLE NO. 645

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.6	40.1	6.4	1.30	2.74	14043	3.9
FLOAT 1.40	78.5	85.3	9.1	1.97	3.36	13563	5.0
FLOAT 1.60	89.3	95.2	10.6	2.39	3.78	13296	5.7
CUM(1-1/2" X 100M)	100.0	100.0	15.2	3.58	5.06	12479	8.1
100M X 0	.9	.8	25.9	3.57	6.46	10577	12.2
TOTAL(1-1/2" X 0)	100.0	100.0	15.3	3.58	5.07	12461	8.1

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	36.0	41.2	5.8	1.08	2.50	14149	3.5
FLOAT 1.40	76.1	83.9	8.8	1.79	3.18	13616	4.7
FLOAT 1.60	86.8	94.0	10.1	2.22	3.61	13385	5.4
CUM(3/8" X 100M)	100.0	100.0	15.9	3.57	5.08	12354	8.2
100M X 0	3.8	3.6	19.6	3.93	6.09	11697	10.4
TOTAL(3/8" X 0)	100.0	100.0	16.0	3.58	5.12	12329	8.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.0	33.8	4.7	.80	2.20	14345	3.1
FLOAT 1.40	76.0	84.1	8.7	1.66	2.98	13634	4.4
FLOAT 1.60	85.9	93.5	10.0	2.06	3.39	13403	5.1
CUM(14M X 0)	100.0	100.0	16.1	3.56	5.04	12319	8.2

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	72.0
3/8" X 14M	21.4
14M X 100M	5.7
100M X 0	.9

MOISTURE, %

TOTAL	5.7
AS RECEIVED	3.0

STATE: KANSAS
COUNTY: CRAWFORD

BED: MINERAL
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 504
SAMPLE NO. 645

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.00	1.40	2.80	--	--	--	--	--	--
ASH	14.99	9.47	52.39	15.46	9.60	53.90	--	--	--
VOLATILE MATTER	35.57	37.30	28.58	36.67	37.83	29.40	43.37	41.84	63.77
FIXED CARBON	46.44	51.83	16.23	47.88	52.57	16.70	56.63	58.15	36.23
BTU/LB	11812	13504	5477	12177	13696	5634	14403	15150	12222

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	66.50	73.45	26.36	68.55	74.49	27.12	81.09	82.41	58.83
HYDROGEN	4.87	5.21	1.96	4.67	5.13	1.70	5.53	5.67	3.69
NITROGEN	1.14	1.28	.39	1.18	1.30	.40	1.39	1.43	.87
SULFUR	5.06	3.07	14.75	5.22	3.11	15.17	6.17	3.44	32.91
OXYGEN	7.44	7.53	4.15	4.92	6.37	1.71	5.82	7.05	3.70
ASH	14.99	9.47	52.39	15.46	9.60	53.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.65	1.83	12.34	3.76	1.85	12.70	4.45	2.05	27.55
SULFATIC	.14	.06	.21	.14	.06	.22	.17	.07	.48
ORGANIC	1.28	1.18	2.19	1.32	1.20	2.25	1.56	1.32	4.89
TOTAL	5.06	3.07	14.75	5.22	3.11	15.17	6.17	3.44	32.91

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.82	.83
OXYGEN/CARBON	.05	.06
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1900	1950	2040
SOFTENING TEMPERATURE (ST)	1950	2000	2090
FLUID TEMPERATURE (FT)	2000	2050	2150

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.29	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	19.56	12.08	66.56

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7 1/2	8	--
HARDGROVE GRINDABILITY (HGI)	59	56	--

STATE: KANSAS
COUNTY: BOURBON

BED: MULKY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 490
SAMPLE NO. 646

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.0	68.1	7.4	1.21	2.99	14130	4.2
FLOAT 1.40	87.4	91.0	9.2	1.50	3.21	13820	4.6
FLOAT 1.60	96.1	98.6	10.4	1.70	3.38	13620	5.0
CUM(1-1/2" X 100M)	100.0	100.0	12.2	1.84	3.49	13270	5.3
100M X 0	3.5	2.2	41.9	2.49	3.93	8380	9.4
TOTAL(1-1/2" X 0)	100.0	100.0	13.2	1.86	3.51	13099	5.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	71.8	76.0	7.8	1.37	3.04	14040	4.3
FLOAT 1.40	83.9	87.9	8.5	1.50	3.15	13910	4.5
FLOAT 1.60	96.0	98.5	10.2	1.77	3.38	13610	5.0
CUM(3/8" X 100M)	100.0	100.0	12.2	1.96	3.53	13270	5.3
100M X 0	5.2	3.9	33.0	2.54	3.83	9870	7.8
TOTAL(3/8" X 0)	100.0	100.0	13.3	1.99	3.55	13093	5.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.4	53.6	7.5	1.22	2.84	14010	4.1
FLOAT 1.40	77.4	81.1	8.9	1.40	3.02	13800	4.4
FLOAT 1.60	91.4	94.2	10.4	1.64	3.22	13570	4.7
CUM(14M X 0)	100.0	100.0	12.8	2.01	3.54	13170	5.4

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	57.1
3/8" X 14M	32.8
14M X 100M	6.6
100M X 0	3.5

MOISTURE, %

TOTAL	3.3
AS RECEIVED	2.6

STATE: KANSAS
COUNTY: BOURBON

BED: MULKY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 490
SAMPLE NO. 646

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.60	2.20	2.40	--	--	--	--	--	--
ASH	12.37	9.76	38.88	12.70	9.98	39.84	--	--	--
VOLATILE MATTER	40.41	39.76	49.05	41.48	40.65	50.26	47.52	45.16	83.54
FIXED CARBON	44.62	48.28	9.66	45.81	49.37	9.90	52.48	54.84	16.46
BTU/LB	12842	13333	8489	13185	13633	8697	15103	15145	14457

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	69.57	74.03	26.55	71.42	75.70	27.20	81.81	84.09	45.21
HYDROGEN	5.59	5.84	2.71	5.45	5.72	2.50	6.24	6.35	4.16
NITROGEN	1.27	1.36	.39	1.30	1.39	.40	1.49	1.54	.66
SULFUR	3.46	2.94	6.78	3.56	3.01	6.95	4.07	3.34	11.55
OXYGEN	7.74	6.06	24.69	5.57	4.20	23.11	6.38	4.67	38.42
ASH	12.37	9.76	38.88	12.70	9.98	39.84	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.93	1.44	5.80	1.98	1.48	5.94	2.27	1.64	9.88
SULFATIC	.01	.01	.02	.02	.01	.02	.02	.01	.03
ORGANIC	1.52	1.49	.96	1.56	1.52	.98	1.79	1.69	1.63
TOTAL	3.46	2.94	6.78	3.56	3.01	6.95	4.07	3.34	11.55

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	49.81	51.99	34.52
AL2O3	(ALUMINUM OXIDE)	15.90	16.59	11.31
FE2O3	(IRON OXIDE)	19.27	19.45	17.44
TIO2	(TITANIUM OXIDE)	1.05	1.13	.47
CAO	(CALCIUM OXIDE)	6.30	1.96	19.87
MGO	(MAGNESIUM OXIDE)	1.11	1.16	.70
NA2O	(SODIUM OXIDE)	.66	.30	.19
K2O	(POTASSIUM OXIDE)	2.50	2.65	1.35
SO3	(SULFITES)	3.37	1.42	11.00

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.45	.37
DOLOMITE	.25	.12
HYDROGEN/CARBON	.92	.91
OXYGEN/CARBON	.06	.04
R250	.72	.76
SILICA	.65	.70
SILICA/ALUMINA	3.13	3.13

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	1990	2050	1820
SOFTENING TEMPERATURE	(ST)	2110	2140	1900
FLUID TEMPERATURE	(FT)	2230	2220	1990

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	.30	--	--
NA (SODIUM)	(CALCULATED)	.06	.02	.06
MINERAL MATTER	(PARR)	15.67	12.44	46.85

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	8 1/2	8	--
HARDGROVE GRINDABILITY	(HGI)	50	50	--

STATE: KANSAS
COUNTY: CRAWFORD

BED: ROWE
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 545
SAMPLE NO. 647

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	12.0	16.3	5.3	1.71	2.57	14240	3.6
FLOAT 1.40	52.9	67.4	9.9	3.08	3.86	13398	5.8
FLOAT 1.60	75.7	92.8	12.7	4.17	5.04	12886	7.8
CUM(1-1/2" X 100M)	100.0	100.0	25.7	5.84	6.63	10508	12.6
100M X 0	1.6	1.4	31.1	9.93	12.42	9521	26.1
TOTAL(1-1/2" X 0)	100.0	100.0	25.8	5.91	6.72	10493	12.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.3	34.6	5.1	1.23	2.28	14276	3.2
FLOAT 1.40	56.1	73.1	8.7	2.26	3.33	13618	4.9
FLOAT 1.60	74.8	93.8	11.5	3.12	4.19	13106	6.4
CUM(3/8" X 100M)	100.0	100.0	26.0	5.26	6.14	10454	11.7
100M X 0	10.1	10.3	24.8	7.27	9.04	10673	16.9
TOTAL(3/8" X 0)	100.0	100.0	25.9	5.46	6.43	10476	12.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.5	33.4	4.1	.98	2.04	14459	2.8
FLOAT 1.40	54.0	70.1	7.8	2.00	3.05	13782	4.4
FLOAT 1.60	72.5	90.6	10.6	2.93	3.92	13270	5.9
CUM(14M X 0)	100.0	100.0	25.1	5.86	6.71	10618	12.6

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	72.7
3/8" X 14M	20.3
14M X 100M	5.4
100M X 0	1.6

MOISTURE, %

TOTAL	5.5
AS RECEIVED	4.0

STATE: KANSAS
COUNTY: CRAWFORD

BED: ROWE
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 545
SAMPLE NO. 647

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.00	1.30	1.40	--	--	--	--	--	--
ASH	23.90	10.26	61.43	24.90	10.40	62.30	--	--	--
VOLATILE MATTER	30.92	36.97	18.73	32.21	37.46	19.00	42.89	41.80	50.40
FIXED CARBON	41.17	51.47	18.44	42.89	52.14	18.70	57.11	58.20	49.60
BTU/LB	10038	13275	3816	10456	13450	3870	13923	15011	10265

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	58.24	73.08	19.92	60.66	74.04	20.20	80.78	82.63	53.58
HYDROGEN	4.40	5.03	1.93	4.12	4.95	1.80	5.49	5.53	4.77
NITROGEN	.98	1.26	.30	1.02	1.28	.30	1.35	1.43	.80
SULFUR	6.08	3.61	13.92	6.34	3.66	14.12	8.44	4.08	37.44
OXYGEN	6.40	6.75	2.51	2.96	5.67	1.28	3.94	6.33	3.41
ASH	23.90	10.26	61.43	24.90	10.40	62.30	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	5.30	2.65	13.39	5.52	2.68	13.58	7.35	2.99	36.03
SULFATIC	.07	.02	.12	.07	.02	.12	.09	.02	.32
ORGANIC	.72	.95	.41	.75	.96	.41	.99	1.07	1.09
TOTAL	6.08	3.61	13.92	6.34	3.66	14.12	8.44	4.08	37.44

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.82	.80
OXYGEN/CARBON	.04	.06
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1970	1970	1990
SOFTENING TEMPERATURE (ST)	2020	2020	2090
FLUID TEMPERATURE (FT)	2070	2070	2270

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.19	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	30.38	13.25	75.05

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6	8	--
HARDGROVE GRINDABILITY (HGI)	59	57	--

STATE: KENTUCKY (WEST) | BED: NO. 6 | BED CODE: 506
COUNTY: BUTLER | RANK: HIGH VOLATILE A BITUMINOUS | SAMPLE NO. 648

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.1	53.8	2.3	.53	1.29	14291	1.8
FLOAT 1.40	72.1	82.5	4.0	.93	1.85	14012	2.6
FLOAT 1.60	84.6	94.9	5.7	1.36	2.39	13733	3.5
FLOAT 1.90	88.8	97.8	7.2	1.59	2.67	13487	4.0
CUM(1-1/2" X 100M)	100.0	100.0	14.8	2.95	4.14	12240	6.8
100M X 0	.4	.3	32.5	9.77	13.04	9337	27.9
TOTAL(1-1/2" X 0)	100.0	100.0	14.9	2.98	4.18	12229	6.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.6	70.3	1.6	.19	.92	14406	1.3
FLOAT 1.40	77.6	88.9	2.7	.37	1.11	14225	1.6
FLOAT 1.60	84.4	95.5	3.7	.57	1.31	14061	1.9
FLOAT 1.90	88.8	97.8	7.2	1.59	2.67	13487	4.0
CUM(3/8" X 100M)	100.0	100.0	13.7	2.93	4.11	12421	6.6
100M X 0	1.2	.9	31.2	8.11	11.19	9550	23.4
TOTAL(3/8" X 0)	100.0	100.0	13.9	2.99	4.19	12386	6.8

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.0	60.0	1.3	.17	.87	14455	1.2
FLOAT 1.40	65.8	78.2	2.2	.27	.98	14307	1.4
FLOAT 1.60	80.3	92.9	4.5	.58	1.31	13930	1.9
FLOAT 1.90	88.8	97.8	7.2	1.59	2.67	13487	4.0
CUM(14M X 0)	100.0	100.0	16.0	3.25	4.57	12044	7.6

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.4

MOISTURE, %

TOTAL	5.7
AS RECEIVED	3.8

STATE: KENTUCKY (WEST) | BED: NO. 6 | BED CODE: 506
COUNTY: BUTLER | RANK: HIGH VOLATILE A BITUMINOUS | SAMPLE NO. 648

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.80	--	--	--	--	--	--	--	--
ASH	15.01	--	--	15.60	--	--	--	--	--
VOLATILE MATTER	35.98	--	--	37.40	--	--	44.31	--	--
FIXED CARBON	45.21	--	--	47.00	--	--	55.69	--	--
BTU/LB	12031	--	--	12506	--	--	14818	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.94	--	--	4.10	--	--	4.85	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	15.01	--	--	15.60	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.25	--	--	3.38	--	--	4.01	--	--
SULFATIC	.23	--	--	.24	--	--	.28	--	--
ORGANIC	.46	--	--	.48	--	--	.56	--	--
TOTAL	3.94	--	--	4.10	--	--	4.85	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	19.10	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: KENTUCKY (WEST) | BED: NO. 6 | BED CODE: 506
COUNTY: HOPKINS | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 649

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	80.5	87.2	2.0	.35	1.18	14340	1.6
FLOAT 1.40	87.4	94.3	2.3	.43	1.27	14291	1.8
FLOAT 1.60	91.4	97.7	3.1	.58	1.47	14160	2.1
FLOAT 1.90	93.1	98.9	3.7	.69	1.61	14061	2.3
CUM(1-1/2" X 100M)	100.0	100.0	8.7	1.20	2.16	13241	3.3
100M X 0	.5	.5	13.5	1.93	2.54	12454	4.1
TOTAL(1-1/2" X 0)	100.0	100.0	8.7	1.20	2.16	13237	3.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	80.4	87.3	1.9	.33	1.15	14356	1.6
FLOAT 1.40	87.3	94.3	2.3	.40	1.23	14291	1.7
FLOAT 1.60	91.0	97.5	3.0	.52	1.39	14176	2.0
FLOAT 1.90	93.1	98.9	3.7	.69	1.61	14061	2.3
CUM(3/8" X 100M)	100.0	100.0	8.8	1.23	2.20	13225	3.3
100M X 0	.7	.7	14.0	2.10	2.68	12372	4.3
TOTAL(3/8" X 0)	100.0	100.0	8.8	1.24	2.20	13219	3.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.9	74.8	1.8	.32	1.14	14373	1.6
FLOAT 1.40	84.7	91.1	2.6	.40	1.22	14242	1.7
FLOAT 1.60	91.3	97.2	3.5	.52	1.36	14094	1.9
FLOAT 1.90	93.1	98.9	3.7	.69	1.61	14061	2.3
CUM(14M X 0)	100.0	100.0	8.7	1.22	2.16	13241	3.3

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	8.2
AS RECEIVED	4.3

STATE: KENTUCKY (WEST) | BED: NO. 6 | BED CODE: 506
COUNTY: HOPKINS | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 649

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.30	--	--	--	--	--	--	--	--
ASH	8.66	--	--	9.05	--	--	--	--	--
VOLATILE MATTER	35.43	--	--	37.02	--	--	40.71	--	--
FIXED CARBON	51.61	--	--	53.93	--	--	59.29	--	--
BTU/LB	13071	--	--	13658	--	--	15017	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.94	--	--	2.03	--	--	2.23	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	8.66	--	--	9.05	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.23	--	--	1.28	--	--	1.41	--	--
SULFATIC	.24	--	--	.25	--	--	.27	--	--
ORGANIC	.48	--	--	.50	--	--	.55	--	--
TOTAL	1.94	--	--	2.03	--	--	2.23	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	10.89	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: KENTUCKY (WEST) | BED: NO. 6 | BED CODE: 506
COUNTY: HOPKINS | RANK: HIGH VOLATILE A BITUMINOUS | SAMPLE NO. 650

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.7	75.1	2.6	.58	1.46	14242	2.1
FLOAT 1.40	78.1	92.9	3.2	.72	1.65	14143	2.3
FLOAT 1.60	81.4	96.1	3.8	.82	1.76	14045	2.5
FLOAT 1.90	84.2	98.0	5.0	.96	1.90	13848	2.7
CUM(1-1/2" X 100M)	100.0	100.0	16.9	1.78	2.63	11896	4.4
100M X 0	.3	.3	26.2	2.65	3.48	10370	6.7
TOTAL(1-1/2" X 0)	100.0	100.0	16.9	1.78	2.63	11891	4.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.2	47.5	1.7	.37	1.23	14389	1.7
FLOAT 1.40	80.0	93.5	2.7	.56	1.51	14225	2.1
FLOAT 1.60	82.8	96.2	3.2	.65	1.60	14143	2.3
FLOAT 1.90	84.2	98.0	5.0	.96	1.90	13848	2.7
CUM(3/8" X 100M)	100.0	100.0	15.2	1.69	2.55	12175	4.2
100M X 0	.9	.7	28.5	2.84	3.54	9993	7.1
TOTAL(3/8" X 0)	100.0	100.0	15.3	1.70	2.56	12155	4.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.9	31.5	1.3	.27	1.16	14455	1.6
FLOAT 1.40	70.0	83.8	2.6	.46	1.35	14242	1.9
FLOAT 1.60	78.4	92.3	4.0	.60	1.48	14012	2.1
FLOAT 1.90	84.2	98.0	5.0	.96	1.90	13848	2.7
CUM(14M X 0)	100.0	100.0	16.9	1.75	2.54	11896	4.3

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	3.2
AS RECEIVED	1.8

STATE: KENTUCKY (WEST)
COUNTY: HOPKINS

BED: NO. 6
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 506
SAMPLE NO. 650

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.80	--	--	--	--	--	--	--	--
ASH	16.89	--	--	17.20	--	--	--	--	--
VOLATILE MATTER	33.69	--	--	34.30	--	--	41.43	--	--
FIXED CARBON	47.62	--	--	48.50	--	--	58.57	--	--
BTU/LB	11785	--	--	12001	--	--	14494	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.42	--	--	2.46	--	--	2.97	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	16.89	--	--	17.20	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.81	--	--	1.84	--	--	2.22	--	--
SULFATIC	.09	--	--	.09	--	--	.11	--	--
ORGANIC	.52	--	--	.53	--	--	.64	--	--
TOTAL	2.42	--	--	2.46	--	--	2.97	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	--	--	--
NA (SODIUM)	(CALCULATED)	--	--	--
MINERAL MATTER	(PARR)	19.93	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: KENTUCKY (WEST) | BED: NO. 6 | BED CODE: 506
COUNTY: OHIO | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 651

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	73.9	78.0	2.3	.34	.90	14197	1.3
FLOAT 1.40	89.9	93.4	3.6	.76	1.41	13970	2.0
FLOAT 1.60	95.6	98.0	4.7	.91	1.58	13778	2.3
CUM(1-1/2" X 100M)	100.0	100.0	6.6	1.77	2.42	13446	3.6
100M X 0	1.0	.9	15.0	3.55	4.30	11981	7.2
TOTAL(1-1/2" X 0)	100.0	100.0	6.7	1.79	2.44	13432	3.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	73.5	77.7	2.1	.20	.82	14232	1.2
FLOAT 1.40	88.0	91.8	3.2	.51	1.17	14040	1.7
FLOAT 1.60	95.2	97.8	4.4	.74	1.41	13830	2.0
CUM(3/8" X 100M)	100.0	100.0	6.5	1.74	2.39	13464	3.6
100M X 0	2.9	2.7	12.6	2.75	3.58	12400	5.8
TOTAL(3/8" X 0)	100.0	100.0	6.7	1.77	2.42	13433	3.6

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.9	64.7	1.6	.27	.83	14319	1.2
FLOAT 1.40	84.2	88.2	2.7	.40	1.06	14127	1.5
FLOAT 1.60	95.0	98.0	4.0	.66	1.33	13900	1.9
CUM(14M X 0)	100.0	100.0	6.4	1.70	2.34	13481	3.5

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	82.4
3/8" X 14M	13.7
14M X 100M	2.9
100M X 0	1.0

MOISTURE, %

TOTAL	5.1
AS RECEIVED	2.2

STATE: KENTUCKY (WEST) | BED: NO. 6 | BED CODE: 506
COUNTY: OHIO | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 651

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.16	2.34	2.40	--	--	--	--	--	--
ASH	6.51	4.06	49.97	6.66	4.16	51.20	--	--	--
VOLATILE MATTER	39.18	40.05	22.06	40.04	41.01	22.60	42.90	42.79	46.31
FIXED CARBON	52.15	53.55	25.57	53.30	54.83	26.20	57.10	57.21	53.69
BTU/LB	13252	13448	5524	13544	13770	5660	14510	14368	11598

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	73.57	76.07	25.05	75.20	77.89	25.67	80.56	81.27	52.60
HYDROGEN	5.21	5.39	2.05	5.08	5.25	1.83	5.44	5.48	3.74
NITROGEN	1.64	1.69	.56	1.68	1.73	.58	1.80	1.81	1.18
SULFUR	2.36	1.42	20.24	2.42	1.45	20.73	2.59	1.51	42.49
OXYGEN	10.70	11.37	--	8.98	9.51	--	9.62	9.93	--
ASH	6.51	4.06	49.97	6.66	4.16	51.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.70	.62	20.13	1.74	.63	20.63	1.86	.66	42.27
SULFATIC	.04	.01	.01	.05	.01	.01	.05	.01	.02
ORGANIC	.62	.79	.09	.63	.81	.09	.67	.85	.19
TOTAL	2.36	1.42	20.24	2.42	1.45	20.73	2.59	1.51	42.49

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.81	.81
OXYGEN/CARBON	.09	.09
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2030	2140	1980
SOFTENING TEMPERATURE (ST)	2090	2190	2030
FLUID TEMPERATURE (FT)	2190	2290	2080

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.00	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	8.52	5.29	66.70

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3	3 1/2	0
HARDGROVE GRINDABILITY (HGI)	47	--	--

STATE: KENTUCKY (WEST) | BED: NO. 7 | BED CODE: 505
COUNTY: OHIO | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 652

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.4	37.3	3.8	.48	2.22	13992	3.2
FLOAT 1.40	84.6	87.8	7.1	1.42	3.15	13408	4.7
FLOAT 1.60	95.0	97.3	8.1	1.88	3.57	13231	5.4
CUM(1-1/2" X 100M)	100.0	100.0	9.9	2.83	4.46	12913	6.9
100M X 0	.9	.8	18.8	3.06	4.64	11340	8.2
TOTAL(1-1/2" X 0)	100.0	100.0	10.0	2.83	4.46	12899	6.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.0	43.6	3.5	.46	2.25	14045	3.2
FLOAT 1.40	81.7	85.9	6.4	1.17	2.99	13532	4.4
FLOAT 1.60	94.3	97.1	7.9	1.69	3.48	13267	5.2
CUM(3/8" X 100M)	100.0	100.0	10.1	2.88	4.59	12878	7.1
100M X 0	3.6	3.3	16.1	3.50	5.04	11817	8.5
TOTAL(3/8" X 0)	100.0	100.0	10.3	2.90	4.61	12840	7.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.7	42.3	2.8	.40	2.19	14168	3.1
FLOAT 1.40	78.5	83.2	5.3	.83	2.61	13726	3.8
FLOAT 1.60	93.6	96.9	7.1	1.35	3.09	13408	4.6
CUM(14M X 0)	100.0	100.0	9.7	2.65	4.30	12949	6.6

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	81.0
3/8" X 14M	14.5
14M X 100M	3.6
100M X 0	.9

MOISTURE, %

TOTAL	4.9
AS RECEIVED	3.3

STATE: KENTUCKY (WEST) | BED: NO. 7 | BED CODE: 505
COUNTY: OHIO | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 652

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.25	3.26	3.30	--	--	--	--	--	--
ASH	9.76	7.14	45.06	10.09	7.38	46.60	--	--	--
VOLATILE MATTER	38.85	39.91	24.27	40.15	41.25	25.10	44.66	44.54	47.00
FIXED CARBON	48.14	49.69	27.37	49.76	51.36	28.30	55.34	55.46	53.00
BTU/LB	12522	12866	6208	12942	13300	6420	14395	14360	12022

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	69.56	72.28	31.52	71.90	74.72	32.60	79.96	80.67	61.05
HYDROGEN	5.13	5.33	2.40	4.93	5.13	2.10	5.48	5.54	3.93
NITROGEN	1.49	1.56	.68	1.54	1.61	.70	1.71	1.74	1.31
SULFUR	3.88	3.12	19.14	4.01	3.22	19.80	4.46	3.48	37.07
OXYGEN	10.18	10.57	--	7.53	7.94	--	8.38	8.57	--
ASH	9.76	7.14	45.06	10.09	7.38	46.60	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.43	1.44	18.85	2.52	1.49	19.50	2.80	1.60	36.51
SULFATIC	.13	.12	.04	.14	.12	.04	.15	.13	.07
ORGANIC	1.32	1.57	.25	1.36	1.62	.26	1.51	1.75	.49
TOTAL	3.88	3.12	19.14	4.01	3.22	19.80	4.46	3.48	37.07

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.82	.82
OXYGEN/CARBON	.09	.08
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1970	2020	--
SOFTENING TEMPERATURE (ST)	2020	2070	--
FLUID TEMPERATURE (FT)	2070	2120	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.00	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	12.67	9.75	52.15

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3 1/2	4	0
HARDGROVE GRINDABILITY (HGI)	51	--	--

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: DAVIESS | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 653

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	40.6	45.9	4.6	.57	2.40	13913	3.4
FLOAT 1.40	79.6	87.3	7.1	.87	2.69	13503	4.0
FLOAT 1.60	88.0	95.2	8.3	1.23	3.04	13307	4.6
FLOAT 1.90	91.5	97.8	9.2	1.50	3.31	13159	5.0
CUM(1-1/2" X 100M)	100.0	100.0	14.4	2.73	4.50	12306	7.3
100M X 0	.1	.1	27.9	3.87	4.97	10092	9.8
TOTAL(1-1/2" X 0)	100.0	100.0	14.4	2.73	4.50	12304	7.3

SAMPLE CRUSHED TO PASS 3/8"

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.2	49.3	3.4	.48	2.30	14110	3.3
FLOAT 1.40	78.7	87.3	5.9	.67	2.48	13700	3.6
FLOAT 1.60	87.2	95.2	7.2	.93	2.71	13487	4.0
FLOAT 1.90	91.5	97.8	9.2	1.50	3.31	13159	5.0
CUM(3/8" X 100M)	100.0	100.0	14.1	2.77	4.50	12355	7.3
100M X 0	.5	.4	23.4	4.32	5.92	10830	10.9
TOTAL(3/8" X 0)	100.0	100.0	14.1	2.78	4.51	12348	7.3

SAMPLE CRUSHED TO PASS 14M

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.2	35.3	2.2	.42	2.24	14307	3.1
FLOAT 1.40	72.1	81.2	5.3	.63	2.43	13799	3.5
FLOAT 1.60	86.1	94.5	7.4	.90	2.64	13454	3.9
FLOAT 1.90	91.5	97.8	9.2	1.50	3.31	13159	5.0
CUM(14M X 0)	100.0	100.0	14.7	2.88	4.57	12257	7.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

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

MOISTURE, %

TOTAL	11.0
AS RECEIVED	5.8

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: DAVIESS | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 653

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.80	--	--	--	--	--	--	--	--
ASH	14.32	--	--	15.20	--	--	--	--	--
VOLATILE MATTER	36.17	--	--	38.40	--	--	45.28	--	--
FIXED CARBON	43.71	--	--	46.40	--	--	54.72	--	--
BTU/LB	11992	--	--	12730	--	--	15012	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.05	--	--	4.30	--	--	5.07	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	14.32	--	--	15.20	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.90	--	--	3.08	--	--	3.63	--	--
SULFATIC	.13	--	--	.14	--	--	.17	--	--
ORGANIC	1.02	--	--	1.08	--	--	1.27	--	--
TOTAL	4.05	--	--	4.30	--	--	5.07	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	18.78	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: KENTUCKY (WEST)
COUNTY: HOPKINS

BED: NO. 9
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 654

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.5	48.4	4.3	.48	2.59	13862	3.7
FLOAT 1.40	84.0	88.2	7.1	.79	2.83	13384	4.2
FLOAT 1.60	93.0	95.9	8.5	1.08	3.09	13144	4.7
CUM(1-1/2" X 100M)	100.0	100.0	10.8	1.85	3.78	12752	5.9
100M X 0	.9	.8	17.4	2.24	3.75	11624	6.5
TOTAL(1-1/2" X 0)	100.0	100.0	10.9	1.85	3.78	12741	5.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.1	44.7	3.9	.48	2.61	13930	3.7
FLOAT 1.40	84.8	89.6	6.3	.79	2.85	13520	4.2
FLOAT 1.60	92.8	96.3	7.7	.98	3.00	13281	4.5
CUM(3/8" X 100M)	100.0	100.0	10.5	1.81	3.74	12803	5.8
100M X 0	5.6	5.4	13.5	2.09	3.78	12290	6.2
TOTAL(3/8" X 0)	100.0	100.0	10.7	1.83	3.74	12774	5.9

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.3	72.3	4.1	.56	2.74	13896	3.9
FLOAT 1.40	82.5	88.1	5.7	.71	2.83	13623	4.2
FLOAT 1.60	91.9	96.2	7.3	.92	3.00	13349	4.5
CUM(14M X 0)	100.0	100.0	10.8	1.86	3.83	12752	6.0

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	73.8
3/8" X 14M	20.5
14M X 100M	4.8
100M X 0	.9

MOISTURE, %

TOTAL	5.9
AS RECEIVED	3.2

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: HOPKINS | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 654

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.20	2.60	1.50	--	--	--	--	--	--
ASH	9.97	6.92	47.76	10.30	7.10	48.49	--	--	--
VOLATILE MATTER	39.19	41.02	20.40	40.48	42.12	20.71	45.13	45.33	40.21
FIXED CARBON	47.64	49.46	30.34	49.22	50.78	30.80	54.87	54.67	59.79
BTU/LB	12419	13042	6218	12830	13390	6313	14303	14413	12256

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.56	2.78	13.05	3.67	2.85	13.25	4.10	3.07	25.72
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	9.97	6.92	47.76	10.30	7.10	48.49	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.70	.87	12.34	1.75	.89	12.52	1.96	.96	24.32
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	1.85	1.90	.70	1.91	1.95	.71	2.13	2.10	1.38
TOTAL	3.56	2.78	13.05	3.67	2.85	13.25	4.10	3.07	25.72

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2050	2080	2100
SOFTENING TEMPERATURE (ST)	2100	2130	2150
FLUID TEMPERATURE (FT)	2150	2180	2200

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	13.14	9.24	59.65

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4 1/2	5	1
HARDGROVE GRINDABILITY (HGI)	56	53	--

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: HOPKINS | RANK: HIGH VOLATILE A BITUMINOUS | SAMPLE NO. 655

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.6	45.3	4.0	.49	2.55	14012	3.6
FLOAT 1.40	80.2	89.0	6.6	.77	2.78	13585	4.1
FLOAT 1.60	87.1	95.4	7.7	.90	2.88	13405	4.3
FLOAT 1.90	90.3	97.6	8.8	1.09	3.04	13225	4.6
CUM(1-1/2" X 100M)	100.0	100.0	14.8	2.10	3.93	12240	6.4
100M X 0	.2	.2	22.6	2.08	3.29	10961	6.0
TOTAL(1-1/2" X 0)	100.0	100.0	14.8	2.10	3.93	12238	6.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.8	43.6	3.2	.38	2.45	14143	3.5
FLOAT 1.40	78.9	88.1	6.0	.64	2.63	13684	3.8
FLOAT 1.60	87.0	95.7	7.2	.75	2.73	13487	4.0
FLOAT 1.90	90.3	97.6	8.8	1.09	3.04	13225	4.6
CUM(3/8" X 100M)	100.0	100.0	14.7	2.10	3.91	12257	6.4
100M X 0	.2	.2	20.8	2.87	4.52	11256	8.0
TOTAL(3/8" X 0)	100.0	100.0	14.7	2.10	3.91	12255	6.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.4	38.0	2.6	.34	2.42	14242	3.4
FLOAT 1.40	71.1	80.7	5.3	.59	2.57	13799	3.7
FLOAT 1.60	85.7	94.7	7.5	.75	2.70	13438	4.0
FLOAT 1.90	90.3	97.6	8.8	1.09	3.04	13225	4.6
CUM(14M X 0)	100.0	100.0	15.3	2.15	3.95	12158	6.5

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	5.6
AS RECEIVED	3.5

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: HOPKINS | RANK: HIGH VOLATILE A BITUMINOUS | SAMPLE NO. 655

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.50	--	--	--	--	--	--	--	--
ASH	14.38	--	--	14.90	--	--	--	--	--
VOLATILE MATTER	37.44	--	--	38.80	--	--	45.59	--	--
FIXED CARBON	44.68	--	--	46.30	--	--	54.41	--	--
BTU/LB	12148	--	--	12589	--	--	14793	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.61	--	--	3.74	--	--	4.39	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	14.38	--	--	14.90	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.25	--	--	2.33	--	--	2.74	--	--
SULFATIC	.09	--	--	.09	--	--	.11	--	--
ORGANIC	1.27	--	--	1.32	--	--	1.55	--	--
TOTAL	3.61	--	--	3.74	--	--	4.39	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	18.15	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: HOPKINS | RANK: HIGH VOLATILE A BITUMINOUS | SAMPLE NO. 656

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	65.1	69.8	3.9	.52	3.38	14028	4.8
FLOAT 1.40	91.1	96.1	5.3	.72	3.54	13799	5.1
FLOAT 1.60	93.8	98.4	5.8	.78	3.59	13717	5.2
FLOAT 1.90	94.8	99.1	6.1	.82	3.61	13667	5.3
CUM(1-1/2" X 100M)	100.0	100.0	9.7	1.49	4.18	13077	6.4
100M X 0	.2	.2	14.5	1.64	3.89	12290	6.3
TOTAL(1-1/2" X 0)	100.0	100.0	9.7	1.49	4.18	13075	6.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	72.0	77.2	3.6	.47	3.32	14077	4.7
FLOAT 1.40	89.3	94.8	4.5	.61	3.42	13930	4.9
FLOAT 1.60	93.1	98.1	5.1	.69	3.49	13831	5.0
FLOAT 1.90	94.8	99.1	6.1	.82	3.61	13667	5.3
CUM(3/8" X 100M)	100.0	100.0	9.4	1.55	4.19	13126	6.4
100M X 0	.6	.6	14.5	1.64	3.89	12290	6.3
TOTAL(3/8" X 0)	100.0	100.0	9.4	1.55	4.19	13121	6.4

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.5	59.2	2.9	.36	3.21	14192	4.5
FLOAT 1.40	86.5	92.4	4.4	.55	3.44	13946	4.9
FLOAT 1.60	92.6	97.7	5.4	.67	3.43	13782	5.0
FLOAT 1.90	94.8	99.1	6.1	.82	3.61	13667	5.3
CUM(14M X 0)	100.0	100.0	9.8	1.61	4.20	13061	6.4

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	4.5
AS RECEIVED	3.0

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: HOPKINS | RANK: HIGH VOLATILE A BITUMINOUS | SAMPLE NO. 656

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.00	--	--	--	--	--	--	--	--
ASH	9.22	--	--	9.50	--	--	--	--	--
VOLATILE MATTER	42.10	--	--	43.40	--	--	47.96	--	--
FIXED CARBON	45.69	--	--	47.10	--	--	52.04	--	--
BTU/LB	13237	--	--	13646	--	--	15078	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.86	--	--	3.98	--	--	4.40	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	9.22	--	--	9.50	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.65	--	--	1.71	--	--	1.88	--	--
SULFATIC	.12	--	--	.12	--	--	.13	--	--
ORGANIC	2.09	--	--	2.15	--	--	2.38	--	--
TOTAL	3.86	--	--	3.98	--	--	4.40	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	12.45	--	--

PHYSICAL PARAMETERS, INDEX

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

STATE: KENTUCKY (WEST)
COUNTY: HOPKINS

BED: NO. 9
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 657

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.7	49.8	4.4	.67	2.38	13838	3.4
FLOAT 1.40	91.0	93.8	6.9	1.10	2.79	13371	4.2
FLOAT 1.60	96.5	98.6	7.5	1.47	3.16	13259	4.8
CUM(1-1/2" X 100M)	100.0	100.0	9.0	2.35	4.04	12978	6.2
100M X 0	1.1	.9	19.6	3.81	5.14	10998	9.3
TOTAL(1-1/2" X 0)	100.0	100.0	9.1	2.37	4.05	12957	6.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.4	55.2	4.0	.59	2.33	13912	3.3
FLOAT 1.40	89.6	93.0	6.5	.96	2.66	13445	4.0
FLOAT 1.60	95.5	98.1	7.2	1.28	2.95	13315	4.4
CUM(3/8" X 100M)	100.0	100.0	9.1	2.41	4.07	12960	6.3
100M X 0	2.2	2.1	13.0	3.59	5.32	12231	8.7
TOTAL(3/8" X 0)	100.0	100.0	9.2	2.44	4.10	12944	6.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.4	59.0	3.8	.53	2.28	13950	3.3
FLOAT 1.40	85.2	90.1	5.6	.78	2.44	13613	3.6
FLOAT 1.60	93.6	97.3	6.9	1.11	2.77	13371	4.1
CUM(14M X 0)	100.0	100.0	9.6	2.57	4.19	12866	6.5

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	4.8
AS RECEIVED	2.1

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: HOPKINS | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 657

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.10	2.00	1.90	--	--	--	--	--	--
ASH	9.02	6.49	48.85	9.22	6.62	49.80	--	--	--
VOLATILE MATTER	38.77	40.81	--	39.60	41.64	--	43.62	44.60	--
FIXED CARBON	50.10	50.70	--	51.18	51.73	--	56.37	55.40	--
BTU/LB	12666	13154	--	12938	13422	--	14251	14374	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.95	2.71	24.49	4.03	2.77	24.97	4.44	2.97	49.74
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	9.02	6.49	48.85	9.22	6.62	49.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.26	1.02	23.47	2.31	1.04	23.92	2.54	1.11	47.65
SULFATIC	.01	.00	.02	.01	.00	.02	.01	.00	.04
ORGANIC	1.67	1.70	1.01	1.71	1.73	1.03	1.88	1.85	2.04
TOTAL	3.95	2.71	24.49	4.03	2.77	24.97	4.44	2.97	49.74

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2010	2020	--
SOFTENING TEMPERATURE (ST)	2060	2070	--
FLUID TEMPERATURE (FT)	2170	2120	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	12.17	8.68	67.52

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6	4 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST)
COUNTY: HOPKINS

BED: NO. 9
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 658

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	54.9	59.8	4.2	.50	2.42	13834	3.5
FLOAT 1.40	85.7	90.7	6.5	.62	2.48	13441	3.7
FLOAT 1.60	93.9	97.2	8.2	.77	2.60	13151	4.0
CUM(1-1/2" X 100M)	100.0	100.0	10.8	2.22	4.03	12707	6.3
100M X 0	.5	.5	16.0	2.27	3.81	11819	6.4
TOTAL(1-1/2" X 0)	100.0	100.0	10.8	2.22	4.03	12703	6.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.7	66.3	4.1	.46	2.39	13851	3.5
FLOAT 1.40	84.2	89.8	6.0	.59	2.48	13527	3.7
FLOAT 1.60	93.0	96.8	7.9	.75	2.60	13202	3.9
CUM(3/8" X 100M)	100.0	100.0	10.9	2.40	4.22	12690	6.7
100M X 0	.8	.7	17.0	3.74	5.50	11649	9.4
TOTAL(3/8" X 0)	100.0	100.0	10.9	2.41	4.23	12682	6.7

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.4	55.8	2.9	.33	2.26	14056	3.2
FLOAT 1.40	79.2	85.5	5.0	.47	2.35	13697	3.4
FLOAT 1.60	91.2	95.9	7.1	.65	2.55	13339	3.8
CUM(14M X 0)	100.0	100.0	10.9	2.35	4.17	12690	6.6

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	7.4
AS RECEIVED	4.7

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: HOPKINS | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 658

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.70	2.70	3.10	--	--	--	--	--	--
ASH	10.39	6.62	49.32	10.90	6.80	50.90	--	--	--
VOLATILE MATTER	38.12	39.80	--	40.00	40.90	--	44.89	43.88	--
FIXED CARBON	46.79	50.89	--	49.10	52.30	--	55.11	56.12	--
BTU/LB	12094	13028	--	12690	13390	--	14242	14367	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.00	2.33	20.31	4.20	2.39	20.96	4.71	2.56	42.70
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	10.39	6.62	49.32	10.90	6.80	50.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.31	.59	19.35	2.42	.61	19.97	2.72	.65	40.67
SULFATIC	.01	.01	.02	.02	.01	.02	.02	.01	.04
ORGANIC	1.68	1.72	.95	1.76	1.77	.98	1.98	1.90	1.99
TOTAL	4.00	2.33	20.31	4.20	2.39	20.96	4.71	2.56	42.70

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1950	2410	--
SOFTENING TEMPERATURE (ST)	2000	2460	--
FLUID TEMPERATURE (FT)	2050	2520	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	14.08	8.66	66.50

PHYSICAL PARAMETERS, INDEX

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

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: HOPKINS | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 659

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.4	51.0	4.6	.70	2.57	13913	3.7
FLOAT 1.40	81.4	88.4	7.4	1.20	2.99	13454	4.4
FLOAT 1.60	89.6	95.8	8.7	1.57	3.29	13241	5.0
CUM(1-1/2" X 100M)	100.0	100.0	13.9	2.80	4.46	12388	7.2
100M X 0	3.2	2.8	22.3	3.13	4.52	11010	8.2
TOTAL(1-1/2" X 0)	100.0	100.0	14.2	2.81	4.46	12344	7.2

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.3	56.6	4.3	.59	2.52	13963	3.6
FLOAT 1.40	80.0	87.5	6.7	1.00	2.86	13569	4.2
FLOAT 1.60	89.1	95.7	8.2	1.36	3.16	13323	4.7
CUM(3/8" X 100M)	100.0	100.0	13.8	2.76	4.49	12404	7.2
100M X 0	7.7	7.3	17.7	2.99	4.55	11765	7.7
TOTAL(3/8" X 0)	100.0	100.0	14.1	2.78	4.49	12355	7.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.8	55.1	4.2	.67	2.48	13979	3.5
FLOAT 1.40	79.5	87.3	6.5	1.03	2.77	13602	4.1
FLOAT 1.60	90.9	97.8	8.2	1.37	3.06	13323	4.6
CUM(14M X 0)	100.0	100.0	13.9	2.78	4.41	12388	7.1

RAW COAL SIZE AND MOISTURE ANALYSES

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

1-1/2" X 3/8"	56.3
3/8" X 14M	29.0
14M X 100M	11.5
100M X 0	3.2

MOISTURE, %

TOTAL	5.2
AS RECEIVED	2.5

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: HOPKINS | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 659

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.50	2.20	2.30	--	--	--	--	--	--
ASH	13.26	7.70	66.44	13.60	7.87	68.00	--	--	--
VOLATILE MATTER	36.26	39.81	3.12	37.19	40.70	3.20	43.04	44.18	9.99
FIXED CARBON	47.98	50.29	28.14	49.21	51.42	28.80	56.96	55.82	90.01
BTU/LB	12139	13107	3892	12450	13401	3984	14410	14546	12451

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.39	2.97	17.50	4.51	3.04	17.91	5.21	3.30	55.98
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	13.26	7.70	66.44	13.60	7.87	68.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.85	1.27	16.48	2.92	1.30	16.86	3.38	1.41	52.71
SULFATIC	.02	.01	.04	.03	.01	.04	.03	.01	.13
ORGANIC	1.52	1.69	.98	1.56	1.73	1.01	1.81	1.88	3.14
TOTAL	4.39	2.97	17.50	4.51	3.04	17.91	5.21	3.30	55.98

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

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

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	17.17	10.17	83.29

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6 1/2	5 1/2	1
HARDGROVE GRINDABILITY (HGI)	56	56	--

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: HOPKINS | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 660

CUMULATIVE WASHABILITY DATA (DRY BASIS)

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.2	47.8	4.2	.58	2.41	13730	3.5
FLOAT 1.40	81.8	87.8	6.7	1.09	2.89	13322	4.3
FLOAT 1.60	90.4	95.8	7.8	1.50	3.28	13142	5.0
CUM(1-1/2" X 100M)	100.0	100.0	12.3	2.86	4.60	12407	7.4
100M X 0	2.2	1.9	22.8	3.22	5.37	10693	10.0
TOTAL(1-1/2" X 0)	100.0	100.0	12.5	2.87	4.62	12370	7.5

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	48.0	53.2	4.0	.52	2.46	13762	3.6
FLOAT 1.40	81.4	87.7	6.4	.90	2.82	13371	4.2
FLOAT 1.60	90.2	95.7	7.7	1.22	3.11	13158	4.7
CUM(3/8" X 100M)	100.0	100.0	12.3	2.80	4.51	12407	7.3
100M X 0	2.9	2.6	19.3	3.72	4.76	11264	8.5
TOTAL(3/8" X 0)	100.0	100.0	12.5	2.83	4.52	12374	7.3

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

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.2	62.1	4.4	.72	2.60	13697	3.8
FLOAT 1.40	80.8	87.3	6.3	.86	2.95	13387	4.4
FLOAT 1.60	85.9	91.8	7.2	1.12	2.97	13240	4.5
CUM(14M X 0)	100.0	100.0	12.4	3.02	4.79	12391	7.7

RAW COAL SIZE AND MOISTURE ANALYSES

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

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

MOISTURE, %

TOTAL	7.7
AS RECEIVED	5.0

STATE: KENTUCKY (WEST)
COUNTY: HOPKINS

BED: NO. 9
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 660

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.00	6.50	6.30	--	--	--	--	--	--
ASH	11.78	6.73	41.32	12.40	7.20	44.10	--	--	--
VOLATILE MATTER	36.39	38.15	--	38.30	40.80	--	43.72	43.97	--
FIXED CARBON	46.84	48.62	--	49.30	52.00	--	56.28	56.03	--
BTU/LB	11771	12379	--	12391	13240	--	14145	14267	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.52	2.81	14.91	4.76	3.00	15.91	5.43	3.23	28.47
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	11.78	6.73	41.32	12.40	7.20	44.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.87	1.05	13.68	3.02	1.12	14.60	3.45	1.21	26.11
SULFATIC	.13	.09	.16	.14	.10	.17	.15	.11	.30
ORGANIC	1.52	1.66	1.08	1.60	1.78	1.15	1.83	1.92	2.05
TOTAL	4.52	2.81	14.91	4.76	3.00	15.91	5.43	3.23	28.47

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

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

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1950	2070	--
SOFTENING TEMPERATURE (ST)	2000	2120	--
FLUID TEMPERATURE (FT)	2100	2320	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	16.01	9.43	56.38

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3	3 1/2	--
HARDGROVE GRINDABILITY (HGI)	52	51	--

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: MUHLENBERG | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 661

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.8	48.6	4.1	.68	2.73	13995	3.9
FLOAT 1.40	88.7	91.9	6.1	1.00	3.07	13667	4.5
FLOAT 1.60	94.7	97.3	6.8	1.27	3.41	13553	5.0
FLOAT 1.90	96.0	98.3	7.1	1.41	3.57	13503	5.3
CUM(1-1/2" X 100M)	100.0	100.0	9.0	2.19	4.33	13192	6.6
100M X 0	.2	.2	12.7	2.25	3.90	12585	6.2
TOTAL(1-1/2" X 0)	100.0	100.0	9.0	2.19	4.33	13191	6.6

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.2	53.8	3.0	.42	2.45	14176	3.5
FLOAT 1.40	86.4	90.4	5.1	.77	2.81	13831	4.1
FLOAT 1.60	93.7	97.0	6.0	1.05	3.13	13684	4.6
FLOAT 1.90	96.0	98.3	7.1	1.41	3.57	13503	5.3
CUM(3/8" X 100M)	100.0	100.0	8.8	2.21	4.36	13225	6.6
100M X 0	.6	.6	12.9	3.08	4.63	12552	7.4
TOTAL(3/8" X 0)	100.0	100.0	8.8	2.22	4.36	13221	6.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.4	46.8	2.9	.40	2.40	14192	3.4
FLOAT 1.40	84.4	88.8	5.0	.73	2.75	13848	4.0
FLOAT 1.60	93.3	96.9	6.1	.99	3.03	13667	4.4
FLOAT 1.90	96.0	98.3	7.1	1.41	3.57	13503	5.3
CUM(14M X 0)	100.0	100.0	9.2	2.21	4.34	13159	6.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.2

MOISTURE, %

TOTAL	11.5
AS RECEIVED	6.4

STATE: KENTUCKY (WEST)
COUNTY: MUHLENBERG

BED: NO. 9
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 661

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	6.40	--	--	--	--	--	--	--	--
ASH	8.80	--	--	9.40	--	--	--	--	--
VOLATILE MATTER	39.03	--	--	41.70	--	--	46.03	--	--
FIXED CARBON	45.77	--	--	48.90	--	--	53.97	--	--
BTU/LB	12973	--	--	13860	--	--	15298	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.86	--	--	4.12	--	--	4.55	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	8.80	--	--	9.40	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.27	--	--	2.43	--	--	2.68	--	--
SULFATIC	.20	--	--	.21	--	--	.23	--	--
ORGANIC	1.39	--	--	1.49	--	--	1.64	--	--
TOTAL	3.86	--	--	4.12	--	--	4.55	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	12.42	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: OHIO | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 662

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.4	60.2	4.2	.58	2.65	13979	3.8
FLOAT 1.40	89.8	91.6	6.5	1.03	3.07	13602	4.5
FLOAT 1.60	98.2	98.8	7.6	1.40	3.44	13421	5.1
CUM(1-1/2" X 100M)	100.0	100.0	8.1	1.60	3.63	13339	5.4
100M X 0	.9	.8	13.7	1.37	4.51	12421	7.3
TOTAL(1-1/2" X 0)	100.0	100.0	8.2	1.60	3.64	13331	5.5

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.2	64.5	4.0	.56	2.68	14012	3.8
FLOAT 1.40	87.4	90.1	5.9	.90	3.00	13700	4.4
FLOAT 1.60	96.5	97.8	7.3	1.23	3.31	13471	4.9
CUM(3/8" X 100M)	100.0	100.0	8.4	1.63	3.72	13290	5.6
100M X 0	2.1	2.0	11.6	1.74	4.40	12765	6.9
TOTAL(3/8" X 0)	100.0	100.0	8.5	1.63	3.73	13279	5.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.7	52.6	3.5	.71	2.73	14094	3.9
FLOAT 1.40	85.1	88.0	5.4	.82	2.87	13782	4.2
FLOAT 1.60	95.8	97.5	6.8	1.11	3.11	13553	4.6
CUM(14M X 0)	100.0	100.0	8.2	1.61	3.60	13323	5.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	69.9
3/8" X 14M	22.6
14M X 100M	6.6
100M X 0	.9

MOISTURE, %

TOTAL	7.9
AS RECEIVED	5.3

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: OHIO | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 662

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.30	3.10	3.00	--	--	--	--	--	--
ASH	7.86	6.49	37.93	8.30	6.70	39.10	--	--	--
VOLATILE MATTER	39.49	40.70	--	41.70	42.00	--	45.47	45.02	--
FIXED CARBON	47.35	49.71	--	50.00	51.30	--	54.53	54.98	--
BTU/LB	12369	12877	--	13061	13289	--	14243	14243	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.36	2.97	14.38	3.55	3.07	14.83	3.87	3.29	24.35
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	7.86	6.49	37.93	8.30	6.70	39.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.49	1.05	12.62	1.57	1.08	13.01	1.71	1.16	21.37
SULFATIC	.15	.11	.20	.16	.11	.21	.17	.12	.34
ORGANIC	1.72	1.82	1.55	1.82	1.88	1.60	1.98	2.02	2.63
TOTAL	3.36	2.97	14.38	3.55	3.07	14.83	3.87	3.29	24.35

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	1990	2070	--
SOFTENING TEMPERATURE	(ST)	2050	2160	--
FLUID TEMPERATURE	(FT)	2310	2420	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	10.92	8.92	50.38

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	3	3 1/2	--
HARDGROVE GRINDABILITY	(HGI)	53	55	--

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: OHIO | RANK: HIGH VOLATILE A BITUMINOUS | SAMPLE NO. 663

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.1	55.3	4.2	.61	2.68	13979	3.8
FLOAT 1.40	83.5	91.5	6.6	1.05	3.18	13585	4.7
FLOAT 1.60	90.6	98.1	7.5	1.29	3.44	13438	5.1
FLOAT 1.90	91.8	99.0	7.9	1.39	3.55	13372	5.3
CUM(1-1/2" X 100M)	100.0	100.0	13.8	2.10	4.22	12404	6.8
100M X 0	.2	.2	22.0	2.36	3.17	11059	5.7
TOTAL(1-1/2" X 0)	100.0	100.0	13.8	2.10	4.22	12402	6.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.3	55.7	3.7	.52	2.58	14061	3.7
FLOAT 1.40	80.9	89.2	5.8	.87	2.99	13717	4.4
FLOAT 1.60	89.8	97.5	7.1	1.14	3.27	13503	4.8
FLOAT 1.90	91.8	99.0	7.9	1.39	3.55	13372	5.3
CUM(3/8" X 100M)	100.0	100.0	13.6	2.06	4.16	12437	6.7
100M X 0	.9	.8	20.7	2.76	4.44	11273	7.9
TOTAL(3/8" X 0)	100.0	100.0	13.7	2.07	4.16	12427	6.7

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.9	40.1	3.0	.41	2.46	14176	3.5
FLOAT 1.40	72.0	80.6	5.3	.73	2.79	13799	4.0
FLOAT 1.60	87.7	95.5	7.6	1.11	3.14	13421	4.7
FLOAT 1.90	91.8	99.0	7.9	1.39	3.55	13372	5.3
CUM(14M X 0)	100.0	100.0	14.3	2.25	4.23	12322	6.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.2

MOISTURE, %

TOTAL	3.1
AS RECEIVED	1.8

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: OHIO | RANK: HIGH VOLATILE A BITUMINOUS | SAMPLE NO. 663

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.80	--	--	--	--	--	--	--	--
ASH	13.75	--	--	14.00	--	--	--	--	--
VOLATILE MATTER	38.30	--	--	39.00	--	--	45.35	--	--
FIXED CARBON	46.15	--	--	47.00	--	--	54.65	--	--
BTU/LB	12282	--	--	12507	--	--	14543	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.93	--	--	4.00	--	--	4.65	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	13.75	--	--	14.00	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.31	--	--	2.35	--	--	2.74	--	--
SULFATIC	.16	--	--	.16	--	--	.19	--	--
ORGANIC	1.46	--	--	1.48	--	--	1.73	--	--
TOTAL	3.93	--	--	4.00	--	--	4.65	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	17.32	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: UNION | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 664

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.9	43.3	4.3	.35	2.17	13699	3.2
FLOAT 1.40	83.2	87.1	7.5	.75	2.54	13208	3.8
FLOAT 1.60	92.6	95.5	8.8	.99	2.76	13008	4.2
CUM(1-1/2" X 100M)	100.0	100.0	11.4	2.31	4.04	12609	6.4
100M X 0	.5	.5	16.8	2.37	4.12	11780	7.0
TOTAL(1-1/2" X 0)	100.0	100.0	11.4	2.31	4.04	12605	6.4

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.8	56.1	4.0	.38	2.22	13745	3.2
FLOAT 1.40	83.2	87.7	6.4	.69	2.50	13377	3.7
FLOAT 1.60	91.7	95.3	7.7	.88	2.64	13177	4.0
CUM(3/8" X 100M)	100.0	100.0	10.9	2.16	3.86	12686	6.1
100M X 0	1.0	.9	16.8	3.04	4.65	11780	7.9
TOTAL(3/8" X 0)	100.0	100.0	11.0	2.17	3.87	12677	6.1

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.3	39.0	2.2	.21	2.11	14021	3.0
FLOAT 1.40	77.4	82.7	5.2	.51	2.38	13561	3.5
FLOAT 1.60	90.6	94.9	7.0	.70	2.48	13285	3.7
CUM(14M X 0)	100.0	100.0	10.9	2.16	3.82	12686	6.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

MOISTURE, %

TOTAL	7.6
AS RECEIVED	4.9

STATE: KENTUCKY (WEST)
COUNTY: UNION

BED: NO. 9
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 664

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.90	4.10	2.40	--	--	--	--	--	--
ASH	10.65	6.62	47.82	11.20	6.90	49.00	--	--	--
VOLATILE MATTER	37.09	38.55	--	39.00	40.20	--	43.92	43.18	--
FIXED CARBON	47.36	50.73	--	49.80	52.90	--	56.08	56.82	--
BTU/LB	12021	12755	--	12640	13300	--	14234	14286	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.57	2.33	16.35	3.75	2.43	16.76	4.22	2.61	32.85
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	10.65	6.62	47.82	11.20	6.90	49.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.05	.63	15.84	2.16	.66	16.23	2.43	.71	31.83
SULFATIC	.02	.00	.04	.02	.00	.04	.02	.00	.08
ORGANIC	1.49	1.70	.47	1.57	1.77	.48	1.77	1.90	.95
TOTAL	3.57	2.33	16.35	3.75	2.43	16.76	4.22	2.61	32.85

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1920	2010	--
SOFTENING TEMPERATURE (ST)	1950	2080	--
FLUID TEMPERATURE (FT)	1990	2180	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	14.16	8.79	62.14

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3 1/2	4	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST)
COUNTY: UNION

BED: NO. 9
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 665

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.1	33.8	3.5	.41	2.40	14236	3.4
FLOAT 1.40	81.3	84.7	7.1	.76	2.88	13667	4.2
FLOAT 1.60	94.5	96.6	8.8	1.32	3.33	13398	5.0
CUM(1-1/2" X 100M)	100.0	100.0	10.6	2.20	4.17	13113	6.4
100M X 0	1.4	1.3	16.6	3.39	5.32	12163	8.7
TOTAL(1-1/2" X 0)	100.0	100.0	10.7	2.22	4.19	13100	6.4

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.4	41.8	3.0	.28	2.41	14315	3.4
FLOAT 1.40	82.7	86.6	6.5	.68	2.66	13762	3.9
FLOAT 1.60	94.1	96.6	8.2	1.04	2.98	13493	4.4
CUM(3/8" X 100M)	100.0	100.0	10.4	2.08	3.97	13144	6.0
100M X 0	5.7	5.5	13.9	3.30	5.52	12591	8.8
TOTAL(3/8" X 0)	100.0	100.0	10.6	2.15	4.06	13113	6.2

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.9	46.0	2.6	.26	2.54	14379	3.5
FLOAT 1.40	79.2	84.2	5.5	.57	2.70	13920	3.9
FLOAT 1.60	92.6	96.2	7.5	.93	3.01	13603	4.4
CUM(14M X 0)	100.0	100.0	10.7	2.29	4.24	13097	6.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	71.9
3/8" X 14M	19.8
14M X 100M	6.9
100M X 0	1.4

MOISTURE, %

TOTAL	5.2
AS RECEIVED	2.2

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: UNION | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 665

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.20	1.60	1.10	--	--	--	--	--	--
ASH	10.27	7.68	48.18	10.50	7.80	48.71	--	--	--
VOLATILE MATTER	37.54	39.77	8.79	38.38	40.42	8.89	42.88	43.84	17.33
FIXED CARBON	50.00	50.95	41.93	51.12	51.78	42.40	57.12	56.16	82.67
BTU/LB	12773	13402	7009	13060	13620	7086	14592	14772	13817

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.92	2.99	19.42	4.01	3.04	19.64	4.47	3.30	38.29
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	10.27	7.68	48.18	10.50	7.80	48.71	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.02	.93	19.10	2.07	.95	19.31	2.31	1.03	37.65
SULFATIC	.00	.00	.01	.01	.00	.01	.01	.00	.02
ORGANIC	1.89	2.06	.31	1.93	2.09	.32	2.16	2.27	.62
TOTAL	3.92	2.99	19.42	4.01	3.04	19.64	4.47	3.30	38.29

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	13.54	10.10	63.41

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7	7 1/2	4 1/2
HARDGROVE GRINDABILITY (HGI)	55	55	--

STATE: KENTUCKY (WEST) | BED: NO. 9 | BED CODE: 489
COUNTY: UNION | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 666

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.2	74.7	5.8	.76	2.74	13717	4.0
FLOAT 1.40	74.4	88.3	6.8	.90	2.85	13553	4.2
FLOAT 1.60	81.9	95.7	8.1	1.13	3.06	13339	4.6
FLOAT 1.90	84.3	97.7	8.7	1.26	3.16	13241	4.8
CUM(1-1/2" X 100M)	100.0	100.0	19.8	2.72	4.54	11420	8.0
100M X 0	.2	.2	26.6	2.20	3.75	10305	7.3
TOTAL(1-1/2" X 0)	100.0	100.0	19.8	2.72	4.54	11418	7.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.3	58.3	3.9	.53	2.55	14028	3.6
FLOAT 1.40	68.4	82.5	5.7	.76	2.71	13733	3.9
FLOAT 1.60	79.8	93.8	7.8	1.09	2.97	13389	4.4
FLOAT 1.90	84.3	97.7	8.7	1.26	3.16	13241	4.8
CUM(3/8" X 100M)	100.0	100.0	20.0	2.93	4.54	11387	8.0
100M X 0	.3	.3	26.5	2.24	3.75	10321	7.3
TOTAL(3/8" X 0)	100.0	100.0	20.0	2.93	4.54	11384	8.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.0	46.0	3.0	.42	2.47	14176	3.5
FLOAT 1.40	64.5	77.8	5.6	.66	2.56	13749	3.7
FLOAT 1.60	80.2	93.4	8.5	1.01	2.75	13274	4.1
FLOAT 1.90	84.3	97.7	8.7	1.26	3.16	13241	4.8
CUM(14M X 0)	100.0	100.0	19.9	2.77	4.22	11404	7.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.2

MOISTURE, %

TOTAL	7.2
AS RECEIVED	4.0

STATE: KENTUCKY (WEST)
COUNTY: UNION

BED: NO. 9
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 489
SAMPLE NO. 666

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.00	--	--	--	--	--	--	--	--
ASH	19.87	--	--	20.70	--	--	--	--	--
VOLATILE MATTER	34.64	--	--	36.08	--	--	45.50	--	--
FIXED CARBON	41.49	--	--	43.22	--	--	54.50	--	--
BTU/LB	11161	--	--	11626	--	--	14660	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.33	--	--	4.51	--	--	5.69	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	19.87	--	--	20.70	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.69	--	--	2.80	--	--	3.53	--	--
SULFATIC	.06	--	--	.06	--	--	.08	--	--
ORGANIC	1.58	--	--	1.65	--	--	2.08	--	--
TOTAL	4.33	--	--	4.51	--	--	5.69	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	24.83	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST)
COUNTY: UNION

BED: NOS. 6 AND 9
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 902
SAMPLE NO. 667

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.6	52.2	3.5	.19	1.97	14094	2.8
FLOAT 1.40	77.9	86.7	5.9	.67	2.31	13700	3.4
FLOAT 1.60	86.2	94.4	7.3	.92	2.52	13471	3.7
CUM(1-1/2" X 100M)	100.0	100.0	14.4	2.80	4.24	12306	6.9
100M X 0	5.3	5.1	17.3	2.62	4.12	11830	7.0
TOTAL(1-1/2" X 0)	100.0	100.0	14.6	2.79	4.23	12281	6.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.7	54.6	3.6	.44	2.05	14077	2.9
FLOAT 1.40	77.9	86.7	5.9	.80	2.39	13700	3.5
FLOAT 1.60	86.1	94.4	7.2	1.05	2.61	13487	3.9
CUM(3/8" X 100M)	100.0	100.0	14.4	2.84	4.33	12306	7.0
100M X 0	5.1	4.8	18.1	3.17	4.82	11699	8.2
TOTAL(3/8" X 0)	100.0	100.0	14.6	2.86	4.35	12275	7.1

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.1	52.8	4.0	.64	2.25	14012	3.2
FLOAT 1.40	74.7	84.3	5.2	.67	2.24	13815	3.2
FLOAT 1.60	85.7	94.3	7.3	1.06	2.64	13471	3.9
CUM(14M X 0)	100.0	100.0	14.8	2.96	4.48	12240	7.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	40.5
3/8" X 14M	37.2
14M X 100M	17.0
100M X 0	5.3

MOISTURE, %

TOTAL	3.7
AS RECEIVED	1.5

STATE: KENTUCKY (WEST) | BED: NOS. 6 AND 9 | BED CODE: 902
COUNTY: UNION | RANK: HIGH VOLATILE A BITUMINOUS | SAMPLE NO. 667

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.50	1.40	1.40	--	--	--	--	--	--
ASH	13.99	6.91	58.57	14.21	7.01	59.40	--	--	--
VOLATILE MATTER	36.13	38.83	--	36.68	39.38	--	42.76	42.35	--
FIXED CARBON	48.37	52.86	--	49.11	53.61	--	57.24	57.65	--
BTU/LB	12397	13680	--	12585	13874	--	14670	14920	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.09	2.41	15.32	4.16	2.44	15.54	4.84	2.62	38.28
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	13.99	6.91	58.57	14.21	7.01	59.40	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.81	.94	14.15	2.85	.95	14.35	3.32	1.03	35.34
SULFATIC	.06	.03	.10	.07	.03	.10	.08	.03	.25
ORGANIC	1.22	1.44	1.08	1.24	1.46	1.10	1.45	1.57	2.70
TOTAL	4.09	2.41	15.32	4.16	2.44	15.54	4.84	2.62	38.28

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2030	2070	--
SOFTENING TEMPERATURE (ST)	2060	2130	--
FLUID TEMPERATURE (FT)	2090	2390	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	17.63	8.91	72.70

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	6 1/2	--
HARDGROVE GRINDABILITY (HGI)	59	57	--

STATE: KENTUCKY (WEST) | BED: NO.11 | BED CODE: 484
COUNTY: HOPKINS | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 668

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.7	78.3	3.8	.65	2.72	13880	3.9
FLOAT 1.40	78.3	91.0	4.7	.84	2.89	13742	4.2
FLOAT 1.60	83.4	95.8	5.8	.99	3.01	13572	4.4
CUM(1-1/2" X 100M)	100.0	100.0	17.2	2.70	4.42	11819	7.5
100M X 0	.4	.4	22.5	2.18	3.44	11004	6.3
TOTAL(1-1/2" X 0)	100.0	100.0	17.2	2.70	4.42	11816	7.5

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	68.7	80.9	3.5	.65	2.72	13926	3.9
FLOAT 1.40	77.3	90.4	4.2	.80	2.86	13819	4.1
FLOAT 1.60	82.3	95.2	5.2	.94	2.96	13665	4.3
CUM(3/8" X 100M)	100.0	100.0	17.2	2.83	4.56	11819	7.7
100M X 0	.8	.7	24.0	3.63	5.13	10773	9.5
TOTAL(3/8" X 0)	100.0	100.0	17.3	2.84	4.56	11811	7.7

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.9	41.5	2.5	.40	2.47	14080	3.5
FLOAT 1.40	70.6	82.6	4.0	.59	2.57	13849	3.7
FLOAT 1.60	81.5	94.1	5.2	.85	2.73	13665	4.0
CUM(14M X 0)	100.0	100.0	17.1	2.89	4.55	11835	7.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

MOISTURE, %

TOTAL	8.1
AS RECEIVED	5.0

STATE: KENTUCKY (WEST)
COUNTY: HOPKINS

BED: NO.11
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 668

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.00	3.10	4.20	--	--	--	--	--	--
ASH	16.15	4.84	63.94	17.00	4.99	66.74	--	--	--
VOLATILE MATTER	36.86	42.69	--	38.80	44.06	--	46.75	46.37	--
FIXED CARBON	41.99	49.37	--	44.20	50.95	--	53.25	53.63	--
BTU/LB	11257	13272	--	11850	13697	--	14277	14416	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.22	2.68	12.06	4.44	2.77	12.59	5.35	2.92	37.85
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	16.15	4.84	63.94	17.00	4.99	66.74	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.80	.74	11.38	2.95	.77	11.88	3.55	.81	35.71
SULFATIC	.06	.04	.08	.06	.04	.08	.07	.04	.24
ORGANIC	1.36	1.90	.60	1.43	1.97	.63	1.72	2.07	1.90
TOTAL	4.22	2.68	12.06	4.44	2.77	12.59	5.35	2.92	37.85

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.39	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1980	2040	--
SOFTENING TEMPERATURE (ST)	2080	2090	--
FLUID TEMPERATURE (FT)	2300	2150	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.05	--	--
MINERAL MATTER (PARR)	20.80	6.91	79.01

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	5	5 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST)
COUNTY: HOPKINS

BED: NO.11
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 669

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.5	58.0	2.9	.57	2.96	14072	4.2
FLOAT 1.40	82.4	90.8	4.8	.93	3.19	13773	4.6
FLOAT 1.60	88.0	95.9	5.8	1.08	3.29	13615	4.8
CUM(1-1/2" X 100M)	100.0	100.0	12.9	2.59	4.56	12497	7.3
100M X 0	.9	.9	16.9	2.25	3.83	11866	6.5
TOTAL(1-1/2" X 0)	100.0	100.0	12.9	2.59	4.55	12491	7.3

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.0	70.8	3.1	.64	2.87	14041	4.1
FLOAT 1.40	85.4	93.2	4.3	.93	3.08	13852	4.4
FLOAT 1.60	90.3	97.6	5.2	1.06	3.18	13710	4.6
CUM(3/8" X 100M)	100.0	100.0	11.7	2.36	4.27	12686	6.7
100M X 0	2.2	2.1	13.7	2.93	4.81	12371	7.8
TOTAL(3/8" X 0)	100.0	100.0	11.7	2.37	4.28	12679	6.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	64.5	71.9	3.0	.40	2.75	14057	3.9
FLOAT 1.40	81.3	89.6	4.0	.66	2.88	13899	4.1
FLOAT 1.60	90.2	98.0	5.3	.88	3.07	13694	4.5
CUM(14M X 0)	100.0	100.0	12.2	2.35	4.37	12607	6.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

MOISTURE, %

TOTAL	5.2
AS RECEIVED	2.0

STATE: KENTUCKY (WEST)
COUNTY: HOPKINS

BED: NO.11
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 669

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.00	2.20	2.10	--	--	--	--	--	--
ASH	11.56	5.09	71.15	11.80	5.20	72.68	--	--	--
VOLATILE MATTER	39.59	42.25	--	40.40	43.20	--	45.80	45.57	--
FIXED CARBON	46.84	50.46	--	47.80	51.60	--	54.20	54.43	--
BTU/LB	12417	13408	--	12670	13710	--	14365	14462	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.44	3.03	16.01	4.54	3.10	16.35	5.14	3.27	59.85
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	11.56	5.09	71.15	11.80	5.20	72.68	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.36	.83	15.55	2.41	.85	15.88	2.73	.90	58.13
SULFATIC	.02	.01	.04	.03	.01	.04	.03	.01	.15
ORGANIC	2.06	2.19	.42	2.10	2.24	.43	2.38	2.36	1.58
TOTAL	4.44	3.03	16.01	4.54	3.10	16.35	5.14	3.27	59.85

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.88	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1990	2120	--
SOFTENING TEMPERATURE (ST)	2080	2170	--
FLUID TEMPERATURE (FT)	2280	2250	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.08	--	--
MINERAL MATTER (PARR)	15.24	7.32	87.49

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3 1/2	4 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST)
COUNTY: MUHLENBERG

BED: NO.11
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 670

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	77.6	79.2	3.4	.52	2.54	14110	3.6
FLOAT 1.40	96.4	97.3	4.3	.76	2.78	13963	4.0
FLOAT 1.60	99.1	99.6	4.7	.86	2.86	13897	4.1
CUM(1-1/2" X 100M)	100.0	100.0	5.1	.93	2.93	13831	4.2
100M X 0	.8	.8	8.5	1.17	3.25	13274	4.9
TOTAL(1-1/2" X 0)	100.0	100.0	5.1	.93	2.93	13827	4.2

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	82.8	84.7	3.3	.54	2.56	14127	3.6
FLOAT 1.40	94.8	96.2	4.0	.71	2.71	14012	3.9
FLOAT 1.60	98.3	99.1	4.5	.82	2.81	13930	4.0
CUM(3/8" X 100M)	100.0	100.0	5.2	.97	2.95	13815	4.3
100M X 0	1.5	1.4	8.6	1.36	3.44	13257	5.2
TOTAL(3/8" X 0)	100.0	100.0	5.3	.98	2.96	13807	4.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	79.5	81.6	3.0	.42	2.41	14176	3.4
FLOAT 1.40	93.5	95.2	3.7	.58	2.58	14061	3.7
FLOAT 1.60	97.6	98.6	4.3	.67	2.69	13963	3.9
CUM(14M X 0)	100.0	100.0	5.2	.96	2.98	13815	4.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

MOISTURE, %

TOTAL	7.6
AS RECEIVED	4.5

STATE: KENTUCKY (WEST) | BED: NO.11 | BED CODE: 484
COUNTY: MUHLENBERG | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 670

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.50	2.40	1.70	--	--	--	--	--	--
ASH	5.06	4.20	42.07	5.30	4.30	42.80	--	--	--
VOLATILE MATTER	41.52	42.48	--	43.48	43.53	--	45.91	45.48	--
FIXED CARBON	48.92	50.92	--	51.22	52.17	--	54.09	54.52	--
BTU/LB	12965	13549	--	13576	13882	--	14336	14506	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.84	2.61	14.54	2.98	2.67	14.79	3.14	2.79	25.85
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	5.06	4.20	42.07	5.30	4.30	42.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.93	.66	12.54	.97	.68	12.75	1.02	.71	22.30
SULFATIC	.04	.03	.06	.05	.03	.06	.05	.03	.10
ORGANIC	1.87	1.91	1.94	1.96	1.96	1.98	2.07	2.05	3.45
TOTAL	2.84	2.61	14.54	2.98	2.67	14.79	3.14	2.79	25.85

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	1.25	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2080	2080	--
SOFTENING TEMPERATURE (ST)	2140	2130	--
FLUID TEMPERATURE (FT)	2260	2320	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.05	--	--
MINERAL MATTER (PARR)	7.36	6.11	54.36

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3	3	--
HARDGROVE GRINDABILITY (HGI)	54	52	--

STATE: KENTUCKY (WEST)
COUNTY: MUHLENBERG

BED: NO.11
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 671

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.0	66.8	3.7	.71	3.03	14047	4.3
FLOAT 1.40	84.1	93.7	5.0	1.25	3.54	13828	5.1
FLOAT 1.60	88.9	98.1	5.8	1.48	3.75	13692	5.5
CUM(1-1/2" X 100M)	100.0	100.0	13.4	2.52	4.59	12408	7.4
100M X 0	1.2	1.2	12.7	2.11	3.67	12526	5.9
TOTAL(1-1/2" X 0)	100.0	100.0	13.4	2.52	4.58	12409	7.4

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.6	59.4	3.4	.65	3.09	14098	4.4
FLOAT 1.40	85.7	94.5	5.4	1.35	3.68	13760	5.3
FLOAT 1.60	89.4	97.9	6.0	1.52	3.82	13659	5.6
CUM(3/8" X 100M)	100.0	100.0	13.0	2.68	4.75	12475	7.6
100M X 0	2.3	2.3	13.1	2.66	4.63	12459	7.4
TOTAL(3/8" X 0)	100.0	100.0	13.0	2.68	4.75	12475	7.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.9	70.8	3.1	.43	2.93	14149	4.1
FLOAT 1.40	79.0	87.4	4.5	.88	3.31	13912	4.8
FLOAT 1.60	89.8	98.1	5.5	1.38	3.73	13743	5.4
CUM(14M X 0)	100.0	100.0	12.4	2.66	4.80	12577	7.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

MOISTURE, %

TOTAL	5.2
AS RECEIVED	2.0

STATE: KENTUCKY (WEST) | BED: NO.11 | BED CODE: 484
COUNTY: MUHLENBERG | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 671

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.00	3.30	3.20	--	--	--	--	--	--
ASH	12.25	5.22	67.97	12.50	5.40	70.22	--	--	--
VOLATILE MATTER	40.77	42.84	--	41.60	44.30	--	47.54	46.83	--
FIXED CARBON	44.98	48.64	--	45.90	50.30	--	52.46	53.17	--
BTU/LB	12309	13306	--	12560	13760	--	14354	14545	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.43	3.28	13.78	4.53	3.39	14.24	5.17	3.58	47.80
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	12.25	5.22	67.97	12.50	5.40	70.22	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.49	1.20	13.48	2.54	1.24	13.93	2.90	1.31	46.77
SULFATIC	.03	.02	.05	.04	.02	.05	.04	.02	.17
ORGANIC	1.91	2.06	.25	1.95	2.13	.26	2.23	2.25	.86
TOTAL	4.43	3.28	13.78	4.53	3.39	14.24	5.17	3.58	47.80

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.79	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2030	1970	--
SOFTENING TEMPERATURE (ST)	2130	2020	--
FLUID TEMPERATURE (FT)	2330	2080	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.07	--	--
MINERAL MATTER (PARR)	15.99	7.70	83.67

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4 1/2	5	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST) | BED: NO.11 | BED CODE: 484
COUNTY: MUHLENBERG | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 672

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.1	74.1	3.6	.52	2.71	13635	4.0
FLOAT 1.40	84.6	93.7	4.7	.80	2.89	13464	4.3
FLOAT 1.60	87.7	96.4	5.3	.87	2.94	13371	4.4
CUM(1-1/2" X 100M)	100.0	100.0	13.1	2.97	4.80	12161	7.9
100M X 0	1.1	1.0	23.0	2.46	4.01	10625	7.5
TOTAL(1-1/2" X 0)	100.0	100.0	13.2	2.96	4.79	12144	7.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.4	67.5	3.1	.49	2.59	13712	3.8
FLOAT 1.40	80.8	90.4	4.5	.79	2.82	13495	4.2
FLOAT 1.60	85.9	95.0	5.5	.93	2.93	13340	4.4
CUM(3/8" X 100M)	100.0	100.0	13.7	3.13	4.88	12068	8.1
100M X 0	2.5	2.3	20.4	3.40	5.05	11029	9.2
TOTAL(3/8" X 0)	100.0	100.0	13.9	3.14	4.88	12042	8.1

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.2	67.0	3.1	.49	2.48	13712	3.6
FLOAT 1.40	78.8	88.1	4.2	.66	2.76	13542	4.1
FLOAT 1.60	86.5	95.0	5.7	.84	2.88	13309	4.3
CUM(14M X 0)	100.0	100.0	13.4	3.07	4.88	12114	8.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, % — SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

MOISTURE, %

TOTAL	5.5
AS RECEIVED	2.3

STATE: KENTUCKY (WEST) | BED: NO.11 | BED CODE: 484
COUNTY: MUHLENBERG | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 672

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.30	2.00	1.90	--	--	--	--	--	--
ASH	12.80	5.39	61.02	13.10	5.50	62.20	--	--	--
VOLATILE MATTER	38.59	42.24	--	39.50	43.10	--	45.45	45.61	--
FIXED CARBON	46.31	50.37	--	47.40	51.40	--	54.55	54.39	--
BTU/LB	11881	13073	--	12161	13340	--	13994	14116	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.58	2.76	17.40	4.69	2.82	17.73	5.40	2.98	46.92
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	12.80	5.39	61.02	13.10	5.50	62.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.09	.83	17.03	3.16	.85	17.36	3.64	.90	45.92
SULFATIC	.04	.00	.08	.04	.00	.08	.05	.00	.21
ORGANIC	1.46	1.93	.29	1.49	1.97	.30	1.71	2.08	.78
TOTAL	4.58	2.76	17.40	4.69	2.82	17.73	5.40	2.98	46.92

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.46	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1970	2150	--
SOFTENING TEMPERATURE (ST)	2020	2200	--
FLUID TEMPERATURE (FT)	2130	2310	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.04	--	--
MINERAL MATTER (PARR)	16.73	7.49	76.93

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4	4	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST)
COUNTY: MUHLENBERG

BED: NO.11
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 484
SAMPLE NO. 673

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	63.4	70.9	3.6	.67	2.91	13849	4.2
FLOAT 1.40	83.5	92.0	4.9	1.12	3.34	13648	4.9
FLOAT 1.60	88.2	96.4	5.6	1.41	3.58	13539	5.3
CUM(1-1/2" X 100M)	100.0	100.0	13.0	2.87	4.80	12391	7.7
100M X 0	1.6	1.6	15.1	1.89	3.24	12066	5.4
TOTAL(1-1/2" X 0)	100.0	100.0	13.0	2.85	4.78	12386	7.7

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.9	74.6	3.4	.64	2.79	13880	4.0
FLOAT 1.40	83.7	92.0	4.6	1.03	3.15	13694	4.6
FLOAT 1.60	88.6	96.5	5.4	1.25	3.35	13570	4.9
CUM(3/8" X 100M)	100.0	100.0	12.6	2.63	4.52	12453	7.3
100M X 0	2.5	2.4	15.2	2.91	4.58	12050	7.6
TOTAL(3/8" X 0)	100.0	100.0	12.7	2.64	4.52	12443	7.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.4	66.8	3.3	.57	2.83	13896	4.1
FLOAT 1.40	80.7	88.3	4.3	.83	3.02	13741	4.4
FLOAT 1.60	89.1	96.0	5.6	1.23	3.32	13539	4.9
CUM(14M X 0)	100.0	100.0	11.9	2.69	4.65	12562	7.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

MOISTURE, %

TOTAL	5.7
AS RECEIVED	2.6

STATE: KENTUCKY (WEST) | BED: NO.11 | BED CODE: 484
COUNTY: MUHLENBERG | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 673

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.60	2.80	2.20	--	--	--	--	--	--
ASH	11.98	5.25	61.61	12.30	5.40	63.00	--	--	--
VOLATILE MATTER	39.06	42.18	--	40.10	43.40	--	45.72	45.88	--
FIXED CARBON	46.36	49.77	--	47.60	51.20	--	54.28	54.12	--
BTU/LB	12175	13190	--	12500	13570	--	14253	14345	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.61	3.12	15.21	4.74	3.21	15.56	5.40	3.39	42.05
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	11.98	5.25	61.61	12.30	5.40	63.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.70	1.14	14.30	2.77	1.17	14.62	3.16	1.24	39.53
SULFATIC	.05	.02	.09	.06	.02	.09	.06	.02	.24
ORGANIC	1.86	1.96	.82	1.91	2.02	.84	2.18	2.14	2.28
TOTAL	4.61	3.12	15.21	4.74	3.21	15.56	5.40	3.39	42.05

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.49	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1970	1980	--
SOFTENING TEMPERATURE (ST)	2030	2030	--
FLUID TEMPERATURE (FT)	2080	2080	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.04	--	--
MINERAL MATTER (PARR)	15.89	7.60	76.60

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4 1/2	4	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST) | BED: NO.11 | BED CODE: 484
COUNTY: MUHLENBERG | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 674

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.7	73.1	3.5	.46	2.73	13718	4.0
FLOAT 1.40	83.8	90.8	4.7	.69	2.89	13547	4.3
FLOAT 1.60	89.4	95.8	5.7	.95	3.11	13405	4.6
CUM(1-1/2" X 100M)	100.0	100.0	12.0	2.80	4.81	12509	7.7
100M X 0	1.1	1.1	15.9	2.73	4.44	11954	7.4
TOTAL(1-1/2" X 0)	100.0	100.0	12.0	2.80	4.81	12503	7.7

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.9	74.1	3.3	.43	2.69	13746	3.9
FLOAT 1.40	82.1	89.9	4.4	.63	2.85	13590	4.2
FLOAT 1.60	88.0	95.2	5.6	.85	3.03	13419	4.5
CUM(3/8" X 100M)	100.0	100.0	12.7	3.00	5.05	12409	8.1
100M X 0	2.5	2.4	14.9	3.42	5.18	12097	8.6
TOTAL(3/8" X 0)	100.0	100.0	12.8	3.01	5.05	12402	8.1

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.2	73.4	2.9	.40	2.58	13803	3.7
FLOAT 1.40	79.8	87.3	4.2	.57	2.68	13618	3.9
FLOAT 1.60	88.4	95.4	5.5	.74	2.84	13433	4.2
CUM(14M X 0)	100.0	100.0	12.4	3.06	5.00	12452	8.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

MOISTURE, %

TOTAL	5.4
AS RECEIVED	2.2

STATE: KENTUCKY (WEST) | BED: NO.11 | BED CODE: 484
COUNTY: MUHLENBERG | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 674

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.20	2.00	1.90	--	--	--	--	--	--
ASH	12.13	5.17	63.86	12.40	5.28	65.10	--	--	--
VOLATILE MATTER	38.92	42.06	--	39.80	42.92	--	45.43	45.31	--
FIXED CARBON	46.75	50.77	--	47.80	51.80	--	54.57	54.69	--
BTU/LB	12178	13195	--	12452	13464	--	14215	14215	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.82	2.73	21.07	4.93	2.79	21.48	5.62	2.95	61.53
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	12.13	5.17	63.86	12.40	5.28	65.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.05	.70	20.35	3.12	.71	20.74	3.56	.75	59.43
SULFATIC	.03	.02	.05	.04	.02	.05	.04	.02	.14
ORGANIC	1.73	2.02	.67	1.77	2.06	.69	2.02	2.17	1.96
TOTAL	4.82	2.73	21.07	4.93	2.79	21.48	5.62	2.95	61.53

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.79	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2030	2150	--
SOFTENING TEMPERATURE (ST)	2080	2200	--
FLUID TEMPERATURE (FT)	2140	2250	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.07	--	--
MINERAL MATTER (PARR)	16.10	7.24	82.12

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	5	4 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST) | BED: NO.12 | BED CODE: 483
COUNTY: HOPKINS | RANK: HIGH VOLATILE A BITUMINOUS | SAMPLE NO. 675

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	10.0	12.0	3.6	.59	2.90	13975	4.2
FLOAT 1.40	75.7	83.7	10.6	1.01	3.23	12861	5.0
FLOAT 1.60	87.7	95.0	12.2	1.17	3.35	12607	5.3
CUM(1-1/2" X 100M)	100.0	100.0	18.3	2.31	4.26	11636	7.3
100M X 0	.5	.4	31.9	1.99	3.20	9473	6.8
TOTAL(1-1/2" X 0)	100.0	100.0	18.4	2.31	4.25	11626	7.3

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	24.8	29.6	3.4	.56	2.99	14006	4.3
FLOAT 1.40	69.1	77.7	8.5	.88	3.31	13195	5.0
FLOAT 1.60	88.1	95.5	11.5	1.16	3.46	12718	5.4
CUM(3/8" X 100M)	100.0	100.0	17.7	2.17	4.31	11732	7.3
100M X 0	2.6	2.5	21.2	1.94	3.94	11175	7.1
TOTAL(3/8" X 0)	100.0	100.0	17.8	2.16	4.30	11717	7.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.0	36.6	3.7	.56	2.97	13959	4.3
FLOAT 1.40	70.4	79.0	8.0	.84	3.25	13275	4.9
FLOAT 1.60	86.7	94.4	10.5	1.01	3.31	12877	5.1
CUM(14M X 0)	100.0	100.0	17.1	2.12	4.24	11827	7.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

MOISTURE, %

TOTAL	3.5
AS RECEIVED	2.1

STATE: KENTUCKY (WEST) | BED: NO.12 | BED CODE: 483
COUNTY: HOPKINS | RANK: HIGH VOLATILE A BITUMINOUS | SAMPLE NO. 675

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.10	2.10	2.20	--	--	--	--	--	--
ASH	17.52	10.69	59.07	17.90	10.92	60.40	--	--	--
VOLATILE MATTER	37.10	40.27	--	37.90	41.13	--	46.16	46.17	--
FIXED CARBON	43.27	46.94	--	44.20	47.95	--	53.84	53.83	--
BTU/LB	11454	12541	--	11700	12810	--	14251	14381	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.98	3.16	10.10	4.07	3.23	10.33	4.95	3.63	26.08
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	17.52	10.69	59.07	17.90	10.92	60.40	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.07	1.03	9.15	2.11	1.05	9.36	2.57	1.18	23.63
SULFATIC	.03	.01	.06	.04	.01	.06	.04	.01	.15
ORGANIC	1.88	2.12	.89	1.92	2.17	.91	2.34	2.44	2.30
TOTAL	3.98	3.16	10.10	4.07	3.23	10.33	4.95	3.63	26.08

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.73	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2050	2200	--
SOFTENING TEMPERATURE (ST)	2130	2350	--
FLUID TEMPERATURE (FT)	2230	2520	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.10	--	--
MINERAL MATTER (PARR)	21.57	13.57	70.91

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4 1/2	5	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST)
COUNTY: MUHLENBERG

BED: NO.12
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 483
SAMPLE NO. 676

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.8	31.5	5.0	.78	1.64	13481	2.4
FLOAT 1.40	79.9	86.8	8.7	1.13	2.02	12921	3.1
FLOAT 1.60	89.3	95.3	10.2	1.24	2.14	12694	3.4
CUM(1-1/2" X 100M)	100.0	100.0	15.5	1.84	2.68	11891	4.5
100M X 0	1.2	1.1	23.9	5.18	5.99	10618	11.3
TOTAL(1-1/2" X 0)	100.0	100.0	15.6	1.88	2.72	11875	4.6

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.7	34.2	4.0	.66	1.41	13633	2.1
FLOAT 1.40	76.9	84.7	7.9	1.05	1.86	13042	2.9
FLOAT 1.60	88.0	95.0	9.6	1.21	2.01	12785	3.1
CUM(3/8" X 100M)	100.0	100.0	15.8	1.84	2.56	11845	4.3
100M X 0	2.6	2.4	20.4	3.82	4.81	11148	8.6
TOTAL(3/8" X 0)	100.0	100.0	15.9	1.89	2.62	11827	4.4

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	12.5	14.4	2.8	.55	.70	13815	1.0
FLOAT 1.40	67.6	75.1	6.3	.78	1.79	13284	2.7
FLOAT 1.60	88.2	94.6	9.4	1.08	1.96	12815	3.1
CUM(14M X 0)	100.0	100.0	15.1	1.81	2.63	11951	4.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

MOISTURE, %

TOTAL	3.0
AS RECEIVED	3.4

STATE: KENTUCKY (WEST)
COUNTY: MUHLENBERG

BED: NO.12
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 483
SAMPLE NO. 676

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.40	3.40	2.20	--	--	--	--	--	--
ASH	15.17	8.98	56.43	15.70	9.30	57.70	--	--	--
VOLATILE MATTER	35.08	36.80	--	36.32	38.10	--	43.08	42.01	--
FIXED CARBON	46.35	50.81	--	47.98	52.60	--	56.92	57.99	--
BTU/LB	11457	12394	--	11860	12830	--	14069	14146	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	2.62	2.05	7.49	2.71	2.12	7.66	3.21	2.34	18.10
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	15.17	8.98	56.43	15.70	9.30	57.70	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.83	1.10	7.11	1.89	1.14	7.27	2.24	1.26	17.18
SULFATIC	.03	.01	.05	.03	.01	.05	.04	.01	.12
ORGANIC	.76	.94	.33	.79	.97	.34	.94	1.07	.81
TOTAL	2.62	2.05	7.49	2.71	2.12	7.66	3.21	2.34	18.10

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.56	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2130	2200	--
SOFTENING TEMPERATURE (ST)	2180	2260	--
FLUID TEMPERATURE (FT)	2260	2410	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.07	--	--
MINERAL MATTER (PARR)	18.45	11.21	66.53

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4	4 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST) | BED: NO.12 | BED CODE: 483
COUNTY: MUHLENBERG | RANK: HIGH VOLATILE A BITUMINOUS | SAMPLE NO. 677

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.9	27.1	5.0	.68	1.77	13599	2.6
FLOAT 1.40	75.0	82.1	8.1	1.01	2.25	13124	3.4
FLOAT 1.60	88.5	94.8	9.9	1.48	2.80	12848	4.4
FLOAT 1.90	92.2	97.5	11.0	1.63	2.99	12679	4.7
CUM(1-1/2" X 100M)	100.0	100.0	15.5	2.52	4.05	11990	6.8
100M X 0	.2	.2	21.3	2.94	3.83	11101	6.9
TOTAL(1-1/2" X 0)	100.0	100.0	15.5	2.52	4.05	11988	6.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.2	28.8	3.5	.49	1.67	13829	2.4
FLOAT 1.40	74.9	82.0	7.4	.93	2.20	13231	3.3
FLOAT 1.60	88.1	94.5	9.2	1.34	2.69	12955	4.2
FLOAT 1.90	92.2	97.5	11.0	1.63	2.99	12679	4.7
CUM(3/8" X 100M)	100.0	100.0	14.9	2.49	4.00	12082	6.6
100M X 0	.6	.6	20.8	3.28	4.43	11177	7.9
TOTAL(3/8" X 0)	100.0	100.0	14.9	2.49	4.00	12076	6.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	19.0	22.1	2.7	.37	1.60	13951	2.3
FLOAT 1.40	68.7	76.3	6.9	.84	2.10	13308	3.2
FLOAT 1.60	87.4	94.2	9.4	1.26	2.55	12924	3.9
FLOAT 1.90	92.2	97.5	11.0	1.63	2.99	12679	4.7
CUM(14M X 0)	100.0	100.0	15.5	2.53	4.02	11990	6.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.2

MOISTURE, %

TOTAL	3.4
AS RECEIVED	2.0

STATE: KENTUCKY (WEST)
COUNTY: MUHLENBERG

BED: NO.12
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 483
SAMPLE NO. 677

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.00	--	--	--	--	--	--	--	--
ASH	14.90	--	--	15.20	--	--	--	--	--
VOLATILE MATTER	37.53	--	--	38.30	--	--	45.17	--	--
FIXED CARBON	45.57	--	--	46.50	--	--	54.83	--	--
BTU/LB	12005	--	--	12250	--	--	14446	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.75	--	--	3.83	--	--	4.51	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	14.90	--	--	15.20	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.71	--	--	2.77	--	--	3.26	--	--
SULFATIC	.20	--	--	.20	--	--	.24	--	--
ORGANIC	.84	--	--	.86	--	--	1.01	--	--
TOTAL	3.75	--	--	3.83	--	--	4.51	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.13	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.01	--	--
MINERAL MATTER (PARR)	18.52	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST)
COUNTY: MUHLENBERG

BED: NO.12
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 483
SAMPLE NO. 678

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	21.6	25.3	5.1	.74	2.67	13621	3.9
FLOAT 1.40	70.8	79.0	9.4	1.07	2.95	12988	4.5
FLOAT 1.60	86.2	93.4	12.0	1.28	3.10	12605	4.9
CUM(1-1/2" X 100M)	100.0	100.0	18.6	2.44	4.02	11633	6.9
100M X 0	1.1	1.0	25.7	2.21	3.45	10587	6.5
TOTAL(1-1/2" X 0)	100.0	100.0	18.7	2.44	4.01	11621	6.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.2	35.6	4.9	.76	2.68	13651	3.9
FLOAT 1.40	71.2	80.3	8.9	1.05	2.94	13062	4.5
FLOAT 1.60	84.7	92.9	11.3	1.27	3.11	12708	4.9
CUM(3/8" X 100M)	100.0	100.0	18.9	2.67	4.27	11588	7.4
100M X 0	2.3	2.3	20.5	2.25	3.80	11353	6.7
TOTAL(3/8" X 0)	100.0	100.0	18.9	2.66	4.26	11583	7.4

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.1	39.5	4.1	.58	2.54	13769	3.7
FLOAT 1.40	69.2	79.2	8.0	.85	2.80	13194	4.2
FLOAT 1.60	82.2	91.3	10.6	1.08	2.94	12811	4.6
CUM(14M X 0)	100.0	100.0	19.3	2.64	4.23	11529	7.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, % — SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

MOISTURE, %

TOTAL	3.7
AS RECEIVED	2.3

STATE: KENTUCKY (WEST)
COUNTY: MUHLENBERG

BED: NO.12
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 483
SAMPLE NO. 678

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.30	2.80	1.40	--	--	--	--	--	--
ASH	18.10	9.91	58.37	18.53	10.20	59.20	--	--	--
VOLATILE MATTER	36.20	39.95	--	37.05	41.10	--	45.48	45.77	--
FIXED CARBON	43.40	47.34	--	44.42	48.70	--	54.52	54.23	--
BTU/LB	11375	12510	--	11643	12870	--	14291	14332	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.04	2.83	10.06	4.13	2.91	10.21	5.07	3.24	25.02
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	18.10	9.91	58.37	18.53	10.20	59.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.40	.99	9.71	2.46	1.02	9.84	3.02	1.14	24.13
SULFATIC	.03	.01	.05	.03	.01	.05	.04	.01	.12
ORGANIC	1.60	1.83	.31	1.64	1.88	.31	2.01	2.09	.77
TOTAL	4.04	2.83	10.06	4.13	2.91	10.21	5.07	3.24	25.02

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.32	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2080	2180	--
SOFTENING TEMPERATURE	(ST)	2130	2230	--
FLUID TEMPERATURE	(FT)	2190	2350	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.04	--	--
MINERAL MATTER (PARR)	22.28	12.62	69.55

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	4 1/2	4 1/2	--
HARDGROVE GRINDABILITY	(HGI)	--	--	--

STATE: KENTUCKY (WEST) | BED: NO.12 | BED CODE: 483
COUNTY: MUHLENBERG | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 679

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	13.3	15.9	4.2	.50	1.79	13796	2.6
FLOAT 1.40	73.0	83.1	8.5	1.06	2.41	13105	3.7
FLOAT 1.60	82.6	92.2	10.1	1.25	2.60	12848	4.0
CUM(1-1/2" X 100M)	100.0	100.0	18.4	3.35	4.65	11514	8.1
100M X 0	1.0	.9	25.2	3.14	4.12	10421	7.9
TOTAL(1-1/2" X 0)	100.0	100.0	18.5	3.35	4.64	11503	8.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.0	27.5	3.9	.62	1.89	13844	2.7
FLOAT 1.40	71.9	81.5	8.3	1.05	2.39	13137	3.6
FLOAT 1.60	83.3	92.3	10.1	1.29	2.63	12848	4.1
CUM(3/8" X 100M)	100.0	100.0	17.9	3.13	4.24	11594	7.3
100M X 0	2.3	2.2	21.9	3.54	4.74	10951	8.7
TOTAL(3/8" X 0)	100.0	100.0	18.0	3.14	4.25	11579	7.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.4	30.7	3.2	.51	1.90	13956	2.7
FLOAT 1.40	72.0	82.6	7.5	.84	2.30	13265	3.5
FLOAT 1.60	81.9	92.0	9.2	1.14	2.52	12992	3.9
CUM(14M X 0)	100.0	100.0	18.1	3.32	4.63	11562	8.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

MOISTURE, %

TOTAL	4.0
AS RECEIVED	2.6

STATE: KENTUCKY (WEST) | BED: NO.12 | BED CODE: 483
COUNTY: MUHLENBERG | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 679

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.60	2.70	2.80	--	--	--	--	--	--
ASH	17.34	9.15	56.57	17.80	9.40	58.20	--	--	--
VOLATILE MATTER	34.77	37.56	--	35.70	38.60	--	43.43	42.60	--
FIXED CARBON	45.29	50.60	--	46.50	52.00	--	56.57	57.40	--
BTU/LB	11308	12610	--	11610	12960	--	14124	14305	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.20	2.37	13.80	4.32	2.44	14.20	5.25	2.69	33.98
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	17.34	9.15	56.57	17.80	9.40	58.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.99	1.10	12.82	3.07	1.13	13.18	3.73	1.25	31.54
SULFATIC	.03	.01	.06	.04	.01	.06	.04	.01	.14
ORGANIC	1.18	1.26	.93	1.21	1.30	.96	1.47	1.43	2.29
TOTAL	4.20	2.37	13.80	4.32	2.44	14.20	5.25	2.69	33.98

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.35	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2030	2190	--
SOFTENING TEMPERATURE (ST)	2080	2330	--
FLUID TEMPERATURE (FT)	2140	2420	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.05	--	--
MINERAL MATTER (PARR)	21.60	11.49	70.67

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	5 1/2	6 1/2	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST) | BED: NO.12 | BED CODE: 483
COUNTY: MUHLENBERG | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 680

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.7	26.8	5.1	.62	1.99	13547	2.9
FLOAT 1.40	73.9	83.4	8.9	.99	2.48	12957	3.8
FLOAT 1.60	84.9	93.7	10.7	1.22	2.71	12677	4.3
CUM(1-1/2" X 100M)	100.0	100.0	18.4	3.65	5.00	11481	8.7
100M X 0	1.2	1.1	22.8	3.00	4.19	10798	7.8
TOTAL(1-1/2" X 0)	100.0	100.0	18.5	3.64	4.99	11473	8.7

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.6	33.5	4.2	.49	1.93	13687	2.8
FLOAT 1.40	76.2	85.0	8.3	.96	2.40	13050	3.7
FLOAT 1.60	86.1	94.3	9.8	1.16	2.60	12817	4.1
CUM(3/8" X 100M)	100.0	100.0	17.0	3.28	4.57	11699	7.8
100M X 0	2.7	2.5	22.9	3.79	5.02	10783	9.3
TOTAL(3/8" X 0)	100.0	100.0	17.2	3.29	4.58	11674	7.9

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	27.4	32.8	2.7	.43	1.85	13920	2.7
FLOAT 1.40	66.7	76.6	6.4	.78	2.27	13345	3.4
FLOAT 1.60	82.4	92.0	8.8	1.00	2.41	12973	3.7
CUM(14M X 0)	100.0	100.0	17.5	3.34	4.60	11621	7.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

MOISTURE, %

TOTAL	4.0
AS RECEIVED	2.6

STATE: KENTUCKY (WEST) | BED: NO.12 | BED CODE: 483
COUNTY: MUHLENBERG | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 680

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.60	2.50	2.60	--	--	--	--	--	--
ASH	16.36	8.92	56.59	16.80	9.15	58.10	--	--	--
VOLATILE MATTER	36.72	39.14	--	37.70	40.14	--	45.31	44.19	--
FIXED CARBON	44.32	49.44	--	45.50	50.71	--	54.69	55.81	--
BTU/LB	11425	12595	--	11730	12918	--	14099	14219	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.66	2.46	14.51	4.78	2.52	14.89	5.75	2.77	35.54
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	16.36	8.92	56.59	16.80	9.15	58.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.17	.99	13.92	3.25	1.02	14.30	3.91	1.12	34.12
SULFATIC	.06	.02	.10	.06	.02	.10	.07	.02	.24
ORGANIC	1.43	1.44	.48	1.47	1.48	.50	1.77	1.63	1.19
TOTAL	4.66	2.46	14.51	4.78	2.52	14.89	5.75	2.77	35.54

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.09	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2020	2460	--
SOFTENING TEMPERATURE (ST)	2130	2520	--
FLUID TEMPERATURE (FT)	2230	2580	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	.01	--	--
MINERAL MATTER (PARR)	20.78	11.27	70.94

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4 1/2	4	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST) | BED: NOS.11 AND 12 | BED CODE: 905
COUNTY: MUHLENBERG | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 681

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	67.5	70.2	4.6	.68	2.75	13677	4.0
FLOAT 1.40	91.4	93.2	6.4	1.01	3.05	13419	4.5
FLOAT 1.60	98.0	98.9	7.4	1.26	3.27	13275	4.9
CUM(1-1/2" X 100M)	100.0	100.0	8.2	1.39	3.39	13160	5.2
100M X 0	1.1	.9	21.9	1.59	3.88	11188	6.9
TOTAL(1-1/2" X 0)	100.0	100.0	8.4	1.39	3.40	13138	5.2

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	71.1	74.1	4.7	.74	2.76	13663	4.0
FLOAT 1.40	89.0	91.4	6.1	.99	3.01	13462	4.5
FLOAT 1.60	96.7	98.1	7.3	1.22	3.22	13289	4.8
CUM(3/8" X 100M)	100.0	100.0	8.6	1.50	3.49	13102	5.3
100M X 0	1.8	1.7	15.7	1.79	4.05	12080	6.7
TOTAL(3/8" X 0)	100.0	100.0	8.7	1.51	3.50	13084	5.4

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.9	60.9	3.5	.47	2.58	13836	3.7
FLOAT 1.40	88.4	91.1	5.5	.73	2.82	13548	4.2
FLOAT 1.60	96.5	97.9	7.0	.94	3.00	13332	4.5
CUM(14M X 0)	100.0	100.0	8.3	1.40	3.42	13145	5.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	74.1
3/8" X 14M	20.5
14M X 100M	4.3
100M X 0	1.1

MOISTURE, %

TOTAL	6.0
AS RECEIVED	3.8

STATE: KENTUCKY (WEST) | BED: NOS.11 AND 12 | BED CODE: 905
COUNTY: MUHLENBERG | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 681

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.80	2.10	2.50	--	--	--	--	--	--
ASH	8.30	6.66	43.19	8.63	6.80	44.30	--	--	--
VOLATILE MATTER	41.59	42.68	--	43.23	43.60	--	47.31	46.78	--
FIXED CARBON	46.31	48.56	--	48.14	49.60	--	52.69	53.22	--
BTU/LB	12600	13080	--	13097	13361	--	14335	14336	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.32	2.95	14.64	3.46	3.01	15.02	3.78	3.23	26.96
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	8.30	6.66	43.19	8.63	6.80	44.30	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.35	.93	13.73	1.40	.95	14.08	1.53	1.02	25.28
SULFATIC	.03	.02	.05	.04	.02	.05	.04	.02	.09
ORGANIC	1.94	2.00	.86	2.02	2.04	.88	2.21	2.19	1.58
TOTAL	3.32	2.95	14.64	3.46	3.01	15.02	3.78	3.23	26.96

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2120	2190	--
SOFTENING TEMPERATURE (ST)	2170	2280	--
FLUID TEMPERATURE (FT)	2290	2480	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	11.22	9.00	56.10

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3 1/2	3 1/2	--
HARDGROVE GRINDABILITY (HGI)	46	--	--

STATE: KENTUCKY (WEST) | BED: NO.14 | BED CODE: 480
COUNTY: HOPKINS | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 682

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.0	33.3	2.8	.49	1.53	14143	2.2
FLOAT 1.40	48.1	77.5	5.8	1.58	2.67	13670	3.9
FLOAT 1.60	55.3	87.6	7.3	2.07	3.07	13433	4.6
CUM(1-1/2" X 100M)	100.0	100.0	38.7	3.19	3.78	8483	8.9
100M X 0	.4	.3	52.4	3.04	3.74	6323	11.8
TOTAL(1-1/2" X 0)	100.0	100.0	38.8	3.19	3.78	8474	8.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	25.4	41.2	2.6	.51	1.51	14174	2.1
FLOAT 1.40	48.8	76.9	5.2	1.36	2.42	13764	3.5
FLOAT 1.60	56.4	87.1	6.9	1.82	2.93	13496	4.3
CUM(3/8" X 100M)	100.0	100.0	37.1	3.04	3.89	8735	8.9
100M X 0	2.2	1.3	59.0	2.51	3.41	5282	12.9
TOTAL(3/8" X 0)	100.0	100.0	37.6	3.03	3.88	8659	9.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.5	33.5	2.1	.30	1.44	14253	2.0
FLOAT 1.40	44.3	70.4	4.4	.90	2.11	13890	3.0
FLOAT 1.60	55.1	85.0	7.0	1.46	2.53	13480	3.8
CUM(14M X 0)	100.0	100.0	37.1	2.92	3.71	8735	8.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, % — SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

MOISTURE, %

TOTAL	5.9
AS RECEIVED	3.7

STATE: KENTUCKY (WEST) | BED: NO.14 | BED CODE: 480
COUNTY: HOPKINS | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 682

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.70	3.00	3.00	--	--	--	--	--	--
ASH	36.98	6.52	71.78	38.40	6.72	74.00	--	--	--
VOLATILE MATTER	26.77	37.62	--	27.80	38.78	--	45.13	41.58	--
FIXED CARBON	32.55	52.86	--	33.80	54.50	--	54.87	58.42	--
BTU/LB	8214	13119	--	8530	13525	--	13847	14499	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.28	2.38	4.50	3.41	2.46	4.64	5.54	2.63	17.85
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	36.98	6.52	71.78	38.40	6.72	74.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.64	1.36	4.11	2.74	1.41	4.24	4.45	1.51	16.31
SULFATIC	.06	.03	.09	.06	.03	.09	.10	.03	.36
ORGANIC	.59	.99	.30	.61	1.02	.31	.99	1.09	1.18
TOTAL	3.28	2.38	4.50	3.41	2.46	4.64	5.54	2.63	17.85

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2520	2010	--
SOFTENING TEMPERATURE	(ST)	2570	2070	--
FLUID TEMPERATURE	(FT)	2740	2170	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	43.11	8.61	81.81

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	--	--	--
HARDGROVE GRINDABILITY	(HGI)	--	--	--

STATE: KENTUCKY (WEST) | BED: NO.14 | BED CODE: 480
COUNTY: HOPKINS | RANK: HIGH VOLATILE A BITUMINOUS | SAMPLE NO. 683

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.7	48.9	2.4	.50	1.60	14070	2.3
FLOAT 1.40	69.1	84.6	5.2	1.01	2.21	13633	3.2
FLOAT 1.60	78.7	94.6	6.8	1.35	2.58	13383	3.9
FLOAT 1.90	81.3	96.7	7.7	1.53	2.81	13242	4.2
CUM(1-1/2" X 100M)	100.0	100.0	21.2	2.62	3.82	11134	6.9
100M X 0	.2	.2	28.2	2.87	3.77	10040	7.5
TOTAL(1-1/2" X 0)	100.0	100.0	21.2	2.62	3.82	11132	6.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.0	56.4	2.4	.50	1.59	14070	2.3
FLOAT 1.40	69.3	84.6	4.7	.87	2.04	13711	3.0
FLOAT 1.60	79.1	94.6	6.5	1.18	2.36	13430	3.5
FLOAT 1.90	81.3	96.7	7.7	1.53	2.81	13242	4.2
CUM(3/8" X 100M)	100.0	100.0	20.6	2.54	3.77	11227	6.7
100M X 0	.7	.6	28.6	3.19	4.33	9978	8.7
TOTAL(3/8" X 0)	100.0	100.0	20.7	2.54	3.77	11219	6.7

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.0	35.5	2.1	.38	1.44	14117	2.0
FLOAT 1.40	59.4	73.1	4.6	.82	1.94	13727	2.8
FLOAT 1.60	77.3	91.6	7.9	1.21	2.36	13211	3.6
FLOAT 1.90	81.3	96.7	7.7	1.53	2.81	13242	4.2
CUM(14M X 0)	100.0	100.0	21.1	2.51	3.83	11149	6.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.2

MOISTURE, %

TOTAL	4.7
AS RECEIVED	2.5

STATE: KENTUCKY (WEST)
COUNTY: HOPKINS

BED: NO.14
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 480
SAMPLE NO. 683

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.50	--	--	--	--	--	--	--	--
ASH	19.89	--	--	20.40	--	--	--	--	--
VOLATILE MATTER	34.42	--	--	35.30	--	--	44.35	--	--
FIXED CARBON	43.19	--	--	44.30	--	--	55.65	--	--
BTU/LB	11360	--	--	11651	--	--	14637	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	3.36	--	--	3.45	--	--	4.33	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	19.89	--	--	20.40	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.62	--	--	2.69	--	--	3.37	--	--
SULFATIC	.20	--	--	.20	--	--	.25	--	--
ORGANIC	.55	--	--	.56	--	--	.70	--	--
TOTAL	3.36	--	--	3.45	--	--	4.33	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	23.93	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: KENTUCKY (WEST) | BED: NO.14 | BED CODE: 480
COUNTY: HOPKINS | RANK: HIGH VOLATILE B BITUMINOUS | SAMPLE NO. 684

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	36.9	42.7	3.4	.89	2.12	13784	3.1
FLOAT 1.40	69.5	77.7	6.3	1.73	2.96	13338	4.4
FLOAT 1.60	87.1	94.2	9.2	2.36	3.58	12892	5.6
CUM(1-1/2" X 100M)	100.0	100.0	15.5	3.93	5.12	11923	8.6
100M X 0	1.2	1.1	22.6	5.51	6.63	10832	12.2
TOTAL(1-1/2" X 0)	100.0	100.0	15.6	3.95	5.14	11910	8.6

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	45.2	52.2	3.1	.79	2.06	13830	3.0
FLOAT 1.40	72.4	81.4	5.5	1.44	2.73	13461	4.1
FLOAT 1.60	85.6	93.6	7.9	2.02	3.28	13092	5.0
CUM(3/8" X 100M)	100.0	100.0	15.2	3.67	4.95	11970	8.3
100M X 0	1.9	1.8	20.5	5.03	6.03	11155	10.8
TOTAL(3/8" X 0)	100.0	100.0	15.3	3.70	4.97	11954	8.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.8	61.2	3.4	.63	1.97	13784	2.9
FLOAT 1.40	73.5	83.7	5.0	.89	2.24	13538	3.3
FLOAT 1.60	83.7	92.9	7.2	1.43	2.67	13200	4.0
CUM(14M X 0)	100.0	100.0	15.7	3.91	4.98	11893	8.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

MOISTURE, %

TOTAL	4.8
AS RECEIVED	2.6

STATE: KENTUCKY (WEST)
COUNTY: HOPKINS

BED: NO.14
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 480
SAMPLE NO. 684

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.60	3.30	3.30	--	--	--	--	--	--
ASH	15.49	6.68	57.63	15.90	6.91	59.60	--	--	--
VOLATILE MATTER	35.84	38.73	--	36.80	40.05	--	43.76	43.03	--
FIXED CARBON	46.07	51.29	--	47.30	53.04	--	56.24	56.97	--
BTU/LB	11554	12807	--	11862	13244	--	14105	14227	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.76	2.49	16.30	4.89	2.57	16.86	5.81	2.76	41.72
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	15.49	6.68	57.63	15.90	6.91	59.60	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.61	1.32	16.10	3.71	1.36	16.64	4.41	1.46	41.20
SULFATIC	.04	.03	.06	.05	.03	.06	.05	.03	.15
ORGANIC	1.10	1.14	.15	1.13	1.18	.15	1.34	1.27	.38
TOTAL	4.76	2.49	16.30	4.89	2.57	16.86	5.81	2.76	41.72

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1970	2100	--
SOFTENING TEMPERATURE (ST)	2090	2270	--
FLUID TEMPERATURE (FT)	2430	2510	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	19.86	8.88	73.64

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	4	4	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: MISSOURI
COUNTY: BOONE

BED: BEVIER
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 492
SAMPLE NO. 685

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.2	51.0	5.2	.90	3.06	14105	4.3
FLOAT 1.40	67.2	79.4	7.2	1.21	3.34	13772	4.9
FLOAT 1.60	80.2	92.1	9.5	1.71	3.81	13390	5.7
FLOAT 1.90	87.2	96.9	12.1	2.13	4.20	12957	6.5
CUM(1-1/2" X 100M)	100.0	100.0	19.9	2.93	4.88	11660	8.4
100M X 0	.1	.1	20.4	3.11	4.17	11577	7.2
TOTAL(1-1/2" X 0)	100.0	100.0	19.9	2.93	4.88	11660	8.4

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.4	47.4	3.5	.64	2.93	14388	4.1
FLOAT 1.40	64.8	78.5	5.1	.87	3.08	14122	4.4
FLOAT 1.60	78.0	91.8	7.5	1.22	3.40	13723	5.0
FLOAT 1.90	87.2	96.9	12.1	2.13	4.20	12957	6.5
CUM(3/8" X 100M)	100.0	100.0	19.9	2.82	4.82	11660	8.3
100M X 0	.6	.6	22.7	4.05	5.67	11194	10.1
TOTAL(3/8" X 0)	100.0	100.0	19.9	2.83	4.83	11657	8.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	23.1	29.2	2.4	.53	2.70	14571	3.7
FLOAT 1.40	56.5	69.8	4.3	.77	2.91	14255	4.1
FLOAT 1.60	74.8	89.2	7.2	1.06	3.17	13772	4.6
FLOAT 1.90	87.2	96.9	12.1	2.13	4.20	12957	6.5
CUM(14M X 0)	100.0	100.0	20.6	2.92	4.96	11544	8.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.1

MOISTURE, %

TOTAL	2.5
AS RECEIVED	1.4

STATE: MISSOURI
COUNTY: BOONE

BED: BEVIER
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 492
SAMPLE NO. 685

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.40	--	--	--	--	--	--	--	--
ASH	19.42	--	--	19.70	--	--	--	--	--
VOLATILE MATTER	36.98	--	--	37.50	--	--	46.70	--	--
FIXED CARBON	42.20	--	--	42.80	--	--	53.30	--	--
BTU/LB	11529	--	--	11693	--	--	14562	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.82	--	--	4.89	--	--	6.09	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	19.42	--	--	19.70	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.99	--	--	3.04	--	--	3.78	--	--
SULFATIC	.06	--	--	.06	--	--	.07	--	--
ORGANIC	1.76	--	--	1.79	--	--	2.23	--	--
TOTAL	4.82	--	--	4.89	--	--	6.09	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	23.96	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: MISSOURI
COUNTY: MACON

BED: BEVIER
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 492
SAMPLE NO. 686

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.2	69.7	6.0	.73	3.19	13605	4.7
FLOAT 1.40	74.0	87.6	7.0	.97	3.39	13443	5.0
FLOAT 1.60	81.4	94.7	8.4	1.29	3.68	13215	5.6
FLOAT 1.90	87.2	98.3	10.9	1.64	3.95	12808	6.2
CUM(1-1/2" X 100M)	100.0	100.0	19.8	2.10	4.17	11359	7.3
100M X 0	.1	.1	33.6	2.27	3.61	9113	7.9
TOTAL(1-1/2" X 0)	100.0	100.0	19.8	2.10	4.17	11357	7.3

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.9	63.0	4.2	.50	3.14	13898	4.5
FLOAT 1.40	73.9	88.8	5.0	.66	3.28	13768	4.8
FLOAT 1.60	79.0	93.8	6.0	.81	3.41	13605	5.0
FLOAT 1.90	87.2	98.3	10.9	1.64	3.95	12808	6.2
CUM(3/8" X 100M)	100.0	100.0	19.2	1.95	4.16	11457	7.3
100M X 0	.6	.5	29.5	2.80	4.38	9780	9.0
TOTAL(3/8" X 0)	100.0	100.0	19.3	1.96	4.16	11447	7.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.2	48.4	3.4	.40	3.08	14029	4.4
FLOAT 1.40	71.2	86.4	4.9	.58	3.24	13784	4.7
FLOAT 1.60	78.3	93.6	6.2	.73	3.34	13573	4.9
FLOAT 1.90	87.2	98.3	10.9	1.64	3.95	12808	6.2
CUM(14M X 0)	100.0	100.0	19.8	2.08	4.34	11359	7.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.1

MOISTURE, %

TOTAL	3.2
AS RECEIVED	1.9

STATE: MISSOURI
COUNTY: MACON

BED: BEVIER
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 492
SAMPLE NO. 686

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.90	--	--	--	--	--	--	--	--
ASH	19.62	--	--	20.00	--	--	--	--	--
VOLATILE MATTER	38.26	--	--	39.00	--	--	48.75	--	--
FIXED CARBON	40.22	--	--	41.00	--	--	51.25	--	--
BTU/LB	11127	--	--	11342	--	--	14178	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.37	--	--	4.45	--	--	5.56	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	19.62	--	--	20.00	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.00	--	--	2.04	--	--	2.55	--	--
SULFATIC	.14	--	--	.14	--	--	.18	--	--
ORGANIC	2.23	--	--	2.27	--	--	2.84	--	--
TOTAL	4.37	--	--	4.45	--	--	5.56	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	24.05	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: MISSOURI
COUNTY: RANDOLPH

BED: BEVIER
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 492
SAMPLE NO. 687

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.6	52.8	4.1	.65	3.11	13701	4.5
FLOAT 1.40	56.7	77.5	6.5	1.31	3.73	13326	5.6
FLOAT 1.60	70.0	92.7	9.1	2.23	4.00	12920	6.2
CUM(1-1/2" X 100M)	100.0	100.0	29.4	3.10	4.97	9752	10.2
100M X 0	1.9	1.8	32.0	4.26	5.99	9347	12.8
TOTAL(1-1/2" X 0)	100.0	100.0	29.4	3.12	4.99	9745	10.2

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	34.4	49.4	3.1	.53	2.98	13857	4.3
FLOAT 1.40	54.1	75.9	5.1	1.10	3.56	13544	5.3
FLOAT 1.60	67.9	91.6	8.4	1.93	4.26	13030	6.5
CUM(3/8" X 100M)	100.0	100.0	30.0	3.09	4.91	9659	10.2
100M X 0	4.8	4.2	37.1	4.74	6.15	8551	14.4
TOTAL(3/8" X 0)	100.0	100.0	30.3	3.17	4.97	9606	10.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.0	41.5	2.3	.34	2.93	13981	4.2
FLOAT 1.40	49.5	69.7	3.7	.56	3.20	13763	4.7
FLOAT 1.60	63.2	86.8	5.9	1.39	3.62	13420	5.4
CUM(14M X 0)	100.0	100.0	29.3	3.00	4.83	9768	9.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	69.0
3/8" X 14M	22.4
14M X 100M	6.7
100M X 0	1.9

MOISTURE, %

TOTAL	6.1
AS RECEIVED	5.2

STATE: MISSOURI
COUNTY: RANDOLPH

BED: BEVIER
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 492
SAMPLE NO. 687

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.20	6.00	3.50	--	--	--	--	--	--
ASH	28.89	5.77	67.07	30.47	6.14	69.50	--	--	--
VOLATILE MATTER	31.47	41.00	16.02	33.19	43.62	16.60	47.74	46.47	54.43
FIXED CARBON	34.45	47.23	13.41	36.34	50.24	13.90	52.26	53.53	45.57
BTU/LB	9087	12580	--	9585	13383	--	13786	14258	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.74	3.61	6.68	5.01	3.84	6.92	7.20	4.09	22.70
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	28.89	5.77	67.07	30.47	6.14	69.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.97	1.44	5.56	3.13	1.53	5.77	4.50	1.63	18.90
SULFATIC	.13	.11	.14	.14	.12	.15	.19	.13	.49
ORGANIC	1.65	2.06	.97	1.74	2.19	1.01	2.50	2.33	3.31
TOTAL	4.74	3.61	6.68	5.01	3.84	6.92	7.20	4.09	22.70

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2130	2060	2140
SOFTENING TEMPERATURE (ST)	2180	2110	2190
FLUID TEMPERATURE (FT)	2290	2160	2470

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	35.66	8.74	78.87

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3	4	--
HARDGROVE GRINDABILITY (HGI)	62	55	--

STATE: MISSOURI
COUNTY: VERNON

BED: BEVIER
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 492
SAMPLE NO. 688

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	70.2	77.1	8.0	2.12	3.44	13910	4.9
FLOAT 1.40	80.4	87.7	8.5	2.30	3.59	13820	5.2
FLOAT 1.60	88.8	95.5	9.6	2.71	3.99	13630	5.9
CUM(1-1/2" X 100M)	100.0	100.0	15.4	4.39	6.05	12670	9.6
100M X 0	2.5	2.0	29.8	5.30	6.75	10200	13.2
TOTAL(1-1/2" X 0)	100.0	100.0	15.8	4.41	6.07	12608	9.6

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.2	47.3	5.9	1.42	2.77	14250	3.9
FLOAT 1.40	79.6	87.4	7.7	2.01	3.29	13960	4.7
FLOAT 1.60	88.8	96.1	8.8	2.43	3.72	13760	5.4
CUM(3/8" X 100M)	100.0	100.0	14.9	4.41	6.06	12710	9.5
100M X 0	4.5	4.1	23.0	5.27	6.70	11440	11.7
TOTAL(3/8" X 0)	100.0	100.0	15.3	4.45	6.09	12653	9.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	57.7	65.0	6.4	1.40	2.67	14220	3.8
FLOAT 1.40	79.3	88.2	7.5	1.75	3.00	14040	4.3
FLOAT 1.60	87.6	96.1	8.7	2.13	3.41	13840	4.9
CUM(14M X 0)	100.0	100.0	15.7	5.09	6.37	12620	10.1

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	64.8
3/8" X 14M	27.3
14M X 100M	5.4
100M X 0	2.5

MOISTURE, %

TOTAL	4.7
AS RECEIVED	4.2

STATE: MISSOURI
COUNTY: VERNON

BED: BEVIER
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 492
SAMPLE NO. 688

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.20	3.10	2.00	--	--	--	--	--	--
ASH	14.37	8.09	62.72	15.00	8.35	64.00	--	--	--
VOLATILE MATTER	38.74	41.14	25.19	40.44	42.46	25.70	47.58	46.33	71.39
FIXED CARBON	42.69	47.67	10.09	44.56	49.19	10.30	52.42	53.67	28.61
BTU/LB	12190	13462	4051	12725	13893	4134	14970	15159	11482

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	65.66	72.83	13.74	68.54	75.16	14.02	80.64	82.01	38.94
HYDROGEN	5.31	5.68	1.55	5.06	5.50	1.36	5.95	6.01	3.77
NITROGEN	1.09	1.21	.22	1.14	1.25	.23	1.34	1.36	.63
SULFUR	5.79	3.27	24.06	6.04	3.37	24.55	7.11	3.68	68.20
OXYGEN	7.78	8.93	--	4.22	6.37	--	4.97	6.95	--
ASH	14.37	8.09	62.72	15.00	8.35	64.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.56	1.91	22.93	4.76	1.97	23.40	5.60	2.15	65.00
SULFATIC	.05	.05	.05	.05	.05	.05	.06	.05	.14
ORGANIC	1.18	1.31	1.08	1.23	1.35	1.10	1.45	1.47	3.06
TOTAL	5.79	3.27	24.06	6.04	3.37	24.55	7.11	3.68	68.20

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	28.93	43.04	22.16
AL2O3	(ALUMINUM OXIDE)	9.93	16.59	8.67
FE2O3	(IRON OXIDE)	39.85	30.03	44.32
TIO2	(TITANIUM OXIDE)	1.67	.93	.27
CAO	(CALCIUM OXIDE)	8.06	1.99	14.27
MGO	(MAGNESIUM OXIDE)	1.99	.83	.20
NA2O	(SODIUM OXIDE)	.49	.22	.03
K2O	(POTASSIUM OXIDE)	1.05	2.41	.51
SO3	(SULFITES)	7.16	.98	4.64

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	1.27	.59
DOLOMITE	.20	.08
HYDROGEN/CARBON	.89	.88
OXYGEN/CARBON	.05	.06
R250	.45	.65
SILICA	.37	.56
SILICA/ALUMINA	2.91	2.59

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	1990	1840	1940
SOFTENING TEMPERATURE	(ST)	2060	1960	2030
FLUID TEMPERATURE	(FT)	2130	2050	2100

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	.20	--	--
NA (SODIUM)	(CALCULATED)	.05	.01	.01
MINERAL MATTER	(PARR)	19.52	10.87	80.34

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	7 1/2	7 1/2	--
HARDGROVE GRINDABILITY	(HGI)	52	47	--

STATE: MISSOURI
COUNTY: VERNON

BED: CROWEBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 496
SAMPLE NO. 689

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.0	55.3	6.5	1.95	3.11	14220	4.4
FLOAT 1.40	77.0	85.1	8.3	2.27	3.38	13940	4.8
FLOAT 1.60	89.2	96.1	10.4	2.45	3.56	13590	5.2
CUM(1-1/2" X 100M)	100.0	100.0	16.0	3.45	4.64	12610	7.4
100M X 0	1.4	.9	39.2	2.34	4.73	8060	11.7
TOTAL(1-1/2" X 0)	100.0	100.0	16.3	3.43	4.64	12546	7.4

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.8	56.7	5.3	1.67	2.98	14460	4.1
FLOAT 1.40	79.6	88.9	7.0	2.12	3.44	14170	4.9
FLOAT 1.60	86.1	94.8	8.2	2.28	3.61	13970	5.2
CUM(3/8" X 100M)	100.0	100.0	15.7	3.41	4.98	12690	7.8
100M X 0	3.7	3.1	26.7	3.05	4.50	10570	8.5
TOTAL(3/8" X 0)	100.0	100.0	16.1	3.40	4.96	12612	7.9

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.8	56.9	5.9	1.71	2.85	14340	4.0
FLOAT 1.40	78.7	88.6	7.0	2.16	3.30	14140	4.7
FLOAT 1.60	85.5	95.3	7.9	2.35	3.51	14000	5.0
CUM(14M X 0)	100.0	100.0	15.8	3.29	4.55	12560	7.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	60.4
3/8" X 14M	31.9
14M X 100M	6.3
100M X 0	1.4

MOISTURE, %

TOTAL	3.5
AS RECEIVED	3.1

STATE: MISSOURI
COUNTY: VERNON

BED: CROWEBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 496
SAMPLE NO. 689

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.10	4.00	3.70	--	--	--	--	--	--
ASH	15.92	7.28	62.48	16.43	7.58	64.88	--	--	--
VOLATILE MATTER	39.03	39.83	32.38	40.28	41.49	33.62	48.19	44.89	95.73
FIXED CARBON	41.95	48.89	1.44	43.29	50.93	1.50	51.81	55.11	4.27
BTU/LB	12079	13486	3658	12466	14048	3799	14917	15201	10817

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	66.74	74.48	19.19	68.87	77.58	19.93	82.41	83.95	56.75
HYDROGEN	5.64	6.26	1.86	5.46	6.06	1.50	6.54	6.56	4.27
NITROGEN	1.23	1.39	.29	1.27	1.45	.30	1.52	1.57	.85
SULFUR	4.11	3.03	9.26	4.25	3.16	9.61	5.08	3.42	27.37
OXYGEN	6.36	7.55	6.93	3.72	4.17	3.78	4.45	4.51	10.76
ASH	15.92	7.28	62.48	16.43	7.58	64.88	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.94	2.03	7.66	3.04	2.12	7.95	3.63	2.29	22.63
SULFATIC	.12	.03	.16	.13	.03	.17	.15	.03	.48
ORGANIC	1.05	.97	1.44	1.08	1.01	1.50	1.30	1.10	4.26
TOTAL	4.11	3.03	9.26	4.25	3.16	9.61	5.08	3.42	27.37

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	21.98	--	--
AL2O3	(ALUMINUM OXIDE)	7.21	--	--
FE2O3	(IRON OXIDE)	30.22	--	--
TIO2	(TITANIUM OXIDE)	1.80	--	--
CAO	(CALCIUM OXIDE)	23.52	--	--
MGO	(MAGNESIUM OXIDE)	1.62	--	--
NA2O	(SODIUM OXIDE)	.99	--	--
K2O	(POTASSIUM OXIDE)	1.25	--	--
SO3	(SULFITES)	5.74	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	1.86	--
DOLOMITE	.44	--
HYDROGEN/CARBON	.95	.94
OXYGEN/CARBON	.05	.04
R250	.35	--
SILICA	.28	--
SILICA/ALUMINA	3.05	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	--	1890	--
SOFTENING TEMPERATURE	(ST)	2010	2000	--
FLUID TEMPERATURE	(FT)	--	2090	--

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	.38	--	--
NA (SODIUM)	(CALCULATED)	.12	--	--
MINERAL MATTER	(PARR)	19.84	9.83	74.55

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	7	7	--
HARDGROVE GRINDABILITY	(HGI)	56	48	--

STATE: MISSOURI
COUNTY: VERNON

BED: CROWEBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 496
SAMPLE NO. 690

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	39.2	45.1	5.2	1.02	2.47	14151	3.5
FLOAT 1.40	71.5	80.1	7.2	1.49	2.93	13797	4.2
FLOAT 1.60	85.3	92.9	9.4	1.86	3.28	13407	4.9
CUM(1-1/2" X 100M)	100.0	100.0	15.6	2.99	4.37	12309	7.1
100M X 0	1.2	1.0	28.0	3.02	5.75	10113	11.4
TOTAL(1-1/2" X 0)	100.0	100.0	15.7	2.99	4.39	12283	7.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.2	63.5	4.2	1.02	2.35	14328	3.3
FLOAT 1.40	76.7	86.7	5.6	1.45	2.79	14080	4.0
FLOAT 1.60	83.4	93.0	6.7	1.72	3.07	13885	4.4
CUM(3/8" X 100M)	100.0	100.0	14.8	2.97	4.25	12451	6.8
100M X 0	5.9	5.5	20.1	2.11	4.06	11512	7.1
TOTAL(3/8" X 0)	100.0	100.0	15.1	2.92	4.24	12395	6.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.5	55.7	3.6	.84	2.21	14434	3.1
FLOAT 1.40	74.5	85.5	5.3	1.31	2.68	14133	3.8
FLOAT 1.60	81.8	92.7	6.3	1.55	2.92	13956	4.2
CUM(14M X 0)	100.0	100.0	15.6	2.95	4.29	12309	7.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	69.7
3/8" X 14M	22.6
14M X 100M	6.5
100M X 0	1.2

MOISTURE, %

TOTAL	3.1
AS RECEIVED	1.8

STATE: MISSOURI
COUNTY: VERNON

BED: CROWEBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 496
SAMPLE NO. 690

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.80	1.50	1.80	--	--	--	--	--	--
ASH	14.93	6.45	56.47	15.20	6.55	57.50	--	--	--
VOLATILE MATTER	37.74	40.01	27.50	38.44	40.62	28.00	45.32	43.46	65.88
FIXED CARBON	45.53	52.04	14.24	46.36	52.83	14.50	54.68	56.54	34.12
BTU/LB	11931	13891	4839	12150	14102	4927	14328	15091	11594

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.10	2.97	10.35	4.18	3.01	10.54	4.93	3.22	24.79
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	14.93	6.45	56.47	15.20	6.55	57.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.74	1.62	9.08	2.79	1.64	9.24	3.29	1.76	21.75
SULFATIC	.21	.12	.13	.21	.12	.13	.25	.13	.30
ORGANIC	1.16	1.23	1.14	1.18	1.25	1.17	1.39	1.34	2.74
TOTAL	4.10	2.97	10.35	4.18	3.01	10.54	4.93	3.22	24.79

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1920	1900	2060
SOFTENING TEMPERATURE (ST)	1960	1940	2090
FLUID TEMPERATURE (FT)	2000	1980	2120

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	18.72	8.73	67.90

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	8	--
HARDGROVE GRINDABILITY (HGI)	59	57	--

STATE: MISSOURI
COUNTY: BARTON

BED: DRYWOOD
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 537
SAMPLE NO. 691

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	2.2	2.5	6.8	1.83	2.40	14320	3.4
FLOAT 1.40	69.3	73.6	13.1	2.85	3.37	13280	5.1
FLOAT 1.60	93.3	96.7	14.9	3.70	4.29	12950	6.6
CUM(1-1/2" X 100M)	100.0	100.0	17.4	4.23	4.93	12500	7.9
100M X 0	2.0	1.8	24.3	9.87	11.43	11020	20.7
TOTAL(1-1/2" X 0)	100.0	100.0	17.5	4.34	5.06	12470	8.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	12.1	13.7	7.8	1.74	2.30	14200	3.2
FLOAT 1.40	63.6	68.9	11.6	2.49	3.05	13590	4.5
FLOAT 1.60	90.9	95.2	14.0	3.25	3.83	13150	5.8
CUM(3/8" X 100M)	100.0	100.0	17.3	4.23	4.89	12550	7.8
100M X 0	6.3	5.8	21.8	8.47	9.68	11550	16.8
TOTAL(3/8" X 0)	100.0	100.0	17.6	4.50	5.19	12487	8.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.1	9.2	8.0	1.83	2.41	14110	3.4
FLOAT 1.40	58.1	63.7	10.9	2.27	2.87	13630	4.2
FLOAT 1.60	87.8	92.6	13.9	3.15	3.68	13120	5.6
CUM(14M X 0)	100.0	100.0	17.8	4.33	4.90	12440	7.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	74.3
3/8" X 14M	19.9
14M X 100M	3.8
100M X 0	2.0

MOISTURE, %

TOTAL	2.3
AS RECEIVED	2.1

STATE: MISSOURI
COUNTY: BARTON

BED: DRYWOOD
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 537
SAMPLE NO. 691

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.10	1.60	1.30	--	--	--	--	--	--
ASH	17.82	13.13	47.08	18.20	13.34	47.70	--	--	--
VOLATILE MATTER	35.06	36.93	25.36	35.81	37.53	25.70	43.78	43.31	49.14
FIXED CARBON	45.02	48.34	26.25	45.99	49.13	26.60	56.22	56.69	50.86
BTU/LB	12119	12993	7196	12379	13205	7290	15134	15238	13940

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	65.76	70.93	33.66	67.17	72.09	34.10	82.11	83.19	65.20
HYDROGEN	5.11	5.40	3.11	4.98	5.31	3.00	6.09	6.12	5.74
NITROGEN	1.13	1.23	.49	1.15	1.25	.50	1.41	1.44	.96
SULFUR	5.03	3.32	13.51	5.14	3.37	13.69	6.28	3.89	26.17
OXYGEN	5.16	5.99	2.16	3.36	4.65	1.01	4.11	5.36	1.94
ASH	17.82	13.13	47.08	18.20	13.34	47.70	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.34	2.79	12.66	4.43	2.84	12.82	5.42	3.27	24.52
SULFATIC	.03	.03	.04	.04	.03	.04	.04	.03	.08
ORGANIC	.66	.50	.81	.67	.51	.82	.82	.58	1.57
TOTAL	5.03	3.32	13.51	5.14	3.37	13.69	6.28	3.89	26.17

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	42.11	47.73	35.80
AL2O3	(ALUMINUM OXIDE)	17.06	19.61	16.22
FE2O3	(IRON OXIDE)	32.53	27.45	35.75
TIO2	(TITANIUM OXIDE)	1.62	.83	.70
CAO	(CALCIUM OXIDE)	1.74	.95	3.92
MGO	(MAGNESIUM OXIDE)	.93	.63	.46
NA2O	(SODIUM OXIDE)	.35	.16	.05
K2O	(POTASSIUM OXIDE)	1.69	2.10	1.59
SO3	(SULFITES)	1.74	.50	4.34

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.61	.46
DOLOMITE	.07	.05
HYDROGEN/CARBON	.89	.88
OXYGEN/CARBON	.04	.05
R250	.63	.70
SILICA	.54	.62
SILICA/ALUMINA	2.47	2.43

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	1900	1930	1870
SOFTENING TEMPERATURE	(ST)	2000	2040	1960
FLUID TEMPERATURE	(FT)	2090	2110	2070

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.18	--	--
NA (SODIUM) (CALCULATED)	.05	.02	.02
MINERAL MATTER (PARR)	22.48	16.27	59.04

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	8 1/2	9	--
HARDGROVE GRINDABILITY	(HGI)	60	55	--

STATE: MISSOURI
COUNTY: VERNON

BED: FLEMING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 499
SAMPLE NO. 692

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.1	57.1	6.0	1.40	2.72	14350	3.8
FLOAT 1.40	84.0	90.5	7.4	1.83	3.09	14110	4.4
FLOAT 1.60	90.4	96.1	8.6	1.99	3.25	13920	4.7
CUM(1-1/2" X 100M)	100.0	100.0	13.6	2.78	4.09	13090	6.2
100M X 0	2.8	1.5	48.0	6.27	7.62	7130	21.4
TOTAL(1-1/2" X 0)	100.0	100.0	14.6	2.88	4.19	12923	6.5

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	50.9	56.7	5.3	1.22	2.55	14460	3.5
FLOAT 1.40	80.7	88.4	6.8	1.62	2.99	14210	4.2
FLOAT 1.60	89.5	96.3	8.3	1.94	3.29	13960	4.7
CUM(3/8" X 100M)	100.0	100.0	14.1	2.97	4.40	12970	6.8
100M X 0	4.5	3.3	33.7	5.69	7.13	9640	14.8
TOTAL(3/8" X 0)	100.0	100.0	15.0	3.09	4.52	12820	7.1

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	51.4	55.9	7.5	1.63	2.79	14120	4.0
FLOAT 1.40	86.2	92.4	8.7	1.84	3.01	13920	4.3
FLOAT 1.60	92.0	97.7	9.4	2.02	3.19	13790	4.6
CUM(14M X 0)	100.0	100.0	14.1	2.57	3.85	12990	5.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	66.7
3/8" X 14M	25.2
14M X 100M	5.3
100M X 0	2.8

MOISTURE, %

TOTAL	5.7
AS RECEIVED	3.1

STATE: MISSOURI
COUNTY: VERNON

BED: FLEMING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 499
SAMPLE NO. 692

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.10	2.00	1.90	--	--	--	--	--	--
ASH	14.21	8.84	63.67	14.66	9.02	64.90	--	--	--
VOLATILE MATTER	39.16	40.99	27.37	40.42	41.83	27.90	47.36	45.97	79.49
FIXED CARBON	43.53	48.17	7.06	44.92	49.15	7.20	52.64	54.03	20.51
BTU/LB	12505	13570	4097	12905	13847	4177	15122	15221	11900

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	69.11	73.89	21.80	71.32	75.39	22.22	83.57	82.87	63.31
HYDROGEN	5.28	5.58	1.81	5.10	5.47	1.63	5.97	6.01	4.64
NITROGEN	1.08	1.18	.28	1.11	1.20	.29	1.30	1.32	.82
SULFUR	3.65	2.81	10.76	3.77	2.87	10.96	4.42	3.16	31.23
OXYGEN	6.67	7.70	--	4.04	6.04	--	4.73	6.64	--
ASH	14.21	8.84	63.67	14.66	9.02	64.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.48	1.78	8.36	2.56	1.82	8.52	3.00	2.00	24.27
SULFATIC	.01	.01	.02	.02	.01	.02	.02	.01	.06
ORGANIC	1.15	1.02	2.38	1.19	1.04	2.42	1.40	1.15	6.90
TOTAL	3.65	2.81	10.76	3.77	2.87	10.96	4.42	3.16	31.23

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	35.68	46.02	26.85
AL2O3	(ALUMINUM OXIDE)	13.05	16.97	9.81
FE2O3	(IRON OXIDE)	24.39	27.45	19.73
TIO2	(TITANIUM OXIDE)	1.10	1.17	.37
CAO	(CALCIUM OXIDE)	14.00	2.69	20.36
MGO	(MAGNESIUM OXIDE)	1.01	.90	.56
NA2O	(SODIUM OXIDE)	.72	.46	.22
K2O	(POTASSIUM OXIDE)	1.39	2.29	.99
SO3	(SULFITES)	9.68	2.10	16.47

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.83	.53
DOLOMITE	.36	.11
HYDROGEN/CARBON	.86	.87
OXYGEN/CARBON	.05	.06
R250	.56	.68
SILICA	.48	.60
SILICA/ALUMINA	2.73	2.71

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	1870	1900	2080
SOFTENING TEMPERATURE	(ST)	1970	1980	2150
FLUID TEMPERATURE	(FT)	2060	2050	2220

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	.39	--	--
NA (SODIUM)	(CALCULATED)	.08	.03	.11
MINERAL MATTER	(PARR)	17.43	11.28	76.12

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	8 1/2	8 1/2	--
HARDGROVE GRINDABILITY	(HGI)	47	49	--

STATE: MISSOURI
COUNTY: VERNON

BED: FLEMING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 499
SAMPLE NO. 693

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	67.5	75.1	5.9	2.38	3.03	14200	4.3
FLOAT 1.40	81.5	89.6	6.8	2.59	3.26	14040	4.6
FLOAT 1.60	89.8	95.4	9.6	3.19	3.95	13560	5.8
CUM(1-1/2" X 100M)	100.0	100.0	14.0	5.71	6.57	12770	10.3
100M X 0	2.1	1.6	31.1	4.53	6.14	9920	12.4
TOTAL(1-1/2" X 0)	100.0	100.0	14.4	5.69	6.56	12710	10.3

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	59.0	66.7	4.4	1.99	2.76	14450	3.8
FLOAT 1.40	82.1	91.5	5.6	2.37	3.16	14240	4.4
FLOAT 1.60	86.9	95.9	6.3	2.56	3.34	14110	4.7
CUM(3/8" X 100M)	100.0	100.0	14.0	5.76	6.74	12780	10.5
100M X 0	6.8	5.8	24.4	5.30	6.59	10990	12.0
TOTAL(3/8" X 0)	100.0	100.0	14.7	5.73	6.73	12658	10.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.4	68.2	5.0	2.07	2.89	14440	4.0
FLOAT 1.40	81.3	90.5	6.1	2.06	3.28	14230	4.6
FLOAT 1.60	87.2	96.1	6.9	2.32	3.48	14090	4.9
CUM(14M X 0)	100.0	100.0	14.4	5.26	6.57	12790	10.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	64.6
3/8" X 14M	27.9
14M X 100M	5.4
100M X 0	2.1

MOISTURE, %

TOTAL	5.2
AS RECEIVED	3.8

STATE: MISSOURI
COUNTY: VERNON

BED: FLEMING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 499
SAMPLE NO. 693

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.80	3.90	3.70	--	--	--	--	--	--
ASH	13.85	6.37	63.46	14.40	6.62	65.90	--	--	--
VOLATILE MATTER	37.02	38.57	26.58	38.48	40.14	27.60	44.95	42.98	80.94
FIXED CARBON	45.33	51.16	6.26	47.12	53.24	6.50	55.05	57.02	19.06
BTU/LB	12304	13581	3744	12790	14132	3887	14942	15134	11400

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	67.82	75.46	10.82	70.50	78.52	11.24	82.36	84.09	32.96
HYDROGEN	5.18	5.74	1.32	4.95	5.52	.94	5.78	5.91	2.77
NITROGEN	1.20	1.34	.15	1.24	1.40	.16	1.45	1.50	.46
SULFUR	5.73	3.01	23.94	5.96	3.13	24.86	6.96	3.35	72.90
OXYGEN	6.22	8.08	--	2.95	4.80	--	3.45	5.15	--
ASH	13.85	6.37	63.46	14.40	6.62	65.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.81	2.01	21.92	5.00	2.09	22.76	5.84	2.24	66.74
SULFATIC	.04	.01	.07	.04	.01	.07	.05	.01	.21
ORGANIC	.88	.99	1.95	.92	1.03	2.03	1.07	1.11	5.95
TOTAL	5.73	3.01	23.94	5.96	3.13	24.86	6.96	3.35	72.90

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	16.05	31.53	10.23
AL2O3	(ALUMINUM OXIDE)	6.43	11.69	5.66
FE2O3	(IRON OXIDE)	51.26	45.75	53.19
TIO2	(TITANIUM OXIDE)	1.42	.70	.17
CAO	(CALCIUM OXIDE)	13.72	2.44	16.51
MGO	(MAGNESIUM OXIDE)	.51	.73	.27
NA2O	(SODIUM OXIDE)	.64	.27	.03
K2O	(POTASSIUM OXIDE)	.84	1.86	.53
SO3	(SULFITES)	9.34	2.20	9.66

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	2.80	1.16
DOLOMITE	.21	.06
HYDROGEN/CARBON	.84	.84
OXYGEN/CARBON	.06	.05
R250	.26	.47
SILICA	.20	.39
SILICA/ALUMINA	2.50	2.70

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	--	1860	2050
SOFTENING TEMPERATURE	(ST)	1970	1950	2130
FLUID TEMPERATURE	(FT)	--	2040	2200

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	.09	--	--
NA (SODIUM)	(CALCULATED)	.07	.01	.01
MINERAL MATTER	(PARR)	17.25	8.72	83.14

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	8 1/2	8	--
HARDGROVE GRINDABILITY	(HGI)	54	55	--

STATE: MISSOURI
COUNTY: VERNON

BED: FLEMING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 499
SAMPLE NO. 694

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	26.5	29.0	4.7	1.63	3.45	14134	4.9
FLOAT 1.40	78.6	83.1	7.6	2.40	4.21	13628	6.2
FLOAT 1.60	92.0	95.5	9.0	3.18	5.04	13384	7.5
CUM(1-1/2" X 100M)	100.0	100.0	11.8	4.29	6.17	12896	9.6
100M X 0	.9	.7	25.4	3.57	6.66	10525	12.7
TOTAL(1-1/2" X 0)	100.0	100.0	11.9	4.28	6.17	12875	9.6

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.7	42.4	4.1	1.46	3.42	14239	4.8
FLOAT 1.40	79.4	84.4	6.6	2.26	4.27	13803	6.2
FLOAT 1.60	89.7	94.0	7.7	2.90	4.95	13611	7.3
CUM(3/8" X 100M)	100.0	100.0	11.3	4.11	6.13	12983	9.4
100M X 0	4.3	3.8	19.4	3.76	6.58	11571	11.4
TOTAL(3/8" X 0)	100.0	100.0	11.6	4.09	6.15	12922	9.5

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	43.8	48.7	3.4	1.09	3.11	14361	4.3
FLOAT 1.40	75.8	82.0	5.6	1.81	3.93	13977	5.6
FLOAT 1.60	87.6	93.3	6.9	2.42	4.53	13750	6.6
CUM(14M X 0)	100.0	100.0	11.7	4.16	6.19	12913	9.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	78.4
3/8" X 14M	16.5
14M X 100M	4.2
100M X 0	.9

MOISTURE, %

TOTAL	3.7
AS RECEIVED	2.9

STATE: MISSOURI
COUNTY: VERNON

BED: FLEMING
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 499
SAMPLE NO. 694

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.90	2.40	2.50	--	--	--	--	--	--
ASH	11.46	7.00	45.53	11.80	7.18	46.70	--	--	--
VOLATILE MATTER	42.64	43.92	35.20	43.91	45.00	36.10	49.78	48.48	67.73
FIXED CARBON	43.01	46.68	16.77	44.29	47.82	17.20	50.22	51.52	32.27
BTU/LB	12275	13592	6670	12642	13927	6841	14333	15003	12835

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	5.85	4.40	17.54	6.02	4.51	17.99	6.83	4.86	33.75
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	11.46	7.00	45.53	11.80	7.18	46.70	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.91	2.52	16.04	4.03	2.58	16.45	4.57	2.78	30.87
SULFATIC	.19	.13	.26	.20	.13	.27	.23	.14	.51
ORGANIC	1.74	1.76	1.23	1.79	1.80	1.26	2.03	1.94	2.37
TOTAL	5.85	4.40	17.54	6.02	4.51	17.99	6.83	4.86	33.75

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2100	2000	2030
SOFTENING TEMPERATURE (ST)	2150	2050	2310
FLUID TEMPERATURE (FT)	2200	2100	2500

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	16.06	10.23	60.33

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7 1/2	7 1/2	1
HARDGROVE GRINDABILITY (HGI)	51	50	--

STATE: MISSOURI
COUNTY: BARTON

BED: KNIFETON
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 540
SAMPLE NO. 695

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	1.8	2.1	4.7	.94	1.94	14667	2.6
FLOAT 1.40	70.0	74.1	12.0	2.38	3.36	13295	5.1
FLOAT 1.60	94.8	97.8	13.8	3.02	3.97	12957	6.1
CUM(1-1/2" X 100M)	100.0	100.0	15.9	3.66	4.58	12563	7.3
100M X 0	1.8	1.6	25.0	8.88	10.26	10853	18.9
TOTAL(1-1/2" X 0)	100.0	100.0	16.1	3.75	4.68	12532	7.5

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.3	9.8	4.6	.87	1.84	14686	2.5
FLOAT 1.40	69.0	74.3	11.2	1.89	2.84	13446	4.2
FLOAT 1.60	93.2	97.0	13.6	2.56	3.50	12995	5.4
CUM(3/8" X 100M)	100.0	100.0	16.3	3.51	4.40	12488	7.0
100M X 0	6.1	5.4	24.2	8.44	9.70	11004	17.6
TOTAL(3/8" X 0)	100.0	100.0	16.8	3.81	4.72	12397	7.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	15.0	17.7	4.4	.79	1.84	14723	2.5
FLOAT 1.40	65.3	71.7	9.8	1.54	2.62	13709	3.8
FLOAT 1.60	88.4	93.6	12.4	2.04	3.10	13220	4.7
CUM(14M X 0)	100.0	100.0	16.3	3.65	4.68	12488	7.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	76.8
3/8" X 14M	17.2
14M X 100M	4.2
100M X 0	1.8

MOISTURE, %

TOTAL	3.4
AS RECEIVED	2.8

STATE: MISSOURI
COUNTY: BARTON

BED: KNIFETON
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 540
SAMPLE NO. 695

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.80	2.40	2.40	--	--	--	--	--	--
ASH	15.75	12.49	44.90	16.20	12.80	46.00	--	--	--
VOLATILE MATTER	33.62	35.05	22.45	34.58	35.92	23.00	41.27	41.19	42.59
FIXED CARBON	47.84	50.05	30.26	49.22	51.28	31.00	58.73	58.81	57.41
BTU/LB	12140	12844	6744	12490	13160	6910	14905	15092	12796

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.54	3.17	16.34	4.67	3.25	16.74	5.57	3.73	31.00
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	15.75	12.49	44.90	16.20	12.80	46.00	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.65	2.19	15.54	3.76	2.24	15.92	4.49	2.57	29.48
SULFATIC	.16	.14	.18	.16	.14	.18	.19	.16	.33
ORGANIC	.73	.84	.63	.75	.87	.64	.89	.99	1.19
TOTAL	4.54	3.17	16.34	4.67	3.25	16.74	5.57	3.73	31.00

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	1980	2030	1960
SOFTENING TEMPERATURE	(ST)	2030	2080	2010
FLUID TEMPERATURE	(FT)	2280	2280	2060

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	20.06	15.61	58.89

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	7 1/2	8	1
HARDGROVE GRINDABILITY	(HGI)	57	56	--

STATE: MISSOURI
COUNTY: BATES

BED: MULBERRY
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 482
SAMPLE NO. 696

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.4	34.7	4.9	1.34	3.37	14060	4.8
FLOAT 1.40	57.7	67.8	8.5	1.81	3.65	13520	5.4
FLOAT 1.60	83.3	92.4	13.3	2.50	4.23	12760	6.6
CUM(1-1/2" X 100M)	100.0	100.0	21.0	4.55	6.44	11500	11.2
100M X 0	1.4	1.0	42.0	4.78	6.59	7970	16.5
TOTAL(1-1/2" X 0)	100.0	100.0	21.3	4.55	6.44	11451	11.3

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.4	39.6	4.2	1.29	3.28	14030	4.7
FLOAT 1.40	63.0	74.7	7.6	1.76	3.66	13600	5.4
FLOAT 1.60	80.1	91.5	10.9	2.20	3.99	13100	6.1
CUM(3/8" X 100M)	100.0	100.0	20.8	4.44	6.36	11470	11.1
100M X 0	3.6	3.0	33.5	5.16	6.67	9500	14.0
TOTAL(3/8" X 0)	100.0	100.0	21.3	4.47	6.37	11399	11.2

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	28.3	34.4	7.2	1.44	3.31	13830	4.8
FLOAT 1.40	62.0	73.5	8.8	1.79	3.60	13510	5.3
FLOAT 1.60	79.1	90.4	11.9	2.27	3.98	13020	6.1
CUM(14M X 0)	100.0	100.0	21.7	4.99	6.73	11390	11.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	68.4
3/8" X 14M	24.7
14M X 100M	5.5
100M X 0	1.4

MOISTURE, %

TOTAL	7.5
AS RECEIVED	7.1

STATE: MISSOURI
COUNTY: BATES

BED: MULBERRY
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 482
SAMPLE NO. 696

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	7.10	4.10	2.50	--	--	--	--	--	--
ASH	19.69	10.96	59.61	21.20	11.42	61.14	--	--	--
VOLATILE MATTER	30.67	33.41	24.04	33.01	34.84	24.66	41.90	39.34	63.46
FIXED CARBON	42.54	51.53	13.85	45.79	53.73	14.20	58.10	60.66	36.54
BTU/LB	10649	12554	4800	11463	13090	4923	14547	14779	12669

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	57.99	68.00	19.67	62.42	70.91	20.18	79.22	80.05	51.92
HYDROGEN	4.59	4.94	2.14	4.10	4.67	1.91	5.20	5.28	4.92
NITROGEN	1.06	1.27	.37	1.14	1.33	.38	1.44	1.50	.98
SULFUR	6.13	3.47	15.98	6.60	3.62	16.39	8.38	4.09	42.17
OXYGEN	10.53	11.36	--	4.54	8.05	--	5.76	9.09	--
ASH	19.69	10.96	59.61	21.20	11.42	61.14	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.56	2.26	14.25	4.90	2.36	14.62	6.22	2.66	37.61
SULFATIC	.02	.02	.02	.02	.02	.02	.03	.02	.05
ORGANIC	1.56	1.19	1.71	1.68	1.24	1.75	2.13	1.40	4.51
TOTAL	6.13	3.47	15.98	6.60	3.62	16.39	8.38	4.09	42.17

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	34.01	47.30	30.26
AL2O3	(ALUMINUM OXIDE)	12.36	15.84	12.07
FE2O3	(IRON OXIDE)	33.32	27.45	33.46
TIO2	(TITANIUM OXIDE)	1.73	.93	.40
CAO	(CALCIUM OXIDE)	7.78	1.54	11.19
MGO	(MAGNESIUM OXIDE)	.95	1.13	.63
NA2O	(SODIUM OXIDE)	.66	.49	.22
K2O	(POTASSIUM OXIDE)	1.63	2.53	1.42
SO3	(SULFITES)	7.74	1.12	6.42

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.92	.52
DOLOMITE	.20	.08
HYDROGEN/CARBON	.79	.79
OXYGEN/CARBON	.05	.09
R250	.53	.69
SILICA	.45	.61
SILICA/ALUMINA	2.75	2.99

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	1870	1950	1860
SOFTENING TEMPERATURE	(ST)	1900	2060	1920
FLUID TEMPERATURE	(FT)	1960	2150	2010

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.08	--	--
NA (SODIUM) (CALCULATED)	.10	.04	.10
MINERAL MATTER (PARR)	26.53	14.33	75.05

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	5	5 1/2	--
HARDGROVE GRINDABILITY	(HGI)	55	55	--

STATE: MISSOURI
COUNTY: BARTON

BED: ROWE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 545
SAMPLE NO. 697

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	8.8	11.3	4.9	1.19	2.37	14493	3.3
FLOAT 1.40	54.3	65.1	10.0	2.87	4.10	13571	6.0
FLOAT 1.60	82.9	95.8	12.8	4.03	5.27	13065	8.1
CUM(1-1/2" X 100M)	100.0	100.0	22.5	4.70	5.83	11311	10.3
100M X 0	1.6	1.4	29.3	7.43	8.95	10082	17.8
TOTAL(1-1/2" X 0)	100.0	100.0	22.6	4.74	5.88	11291	10.4

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.4	28.7	4.4	.94	2.28	14584	3.1
FLOAT 1.40	59.6	72.6	8.5	2.11	3.40	13842	4.9
FLOAT 1.60	80.5	94.6	11.2	3.01	4.27	13354	6.4
CUM(3/8" X 100M)	100.0	100.0	22.2	4.21	5.34	11365	9.4
100M X 0	5.6	5.1	28.3	7.03	8.54	10263	16.6
TOTAL(3/8" X 0)	100.0	100.0	22.5	4.37	5.52	11304	9.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.4	26.5	3.3	.68	1.96	14783	2.7
FLOAT 1.40	54.4	67.3	7.2	1.55	2.85	14077	4.0
FLOAT 1.60	75.4	89.8	10.1	2.42	3.71	13553	5.5
CUM(14M X 0)	100.0	100.0	22.1	4.72	5.81	11383	10.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	73.4
3/8" X 14M	20.3
14M X 100M	4.7
100M X 0	1.6

MOISTURE, %

TOTAL	1.9
AS RECEIVED	1.5

STATE: MISSOURI
COUNTY: BARTON

BED: ROWE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 545
SAMPLE NO. 697

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.50	1.40	1.30	--	--	--	--	--	--
ASH	22.66	10.16	60.31	23.00	10.30	61.10	--	--	--
VOLATILE MATTER	32.01	36.68	18.26	32.50	37.20	18.50	42.21	41.47	47.56
FIXED CARBON	43.83	51.77	20.13	44.50	52.50	20.40	57.79	58.53	52.44
BTU/LB	11101	13291	4264	11270	13480	4320	14636	15028	11105

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	5.47	3.51	12.16	5.55	3.56	12.32	7.21	3.97	31.66
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	22.66	10.16	60.31	23.00	10.30	61.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.79	2.39	11.62	4.86	2.42	11.77	6.31	2.70	30.26
SULFATIC	.16	.09	.05	.16	.09	.05	.21	.10	.14
ORGANIC	.52	1.04	.49	.53	1.05	.49	.69	1.17	1.27
TOTAL	5.47	3.51	12.16	5.55	3.56	12.32	7.21	3.97	31.66

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2100	2060	2080
SOFTENING TEMPERATURE (ST)	2200	2160	2180
FLUID TEMPERATURE (FT)	2520	2450	2460

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	27.89	13.08	72.76

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	8	--
HARDGROVE GRINDABILITY (HGI)	57	56	--

STATE: MISSOURI
COUNTY: BARTON

BED: ROWE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 545
SAMPLE NO. 698

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, %		ASH, %	SULFUR, %		HEATING VALUE	SO2 EMISSION
	WEIGHT	BTU		PYRITIC	TOTAL	BTU/LB	LB/MM BTU
FLOAT 1.30	10.2	13.5	4.9	1.31	2.19	14710	3.0
FLOAT 1.40	51.8	64.4	9.8	2.71	3.70	13850	5.3
FLOAT 1.60	78.2	93.8	12.7	3.93	4.80	13360	7.2
CUM(1-1/2" X 100M)	100.0	100.0	25.7	4.76	5.47	11140	9.8
100M X 0	3.5	3.8	18.2	5.19	5.85	12230	9.6
TOTAL(1-1/2" X 0)	100.0	100.0	25.4	4.78	5.48	11178	9.8

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, %		ASH, %	SULFUR, %		HEATING VALUE	SO2 EMISSION
	WEIGHT	BTU		PYRITIC	TOTAL	BTU/LB	LB/MM BTU
FLOAT 1.30	20.0	25.9	5.0	1.25	2.24	14680	3.1
FLOAT 1.40	55.1	68.3	8.8	2.31	3.25	14030	4.6
FLOAT 1.60	77.9	93.0	11.7	3.29	4.11	13510	6.1
CUM(3/8" X 100M)	100.0	100.0	24.4	4.50	5.16	11320	9.1
100M X 0	6.4	6.8	19.3	6.02	6.54	12090	10.8
TOTAL(3/8" X 0)	100.0	100.0	24.1	4.60	5.25	11369	9.2

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, %		ASH, %	SULFUR, %		HEATING VALUE	SO2 EMISSION
	WEIGHT	BTU		PYRITIC	TOTAL	BTU/LB	LB/MM BTU
FLOAT 1.30	24.0	29.8	8.3	1.67	2.56	14100	3.6
FLOAT 1.40	59.6	71.4	11.2	2.67	3.50	13590	5.2
FLOAT 1.60	79.6	92.4	13.6	3.36	4.16	13170	6.3
CUM(14M X 0)	100.0	100.0	24.2	5.13	5.92	11340	10.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, % — SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	68.1
3/8" X 14M	23.6
14M X 100M	4.8
100M X 0	3.5

MOISTURE, %

TOTAL	2.6
AS RECEIVED	2.2

STATE: MISSOURI
COUNTY: BARTON

BED: ROWE
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 545
SAMPLE NO. 698

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.20	1.50	1.50	--	--	--	--	--	--
ASH	23.60	12.86	62.15	24.13	13.06	63.10	--	--	--
VOLATILE MATTER	30.68	35.84	13.69	31.37	36.38	13.90	41.35	41.84	37.67
FIXED CARBON	43.52	49.80	22.66	44.50	50.56	23.00	58.65	58.16	62.33
BTU/LB	11101	13054	4432	11350	13253	4499	14960	15243	12194

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	60.92	71.78	22.87	62.29	72.88	23.22	82.10	83.82	62.93
HYDROGEN	4.62	5.30	2.07	4.48	5.21	1.94	5.90	5.99	5.25
NITROGEN	.88	1.07	.18	.90	1.09	.18	1.18	1.25	.50
SULFUR	5.69	3.72	11.39	5.82	3.78	11.56	7.67	4.35	31.34
OXYGEN	4.29	5.26	--	2.39	3.99	--	3.14	4.59	--
ASH	23.60	12.86	62.15	24.13	13.06	63.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.96	3.00	10.67	5.08	3.05	10.83	6.69	3.51	29.36
SULFATIC	.03	.03	.05	.04	.03	.05	.05	.03	.14
ORGANIC	.69	.69	.67	.71	.70	.68	.94	.81	1.84
TOTAL	5.69	3.72	11.39	5.82	3.78	11.56	7.67	4.35	31.34

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	43.32	40.48	42.19
AL2O3	(ALUMINUM OXIDE)	20.94	22.63	19.99
FE2O3	(IRON OXIDE)	27.07	30.31	28.02
TIO2	(TITANIUM OXIDE)	1.55	1.13	.93
CAO	(CALCIUM OXIDE)	1.96	1.68	2.91
MGO	(MAGNESIUM OXIDE)	1.01	.80	.83
NA2O	(SODIUM OXIDE)	.54	.05	.03
K2O	(POTASSIUM OXIDE)	2.14	1.95	2.22
SO3	(SULFITES)	1.71	.92	2.22

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.50	.54
DOLOMITE	.09	.07
HYDROGEN/CARBON	.86	.86
OXYGEN/CARBON	.03	.04
R250	.69	.66
SILICA	.59	.55
SILICA/ALUMINA	2.07	1.79

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	1830	1870
SOFTENING TEMPERATURE (ST)	2060	1950	1980
FLUID TEMPERATURE (FT)	--	2090	2090

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.13	--	--
NA (SODIUM) (CALCULATED)	.10	.00	.01
MINERAL MATTER (PARR)	29.26	16.18	74.51

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	6 1/2	9	--
HARDGROVE GRINDABILITY (HGI)	54	53	--

STATE: MISSOURI
COUNTY: HENRY

BED: TEBO
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 509
SAMPLE NO. 699

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	41.2	46.5	7.8	.48	2.38	13577	3.5
FLOAT 1.40	75.0	82.5	9.9	.81	2.65	13230	4.0
FLOAT 1.60	85.3	92.3	11.2	1.08	2.86	13015	4.4
FLOAT 1.90	90.3	96.1	12.5	1.29	3.02	12801	4.7
CUM(1-1/2" X 100M)	100.0	100.0	17.2	3.23	4.87	12024	8.1
100M X 0	.1	.1	24.9	2.41	3.67	10753	6.8
TOTAL(1-1/2" X 0)	100.0	100.0	17.2	3.23	4.87	12023	8.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.9	54.7	6.3	.43	2.37	13824	3.4
FLOAT 1.40	74.0	82.5	8.3	.66	2.57	13494	3.8
FLOAT 1.60	84.3	92.4	9.7	.93	2.78	13263	4.2
FLOAT 1.90	90.3	96.1	12.5	1.29	3.02	12801	4.7
CUM(3/8" X 100M)	100.0	100.0	16.7	2.80	4.51	12107	7.5
100M X 0	.6	.5	24.8	3.16	4.72	10769	8.8
TOTAL(3/8" X 0)	100.0	100.0	16.7	2.80	4.51	12099	7.5

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.1	56.9	5.7	.35	2.30	13924	3.3
FLOAT 1.40	69.5	79.1	7.1	.51	2.43	13692	3.5
FLOAT 1.60	81.7	91.2	8.7	.71	2.58	13428	3.8
FLOAT 1.90	90.3	96.1	12.5	1.29	3.02	12801	4.7
CUM(14M X 0)	100.0	100.0	17.2	2.96	4.65	12024	7.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.1

MOISTURE, %

TOTAL	2.1
AS RECEIVED	1.3

STATE: MISSOURI
COUNTY: HENRY

BED: TEBO
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 509
SAMPLE NO. 699

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.30	--	--	--	--	--	--	--	--
ASH	17.66	--	--	17.89	--	--	--	--	--
VOLATILE MATTER	38.43	--	--	38.94	--	--	47.42	--	--
FIXED CARBON	42.61	--	--	43.17	--	--	52.58	--	--
BTU/LB	11755	--	--	11910	--	--	14505	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	4.87	--	--	4.93	--	--	6.00	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	17.66	--	--	17.89	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.02	--	--	3.06	--	--	3.73	--	--
SULFATIC	.18	--	--	.18	--	--	.22	--	--
ORGANIC	1.67	--	--	1.69	--	--	2.06	--	--
TOTAL	4.87	--	--	4.93	--	--	6.00	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	22.03	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: MISSOURI
COUNTY: HENRY

BED: TEBO
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 509
SAMPLE NO. 700

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	36.9	44.0	6.3	.50	3.11	13824	4.5
FLOAT 1.40	70.1	81.9	8.0	.92	3.57	13544	5.3
FLOAT 1.60	80.3	92.1	9.5	1.21	3.85	13296	5.8
CUM(1-1/2" X 100M)	100.0	100.0	19.8	2.88	5.28	11595	9.1
100M X 0	2.4	2.0	31.0	3.72	6.98	9745	14.3
TOTAL(1-1/2" X 0)	100.0	100.0	20.1	2.90	5.32	11550	9.2

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	42.2	50.4	6.0	.54	3.10	13874	4.5
FLOAT 1.40	69.8	82.0	7.4	.86	3.46	13643	5.1
FLOAT 1.60	79.6	91.8	8.9	1.16	3.73	13395	5.6
CUM(3/8" X 100M)	100.0	100.0	19.7	2.94	5.30	11611	9.1
100M X 0	3.1	2.6	30.0	3.85	7.09	9910	14.3
TOTAL(3/8" X 0)	100.0	100.0	20.0	2.97	5.36	11559	9.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.4	36.5	5.5	.55	3.22	13957	4.6
FLOAT 1.40	64.8	76.7	6.7	.60	3.31	13758	4.8
FLOAT 1.60	78.8	91.0	8.7	1.04	3.62	13428	5.4
CUM(14M X 0)	100.0	100.0	19.6	2.88	5.40	11628	9.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	--

MOISTURE, %

TOTAL	4.6
AS RECEIVED	4.1

STATE: MISSOURI
COUNTY: HENRY

BED: TEBO
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 509
SAMPLE NO. 700

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.10	4.00	3.90	--	--	--	--	--	--
ASH	19.37	8.64	55.46	20.20	9.00	57.71	--	--	--
VOLATILE MATTER	36.83	40.51	--	38.40	42.20	--	48.12	46.37	--
FIXED CARBON	39.70	46.85	--	41.40	48.80	--	51.88	53.63	--
BTU/LB	10693	12403	--	11150	12920	--	13972	14198	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	5.14	3.49	11.57	5.36	3.64	12.04	6.71	4.00	28.47
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	19.37	8.64	55.46	20.20	9.00	57.71	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.93	.97	9.34	3.06	1.01	9.72	3.83	1.11	22.98
SULFATIC	.22	.24	.22	.23	.25	.23	.29	.27	.55
ORGANIC	1.98	2.28	2.01	2.07	2.38	2.09	2.59	2.62	4.94
TOTAL	5.14	3.49	11.57	5.36	3.64	12.04	6.71	4.00	28.47

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1980	2020	--
SOFTENING TEMPERATURE (ST)	2040	2130	--
FLUID TEMPERATURE (FT)	2120	2360	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	24.76	11.72	68.95

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	2 1/2	2 1/2	--
HARDGROVE GRINDABILITY (HGI)	58	54	--

STATE: MISSOURI
COUNTY: HENRY

BED: TEBO
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 509
SAMPLE NO. 701

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	47.1	54.4	7.0	.79	2.57	13840	3.7
FLOAT 1.40	72.4	81.8	9.0	1.20	2.93	13550	4.3
FLOAT 1.60	84.6	93.2	11.1	1.59	3.29	13210	5.0
CUM(1-1/2" X 100M)	100.0	100.0	18.4	3.53	5.27	11990	8.8
100M X 0	1.8	1.5	30.7	3.29	5.61	9920	11.3
TOTAL(1-1/2" X 0)	100.0	100.0	18.6	3.53	5.28	11953	8.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.1	54.7	6.0	.79	2.60	14120	3.7
FLOAT 1.40	72.3	84.2	7.7	1.04	2.83	13850	4.1
FLOAT 1.60	82.9	94.2	9.7	1.33	3.04	13510	4.5
CUM(3/8" X 100M)	100.0	100.0	19.5	3.76	5.32	11890	8.9
100M X 0	6.8	6.8	26.3	3.64	5.48	11830	9.3
TOTAL(3/8" X 0)	100.0	100.0	20.0	3.75	5.33	11886	9.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.7	55.0	5.8	.88	2.61	14140	3.7
FLOAT 1.40	75.6	86.4	8.1	1.19	2.89	13730	4.2
FLOAT 1.60	83.9	94.3	9.6	1.42	3.08	13500	4.6
CUM(14M X 0)	100.0	100.0	18.5	3.75	5.34	12010	8.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	67.1
3/8" X 14M	25.6
14M X 100M	5.5
100M X 0	1.8

MOISTURE, %

TOTAL	6.7
AS RECEIVED	5.6

STATE: MISSOURI
COUNTY: HENRY

BED: TEBO
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 509
SAMPLE NO. 701

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.60	3.10	2.90	--	--	--	--	--	--
ASH	17.84	8.93	64.47	18.90	9.22	66.40	--	--	--
VOLATILE MATTER	36.88	40.43	25.44	39.06	41.72	26.20	48.17	45.96	77.98
FIXED CARBON	39.68	47.54	7.19	42.04	49.06	7.40	51.83	54.04	22.02
BTU/LB	11282	13137	3944	11951	13557	4062	14736	14934	12088

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	61.60	71.57	16.39	65.25	73.86	16.88	80.46	81.36	50.24
HYDROGEN	4.96	5.41	1.72	4.60	5.23	1.44	5.67	5.76	4.27
NITROGEN	.95	1.14	.16	1.01	1.18	.17	1.24	1.30	.50
SULFUR	5.13	2.69	14.96	5.44	2.78	15.41	6.70	3.06	45.85
OXYGEN	9.51	10.25	--	4.81	7.73	--	5.93	8.52	--
ASH	17.84	8.93	64.47	18.90	9.22	66.40	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.59	1.25	13.89	3.80	1.29	14.30	4.69	1.42	42.57
SULFATIC	.02	.01	.10	.03	.01	.10	.03	.01	.29
ORGANIC	1.52	1.43	.98	1.61	1.48	1.00	1.99	1.63	2.99
TOTAL	5.13	2.69	14.96	5.44	2.78	15.41	6.70	3.06	45.85

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	33.53	52.41	22.59
AL2O3	(ALUMINUM OXIDE)	12.58	17.35	10.56
FE2O3	(IRON OXIDE)	23.98	16.59	32.89
TIO2	(TITANIUM OXIDE)	1.07	1.43	.40
CAO	(CALCIUM OXIDE)	14.00	3.08	18.47
MGO	(MAGNESIUM OXIDE)	1.01	.86	.46
NA2O	(SODIUM OXIDE)	.47	.05	.05
K2O	(POTASSIUM OXIDE)	1.54	2.89	.89
SO3	(SULFITES)	10.83	2.89	14.64

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.87	.33
DOLOMITE	.37	.17
HYDROGEN/CARBON	.85	.85
OXYGEN/CARBON	.06	.08
R250	.55	.78
SILICA	.46	.72
SILICA/ALUMINA	2.67	3.02

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1940	1790	1920
SOFTENING TEMPERATURE (ST)	2030	1960	2030
FLUID TEMPERATURE (FT)	2090	2090	2120

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.07	--	--
NA (SODIUM) (CALCULATED)	.07	.00	.02
MINERAL MATTER (PARR)	23.40	11.48	80.03

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7 1/2	5	--
HARDGROVE GRINDABILITY (HGI)	53	49	--

STATE: MISSOURI
COUNTY: HENRY

BED: WEIR-PITTSBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 513
SAMPLE NO. 702

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.2	24.0	6.8	3.07	4.44	13840	6.4
FLOAT 1.40	63.9	72.2	11.0	4.01	5.51	13160	8.4
FLOAT 1.60	77.4	85.6	12.7	4.54	6.09	12890	9.4
CUM(1-1/2" X 100M)	100.0	100.0	19.3	7.53	10.48	11650	18.0
100M X 0	1.8	1.5	28.2	8.62	11.45	9910	23.1
TOTAL(1-1/2" X 0)	100.0	100.0	19.5	7.55	10.50	11619	18.1

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	18.5	22.4	5.1	2.38	3.66	14210	5.2
FLOAT 1.40	60.9	70.8	8.9	3.38	4.74	13620	7.0
FLOAT 1.60	80.8	90.8	11.6	4.19	5.67	13160	8.6
CUM(3/8" X 100M)	100.0	100.0	19.3	7.76	10.30	11710	17.6
100M X 0	4.5	4.2	23.4	8.86	10.98	10990	20.0
TOTAL(3/8" X 0)	100.0	100.0	19.5	7.81	10.33	11678	17.7

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	18.5	22.1	7.0	3.12	4.48	13850	6.5
FLOAT 1.40	58.9	68.4	9.1	3.61	4.98	13500	7.4
FLOAT 1.60	81.1	90.9	11.9	4.49	5.88	13020	9.0
CUM(14M X 0)	100.0	100.0	19.6	8.29	10.41	11620	17.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	71.9
3/8" X 14M	21.5
14M X 100M	4.8
100M X 0	1.8

MOISTURE, %

TOTAL	6.1
AS RECEIVED	5.2

STATE: MISSOURI
COUNTY: HENRY

BED: WEIR-PITTSBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 513
SAMPLE NO. 702

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.20	2.80	2.70	--	--	--	--	--	--
ASH	18.68	11.66	51.67	19.70	12.00	53.10	--	--	--
VOLATILE MATTER	36.32	39.74	27.05	38.32	40.88	27.80	47.72	46.46	59.28
FIXED CARBON	39.80	45.80	18.58	41.98	47.12	19.10	52.28	53.54	40.72
BTU/LB	11002	12641	5408	11606	13005	5558	14453	14779	11851

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	58.48	67.92	19.05	61.69	69.88	19.58	76.82	79.41	41.75
HYDROGEN	4.87	5.38	1.82	4.53	5.22	1.56	5.64	5.93	3.33
NITROGEN	1.02	1.20	.34	1.08	1.23	.35	1.35	1.40	.74
SULFUR	9.68	5.46	26.14	10.21	5.62	26.86	12.71	6.39	57.28
OXYGEN	7.28	8.37	--	2.80	6.05	--	3.49	6.88	--
ASH	18.68	11.66	51.67	19.70	12.00	53.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	7.85	4.19	21.54	8.28	4.31	22.14	10.31	4.90	47.20
SULFATIC	.18	.17	.27	.19	.17	.28	.24	.19	.59
ORGANIC	1.65	1.11	4.33	1.74	1.14	4.45	2.17	1.30	9.49
TOTAL	9.68	5.46	26.14	10.21	5.62	26.86	12.71	6.39	57.28

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	20.06	32.81	10.23
AL2O3	(ALUMINUM OXIDE)	10.46	13.20	6.03
FE2O3	(IRON OXIDE)	56.67	44.61	70.63
TIO2	(TITANIUM OXIDE)	2.14	.60	.27
CAO	(CALCIUM OXIDE)	4.76	1.79	6.72
MGO	(MAGNESIUM OXIDE)	.20	.56	.10
NA2O	(SODIUM OXIDE)	.34	.11	.03
K2O	(POTASSIUM OXIDE)	1.04	1.86	.36
SO3	(SULFITES)	4.14	1.34	4.42

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	1.93	1.05
DOLOMITE	.08	.05
HYDROGEN/CARBON	.88	.90
OXYGEN/CARBON	.03	.06
R250	.33	.50
SILICA	.25	.41
SILICA/ALUMINA	1.92	2.49

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1920	1930	2170
SOFTENING TEMPERATURE (ST)	2000	2010	2250
FLUID TEMPERATURE (FT)	2070	2090	2310

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.07	--	--
NA (SODIUM) (CALCULATED)	.05	.01	.01
MINERAL MATTER (PARR)	26.89	16.05	71.32

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	5 1/2	5	--
HARDGROVE GRINDABILITY (HGI)	46	43	--

STATE: OKLAHOMA
COUNTY: CRAIG

BED: CAVANAL
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 552
SAMPLE NO. 703

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	15.5	17.5	5.7	1.22	2.61	14154	3.7
FLOAT 1.40	77.1	83.0	9.3	2.94	4.29	13513	6.3
FLOAT 1.60	90.2	95.2	10.8	3.66	5.00	13247	7.5
CUM(1-1/2" X 100M)	100.0	100.0	14.7	4.57	5.95	12552	9.5
100M X 0	1.3	.9	36.3	6.16	8.87	8708	20.4
TOTAL(1-1/2" X 0)	100.0	100.0	15.0	4.59	5.99	12502	9.6

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	33.8	38.2	5.0	1.08	2.50	14279	3.5
FLOAT 1.40	75.8	82.6	7.9	2.27	3.65	13763	5.3
FLOAT 1.60	88.6	94.6	9.5	3.09	4.44	13478	6.6
CUM(3/8" X 100M)	100.0	100.0	14.3	4.49	5.92	12624	9.4
100M X 0	5.5	4.5	27.6	6.67	8.56	10257	16.7
TOTAL(3/8" X 0)	100.0	100.0	15.0	4.61	6.07	12493	9.7

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	32.4	37.5	4.4	.90	2.32	14386	3.2
FLOAT 1.40	69.0	77.2	7.1	1.71	3.09	13905	4.4
FLOAT 1.60	84.5	92.4	8.9	2.65	3.94	13585	5.8
CUM(14M X 0)	100.0	100.0	15.4	4.80	6.14	12428	9.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	75.1
3/8" X 14M	18.1
14M X 100M	5.5
100M X 0	1.3

MOISTURE, %

TOTAL	2.9
AS RECEIVED	1.5

STATE: OKLAHOMA
COUNTY: CRAIG

BED: CAVANAL
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 552
SAMPLE NO. 703

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.50	1.60	1.40	--	--	--	--	--	--
ASH	14.87	8.76	49.69	15.10	8.90	50.40	--	--	--
VOLATILE MATTER	35.51	37.24	25.44	36.05	37.85	25.80	42.47	41.54	52.02
FIXED CARBON	48.11	52.40	23.47	48.85	53.25	23.80	57.53	58.46	47.98
BTU/LB	12144	13495	6135	12329	13714	6222	14522	15054	12544

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	5.87	3.88	17.92	5.96	3.94	18.18	7.01	4.32	36.65
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	14.87	8.76	49.69	15.10	8.90	50.40	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.49	2.55	16.29	4.56	2.59	16.52	5.37	2.84	33.31
SULFATIC	.12	.08	.17	.13	.08	.17	.15	.09	.34
ORGANIC	1.25	1.25	1.47	1.27	1.27	1.49	1.50	1.39	3.00
TOTAL	5.87	3.88	17.92	5.96	3.94	18.18	7.01	4.32	36.65

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	1900	1920	2090
SOFTENING TEMPERATURE	(ST)	1950	1970	2120
FLUID TEMPERATURE	(FT)	2000	2020	2150

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	19.58	11.78	64.43

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	8 1/2	8 1/2	--
HARDGROVE GRINDABILITY	(HGI)	57	53	--

STATE: OKLAHOMA
COUNTY: ROGERS

BED: CAVANAL
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 552
SAMPLE NO. 704

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	79.0	82.6	2.8	.04	.56	14654	.8
FLOAT 1.40	94.2	96.7	4.3	.05	.56	14386	.8
FLOAT 1.60	97.5	99.2	5.0	.05	.56	14262	.8
FLOAT 1.90	98.1	99.6	5.2	.06	.56	14226	.8
CUM(1-1/2" X 100M)	100.0	100.0	6.4	.07	.57	14012	.8
100M X 0	.1	.1	10.6	.35	.74	13263	1.1
TOTAL(1-1/2" X 0)	100.0	100.0	6.4	.07	.57	14011	.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	83.1	87.1	2.5	.03	.56	14707	.8
FLOAT 1.40	91.6	95.1	3.3	.03	.56	14565	.8
FLOAT 1.60	96.1	98.7	4.2	.04	.56	14404	.8
FLOAT 1.90	98.1	99.6	5.2	.06	.56	14226	.8
CUM(3/8" X 100M)	100.0	100.0	6.3	.06	.57	14030	.8
100M X 0	.6	.6	8.4	.23	.72	13655	1.1
TOTAL(3/8" X 0)	100.0	100.0	6.3	.06	.57	14028	.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	77.9	82.1	2.2	.02	.55	14761	.7
FLOAT 1.40	88.9	93.0	2.8	.01	.55	14654	.8
FLOAT 1.60	95.1	98.1	3.9	.02	.55	14458	.8
FLOAT 1.90	98.1	99.6	5.2	.06	.56	14226	.8
CUM(14M X 0)	100.0	100.0	6.4	.06	.58	14012	.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.1

MOISTURE, %

TOTAL	3.1
AS RECEIVED	1.7

STATE: OKLAHOMA
COUNTY: ROGERS

BED: CAVANAL
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 552
SAMPLE NO. 704

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.70	--	--	--	--	--	--	--	--
ASH	6.59	--	--	6.70	--	--	--	--	--
VOLATILE MATTER	33.42	--	--	34.00	--	--	36.44	--	--
FIXED CARBON	58.29	--	--	59.30	--	--	63.56	--	--
BTU/LB	13722	--	--	13959	--	--	14961	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	.54	--	--	.55	--	--	.59	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	6.59	--	--	6.70	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.07	--	--	.07	--	--	.08	--	--
SULFATIC	.01	--	--	.01	--	--	.01	--	--
ORGANIC	.46	--	--	.47	--	--	.50	--	--
TOTAL	.54	--	--	.55	--	--	.59	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	7.54	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: OKLAHOMA
COUNTY: OKMULGEE

BED: CROWEBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 496
SAMPLE NO. 705

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	81.8	85.4	2.5	.32	1.12	14520	1.5
FLOAT 1.40	93.2	96.4	3.3	.56	1.38	14390	1.9
FLOAT 1.60	96.1	98.9	3.7	.70	1.53	14320	2.1
CUM(1-1/2" X 100M)	100.0	100.0	6.1	1.14	1.98	13910	2.8
100M X 0	2.5	2.1	21.0	2.20	2.69	11440	4.7
TOTAL(1-1/2" X 0)	100.0	100.0	6.5	1.17	2.00	13848	2.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	76.0	79.7	2.0	.31	1.03	14540	1.4
FLOAT 1.40	93.4	96.8	3.0	.62	1.32	14370	1.8
FLOAT 1.60	95.6	98.8	3.3	.72	1.42	14330	2.0
CUM(3/8" X 100M)	100.0	100.0	6.0	1.20	1.91	13870	2.8
100M X 0	4.2	3.6	17.7	2.14	2.67	11910	4.5
TOTAL(3/8" X 0)	100.0	100.0	6.5	1.24	1.94	13788	2.8

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	71.4	74.9	2.4	.28	1.10	14480	1.5
FLOAT 1.40	91.1	94.7	3.2	.49	1.27	14360	1.8
FLOAT 1.60	95.6	98.8	3.7	.61	1.38	14270	1.9
CUM(14M X 0)	100.0	100.0	6.4	1.14	1.91	13810	2.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	64.7
3/8" X 14M	25.7
14M X 100M	7.1
100M X 0	2.5

MOISTURE, %

TOTAL	5.2
AS RECEIVED	4.6

STATE: OKLAHOMA
COUNTY: OKMULGEE

BED: CROWEBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 496
SAMPLE NO. 705

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.60	3.70	3.40	--	--	--	--	--	--
ASH	6.01	3.42	60.34	6.30	3.55	62.46	--	--	--
VOLATILE MATTER	35.59	36.31	28.05	37.30	37.70	29.04	39.81	39.09	77.36
FIXED CARBON	53.80	56.57	8.21	56.40	58.75	8.50	60.19	60.91	22.64
BTU/LB	13189	13763	3960	13825	14292	4100	14754	14818	10921

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	72.90	75.99	22.71	76.42	78.91	23.51	81.56	81.82	62.62
HYDROGEN	5.19	5.31	1.38	4.90	5.08	1.04	5.23	5.27	2.77
NITROGEN	1.77	1.86	.27	1.86	1.94	.28	1.98	2.01	.76
SULFUR	1.85	1.27	12.28	1.94	1.32	12.71	2.07	1.37	33.86
OXYGEN	12.28	12.14	--	8.58	9.20	--	9.16	9.53	--
ASH	6.01	3.42	60.34	6.30	3.55	62.46	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.06	.53	11.57	1.11	.55	11.98	1.18	.57	31.90
SULFATIC	.00	.00	.01	.01	.00	.01	.01	.00	.03
ORGANIC	.78	.74	.70	.82	.77	.72	.88	.80	1.93
TOTAL	1.85	1.27	12.28	1.94	1.32	12.71	2.07	1.37	33.86

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	28.68	38.35	6.82
AL2O3	(ALUMINUM OXIDE)	16.33	21.50	2.64
FE2O3	(IRON OXIDE)	29.79	24.45	34.32
TIO2	(TITANIUM OXIDE)	1.22	1.67	2.10
CAO	(CALCIUM OXIDE)	13.58	2.85	33.58
MGO	(MAGNESIUM OXIDE)	1.31	1.66	2.62
NA2O	(SODIUM OXIDE)	1.13	.63	.32
K2O	(POTASSIUM OXIDE)	1.94	3.01	.27
SO3	(SULFITES)	6.08	2.57	13.87

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	1.03	.53
DOLOMITE	.31	.14
HYDROGEN/CARBON	.77	.77
OXYGEN/CARBON	.08	.09
R250	.51	.69
SILICA	.39	.57
SILICA/ALUMINA	1.76	1.78

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2010	1940	--
SOFTENING TEMPERATURE (ST)	2130	1980	--
FLUID TEMPERATURE (FT)	2220	2030	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.24	--	--
NA (SODIUM) (CALCULATED)	.05	.02	.15
MINERAL MATTER (PARR)	7.87	4.56	74.45

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	3 1/2	5	1
HARDGROVE GRINDABILITY (HGI)	50	--	--

STATE: OKLAHOMA
COUNTY: ROGERS

BED: CROWEBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 496
SAMPLE NO. 706

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	71.3	76.1	2.9	.06	.56	14630	.8
FLOAT 1.40	89.0	93.3	4.5	.07	.56	14360	.8
FLOAT 1.60	95.9	98.7	5.7	.07	.56	14100	.8
CUM(1-1/2" X 100M)	100.0	100.0	7.5	.10	.58	13700	.8
100M X 0	4.0	3.9	10.0	.11	.54	13450	.8
TOTAL(1-1/2" X 0)	100.0	100.0	7.6	.10	.58	13690	.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	78.2	84.0	2.3	.04	.57	14720	.8
FLOAT 1.40	88.7	94.3	3.3	.05	.57	14570	.8
FLOAT 1.60	93.6	98.2	4.2	.05	.57	14380	.8
CUM(3/8" X 100M)	100.0	100.0	7.1	.09	.59	13710	.9
100M X 0	6.6	6.4	10.7	.10	.57	13300	.9
TOTAL(3/8" X 0)	100.0	100.0	7.3	.09	.59	13683	.9

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	75.3	80.7	2.7	.04	.62	14680	.8
FLOAT 1.40	90.1	95.8	3.3	.04	.61	14560	.8
FLOAT 1.60	93.5	98.7	3.9	.05	.61	14460	.8
CUM(14M X 0)	100.0	100.0	7.2	.09	.63	13700	.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	31.2
3/8" X 14M	48.3
14M X 100M	16.5
100M X 0	4.0

MOISTURE, %

TOTAL	5.7
AS RECEIVED	4.2

STATE: OKLAHOMA
COUNTY: ROGERS

BED: CROWEBURG
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 496
SAMPLE NO. 706

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.20	3.70	3.00	--	--	--	--	--	--
ASH	7.17	3.61	55.15	7.49	3.74	56.86	--	--	--
VOLATILE MATTER	36.23	36.59	36.90	37.82	38.00	38.04	40.88	39.48	88.18
FIXED CARBON	52.39	56.10	4.95	54.69	58.26	5.10	59.12	60.52	11.82
BTU/LB	13084	13948	2555	13657	14483	2634	14763	15047	6106

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	73.66	78.06	20.21	76.89	81.06	20.84	83.12	84.21	48.30
HYDROGEN	5.03	5.27	1.69	4.76	5.04	1.40	5.15	5.24	3.24
NITROGEN	2.00	2.14	.29	2.08	2.22	.30	2.25	2.30	.70
SULFUR	.52	.55	.89	.54	.57	.92	.58	.59	2.13
OXYGEN	11.62	10.38	21.76	8.24	7.37	19.69	8.90	7.65	45.63
ASH	7.17	3.61	55.15	7.49	3.74	56.86	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.09	.05	.65	.09	.05	.67	.10	.05	1.54
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.42	.49	.24	.44	.51	.24	.48	.53	.56
TOTAL	.52	.55	.89	.54	.57	.92	.58	.59	2.13

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	40.97	52.42	35.00
AL2O3	(ALUMINUM OXIDE)	15.88	24.14	7.92
FE2O3	(IRON OXIDE)	5.22	5.15	4.58
TIO2	(TITANIUM OXIDE)	.73	1.80	.18
CAO	(CALCIUM OXIDE)	25.34	5.01	48.42
MGO	(MAGNESIUM OXIDE)	1.82	1.62	1.23
NA2O	(SODIUM OXIDE)	.86	.73	.05
K2O	(POTASSIUM OXIDE)	2.03	3.37	.55
SO3	(SULFITES)	5.28	2.68	1.89

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.61	.20
DOLOMITE	.77	.42
HYDROGEN/CARBON	.74	.75
OXYGEN/CARBON	.08	.07
R250	.65	.88
SILICA	.56	.81
SILICA/ALUMINA	2.58	2.17

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	2190	2620
SOFTENING TEMPERATURE (ST)	2210	2300	2690
FLUID TEMPERATURE (FT)	--	2410	2750

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.31	--	--
NA (SODIUM) (CALCULATED)	.05	.02	.02
MINERAL MATTER (PARR)	8.38	4.36	61.91

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7 1/2	5	--
HARDGROVE GRINDABILITY (HGI)	64	56	--

STATE: OKLAHOMA
COUNTY: WAGONER

BED: CROWEBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 496
SAMPLE NO. 707

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	92.3	94.4	3.8	.07	.51	14470	.7
FLOAT 1.40	96.5	98.2	4.2	.07	.52	14400	.7
FLOAT 1.60	98.3	99.6	4.5	.08	.52	14340	.7
CUM(1-1/2" X 100M)	100.0	100.0	5.3	.09	.53	14150	.7
100M X 0	1.4	1.0	26.3	.54	.89	10430	1.7
TOTAL(1-1/2" X 0)	100.0	100.0	5.6	.10	.54	14098	.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	84.5	87.3	2.8	.08	.51	14650	.7
FLOAT 1.40	96.1	98.1	3.9	.09	.51	14480	.7
FLOAT 1.60	97.9	99.6	4.2	.09	.51	14420	.7
CUM(3/8" X 100M)	100.0	100.0	5.3	.10	.52	14180	.7
100M X 0	3.2	2.7	17.1	.31	.71	12070	1.2
TOTAL(3/8" X 0)	100.0	100.0	5.7	.11	.53	14112	.7

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	84.2	87.0	2.8	.07	.49	14550	.7
FLOAT 1.40	94.2	96.8	3.5	.08	.50	14470	.7
FLOAT 1.60	97.2	99.3	3.9	.08	.50	14390	.7
CUM(14M X 0)	100.0	100.0	5.3	.11	.52	14080	.7

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	68.1
3/8" X 14M	25.2
14M X 100M	5.3
100M X 0	1.4

MOISTURE, %

TOTAL	5.6
AS RECEIVED	4.5

STATE: OKLAHOMA
COUNTY: WAGONER

BED: CROWEBURG
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 496
SAMPLE NO. 707

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.50	3.20	3.80	--	--	--	--	--	--
ASH	5.26	3.62	53.93	5.51	3.74	56.06	--	--	--
VOLATILE MATTER	34.16	34.59	35.44	35.77	35.73	36.84	37.85	37.12	83.84
FIXED CARBON	56.08	58.59	6.83	58.72	60.53	7.10	62.15	62.88	16.16
BTU/LB	13416	13952	3043	14048	14413	3163	14868	14974	7199

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	75.05	77.98	20.60	78.58	80.56	21.41	83.17	83.69	48.72
HYDROGEN	4.35	4.39	1.77	4.03	4.17	1.40	4.26	4.33	3.19
NITROGEN	1.88	1.97	.19	1.97	2.03	.20	2.09	2.11	.46
SULFUR	.48	.45	1.17	.50	.46	1.21	.53	.48	2.76
OXYGEN	12.98	11.59	22.35	9.40	9.03	19.72	9.95	9.38	44.87
ASH	5.26	3.62	53.93	5.51	3.74	56.06	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.10	.07	1.11	.11	.07	1.15	.12	.07	2.62
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.02
ORGANIC	.36	.37	.05	.38	.38	.05	.40	.39	.12
TOTAL	.48	.45	1.17	.50	.46	1.21	.53	.48	2.76

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	45.17	34.94	39.20
AL2O3	(ALUMINUM OXIDE)	18.90	24.51	9.81
FE2O3	(IRON OXIDE)	6.15	5.43	4.86
TIO2	(TITANIUM OXIDE)	.90	1.90	.18
CAO	(CALCIUM OXIDE)	19.88	3.92	41.98
MGO	(MAGNESIUM OXIDE)	1.41	1.69	.60
NA2O	(SODIUM OXIDE)	.94	1.00	.03
K2O	(POTASSIUM OXIDE)	2.21	3.61	.41
SO3	(SULFITES)	3.43	1.93	1.41

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.47	.26
DOLOMITE	.70	.36
HYDROGEN/CARBON	.62	.62
OXYGEN/CARBON	.09	.08
R250	.71	.86
SILICA	.62	.76
SILICA/ALUMINA	2.39	1.43

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	--	2200	2450
SOFTENING TEMPERATURE	(ST)	2140	2310	2540
FLUID TEMPERATURE	(FT)	--	2450	2620

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	.27	--	--
NA (SODIUM)	(CALCULATED)	.04	.03	.01
MINERAL MATTER	(PARR)	6.23	4.30	61.21

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	5	4 1/2	--
HARDGROVE GRINDABILITY	(HGI)	53	48	--

STATE: OKLAHOMA
COUNTY: CRAIG

BED: MULKY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 490
SAMPLE NO. 708

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	84.0	87.1	3.4	.90	2.84	14520	3.9
FLOAT 1.40	93.3	96.0	4.0	1.08	3.01	14414	4.2
FLOAT 1.60	96.0	98.2	4.5	1.19	3.09	14326	4.3
CUM(1-1/2" X 100M)	100.0	100.0	6.3	1.32	3.17	14008	4.5
100M X 0	.9	.7	19.8	2.24	4.81	11624	8.3
TOTAL(1-1/2" X 0)	100.0	100.0	6.4	1.33	3.18	13987	4.6

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	82.9	86.7	2.7	.83	2.79	14644	3.8
FLOAT 1.40	90.9	94.3	3.3	1.00	2.94	14538	4.0
FLOAT 1.60	94.5	97.5	3.8	1.14	3.06	14450	4.2
CUM(3/8" X 100M)	100.0	100.0	6.3	1.29	3.15	14008	4.5
100M X 0	2.2	2.0	12.7	1.97	3.89	12878	6.0
TOTAL(3/8" X 0)	100.0	100.0	6.4	1.30	3.17	13983	4.5

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	81.3	85.7	2.5	.75	2.75	14679	3.7
FLOAT 1.40	89.6	93.9	3.0	.90	2.88	14591	3.9
FLOAT 1.60	93.2	97.0	3.6	1.04	3.01	14485	4.2
CUM(14M X 0)	100.0	100.0	6.8	1.34	3.21	13920	4.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	75.0
3/8" X 14M	18.4
14M X 100M	5.7
100M X 0	.9

MOISTURE, %

TOTAL	5.0
AS RECEIVED	3.5

STATE: OKLAHOMA
COUNTY: CRAIG

BED: MULKY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 490
SAMPLE NO. 708

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.50	1.40	1.70	--	--	--	--	--	--
ASH	6.47	3.41	50.03	6.70	3.46	50.90	--	--	--
VOLATILE MATTER	42.99	44.30	39.03	44.55	44.92	39.70	47.75	46.53	80.86
FIXED CARBON	47.04	50.90	9.24	48.75	51.62	9.40	52.25	53.47	19.14
BTU/LB	13213	14533	6045	13692	14739	6149	14675	15267	12524

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	73.82	78.31	25.64	76.50	79.42	26.08	81.99	82.27	53.12
HYDROGEN	5.50	5.68	1.27	5.30	5.60	1.10	5.68	5.80	2.24
NITROGEN	1.45	1.57	.29	1.51	1.59	.30	1.61	1.65	.61
SULFUR	3.08	2.89	5.86	3.19	2.93	5.96	3.42	3.03	12.14
OXYGEN	9.68	8.15	16.90	6.81	7.00	15.66	7.30	7.25	31.89
ASH	6.47	3.41	50.03	6.70	3.46	50.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	1.23	.97	5.36	1.27	.98	5.45	1.36	1.02	11.10
SULFATIC	.06	.05	.07	.06	.05	.07	.06	.05	.14
ORGANIC	1.79	1.87	.43	1.86	1.90	.44	1.99	1.97	.89
TOTAL	3.08	2.89	5.86	3.19	2.93	5.96	3.42	3.03	12.14

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.83	.85
OXYGEN/CARBON	.07	.07
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2210	1980	2350
SOFTENING TEMPERATURE (ST)	2260	2040	2400
FLUID TEMPERATURE (FT)	2310	2090	2450

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.32	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	8.99	5.34	58.25

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7 1/2	8	1
HARDGROVE GRINDABILITY (HGI)	59	57	--

STATE: OKLAHOMA
COUNTY: NOWATA

BED: MULKY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 490
SAMPLE NO. 709

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	77.5	82.9	3.3	1.27	3.25	14490	4.5
FLOAT 1.40	90.6	96.1	3.9	1.63	3.61	14377	5.0
FLOAT 1.60	93.4	98.6	4.3	1.77	3.75	14302	5.2
CUM(1-1/2" X 100M)	100.0	100.0	8.3	2.53	4.45	13551	6.6
100M X 0	1.3	1.0	26.8	1.76	4.69	10079	9.3
TOTAL(1-1/2" X 0)	100.0	100.0	8.5	2.52	4.45	13506	6.6

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	75.5	80.9	2.8	1.10	3.05	14584	4.2
FLOAT 1.40	89.9	95.5	3.5	1.48	3.42	14453	4.7
FLOAT 1.60	93.4	98.6	4.0	1.69	3.63	14359	5.1
CUM(3/8" X 100M)	100.0	100.0	8.0	2.40	4.27	13608	6.3
100M X 0	4.3	3.8	16.2	2.01	4.54	12069	7.5
TOTAL(3/8" X 0)	100.0	100.0	8.4	2.38	4.28	13542	6.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	72.6	78.1	2.3	.89	2.86	14678	3.9
FLOAT 1.40	88.1	93.9	3.0	1.27	3.22	14546	4.4
FLOAT 1.60	92.8	98.2	3.6	1.54	3.48	14434	4.8
CUM(14M X 0)	100.0	100.0	7.8	2.18	4.11	13645	6.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	74.0
3/8" X 14M	19.1
14M X 100M	5.6
100M X 0	1.3

MOISTURE, %

TOTAL	6.1
AS RECEIVED	5.0

STATE: OKLAHOMA
COUNTY: NOWATA

BED: MULKY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 490
SAMPLE NO. 709

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.00	3.00	2.90	--	--	--	--	--	--
ASH	7.71	3.63	59.52	8.11	3.74	61.30	--	--	--
VOLATILE MATTER	40.15	42.04	28.45	42.27	43.34	29.30	46.00	45.02	75.71
FIXED CARBON	47.14	51.33	9.13	49.62	52.92	9.40	54.00	54.98	24.29
BTU/LB	12937	13947	3496	13618	14378	3600	14820	14938	9302

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	70.65	76.78	20.88	74.37	79.16	21.50	80.93	82.24	55.56
HYDROGEN	5.55	5.74	1.68	5.26	5.57	1.40	5.72	5.79	3.62
NITROGEN	1.43	1.55	.29	1.51	1.60	.30	1.64	1.66	.78
SULFUR	4.00	3.48	11.92	4.22	3.59	12.28	4.59	3.73	31.72
OXYGEN	10.66	8.81	5.71	6.54	6.34	3.22	7.12	6.58	8.33
ASH	7.71	3.63	59.52	8.11	3.74	61.30	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.19	1.57	10.13	2.30	1.62	10.43	2.50	1.68	26.95
SULFATIC	.16	.12	.20	.17	.12	.21	.18	.12	.54
ORGANIC	1.66	1.79	1.59	1.75	1.85	1.64	1.90	1.92	4.23
TOTAL	4.00	3.48	11.92	4.22	3.59	12.28	4.59	3.73	31.72

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	.70	1.00	.90
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	.85	.84
OXYGEN/CARBON	.07	.06
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1940	2050	2030
SOFTENING TEMPERATURE (ST)	1990	2100	2080
FLUID TEMPERATURE (FT)	2040	2150	2130

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.38	--	--
NA (SODIUM) (CALCULATED)	.04	.03	.41
MINERAL MATTER (PARR)	11.08	6.02	72.96

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8	8	0
HARDGROVE GRINDABILITY (HGI)	56	56	--

STATE: OKLAHOMA
COUNTY: ROGERS

BED: MULKY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 490
SAMPLE NO. 710

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.4	66.6	3.5	1.34	3.30	14666	4.5
FLOAT 1.40	87.7	94.6	5.2	2.13	4.17	14353	5.8
FLOAT 1.60	91.0	97.6	5.7	2.29	4.35	14260	6.1
FLOAT 1.90	92.2	98.3	6.1	2.37	4.42	14187	6.2
CUM(1-1/2" X 100M)	100.0	100.0	10.9	3.72	5.72	13301	8.6
100M X 0	.1	.1	27.9	4.53	5.69	10165	11.2
TOTAL(1-1/2" X 0)	100.0	100.0	10.9	3.72	5.72	13298	8.6

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	71.4	78.5	3.2	1.27	3.25	14722	4.4
FLOAT 1.40	86.5	94.0	4.1	1.62	3.65	14556	5.0
FLOAT 1.60	90.2	97.3	4.7	1.79	3.86	14445	5.3
FLOAT 1.90	92.2	98.3	6.1	2.37	4.42	14187	6.2
CUM(3/8" X 100M)	100.0	100.0	10.4	3.58	5.57	13393	8.3
100M X 0	.6	.5	16.6	4.45	6.05	12250	9.9
TOTAL(3/8" X 0)	100.0	100.0	10.4	3.59	5.57	13387	8.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	67.8	75.4	3.0	1.17	3.22	14759	4.4
FLOAT 1.40	82.6	91.0	3.8	1.52	3.63	14611	5.0
FLOAT 1.60	88.7	96.7	4.6	1.79	3.96	14463	5.5
FLOAT 1.90	92.2	98.3	6.1	2.37	4.42	14187	6.2
CUM(14M X 0)	100.0	100.0	11.1	3.78	5.86	13264	8.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.1

MOISTURE, %

TOTAL	1.8
AS RECEIVED	1.2

STATE: OKLAHOMA
COUNTY: ROGERS

BED: MULKY
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 490
SAMPLE NO. 710

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	1.20	--	--	--	--	--	--	--	--
ASH	11.26	--	--	11.40	--	--	--	--	--
VOLATILE MATTER	39.67	--	--	40.15	--	--	45.32	--	--
FIXED CARBON	47.87	--	--	48.45	--	--	54.68	--	--
BTU/LB	13051	--	--	13209	--	--	14909	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	5.52	--	--	5.59	--	--	6.31	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	11.26	--	--	11.40	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.83	--	--	3.88	--	--	4.38	--	--
SULFATIC	.16	--	--	.16	--	--	.18	--	--
ORGANIC	1.53	--	--	1.55	--	--	1.75	--	--
TOTAL	5.52	--	--	5.59	--	--	6.31	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	--	--	--
SOFTENING TEMPERATURE	(ST)	--	--	--
FLUID TEMPERATURE	(FT)	--	--	--

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	--	--	--
NA (SODIUM)	(CALCULATED)	--	--	--
MINERAL MATTER	(PARR)	15.39	--	--

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	--	--	--
HARDGROVE GRINDABILITY	(HGI)	--	--	--

STATE: OKLAHOMA
COUNTY: LATIMER

BED: LOWER MCALESTER
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 558
SAMPLE NO. 711

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.1	47.6	5.9	2.45	2.94	14730	4.0
FLOAT 1.40	79.4	84.5	7.3	3.03	3.45	14540	4.7
FLOAT 1.60	93.5	97.4	9.0	3.52	3.96	14230	5.6
CUM(1-1/2" X 100M)	100.0	100.0	11.3	3.58	4.00	13660	5.9
100M X 0	4.4	3.8	20.9	3.52	3.98	11950	6.7
TOTAL(1-1/2" X 0)	100.0	100.0	11.7	3.58	4.00	13585	5.9

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	38.2	41.5	5.5	2.19	2.72	14830	3.7
FLOAT 1.40	83.3	88.8	7.0	3.00	3.54	14550	4.9
FLOAT 1.60	93.1	97.9	8.2	3.48	4.00	14350	5.6
CUM(3/8" X 100M)	100.0	100.0	11.0	3.51	4.01	13650	5.9
100M X 0	5.8	5.1	20.1	3.38	4.00	12120	6.6
TOTAL(3/8" X 0)	100.0	100.0	11.5	3.50	4.01	13561	5.9

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	49.8	54.7	5.4	2.39	2.71	14870	3.6
FLOAT 1.40	85.3	92.4	6.4	3.01	3.32	14680	4.5
FLOAT 1.60	91.3	98.0	7.2	3.43	3.69	14540	5.1
CUM(14M X 0)	100.0	100.0	11.4	3.70	3.95	13550	5.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	36.8
3/8" X 14M	40.3
14M X 100M	18.5
100M X 0	4.4

MOISTURE, %

TOTAL	.8
AS RECEIVED	.6

STATE: OKLAHOMA
COUNTY: LATIMER

BED: LOWER MCALESTER
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 558
SAMPLE NO. 711

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.60	.60	.50	--	--	--	--	--	--
ASH	11.78	6.87	52.99	11.86	6.91	53.26	--	--	--
VOLATILE MATTER	29.26	28.28	38.75	29.44	28.45	38.94	33.40	30.57	83.31
FIXED CARBON	58.35	64.25	7.76	58.71	64.63	7.80	66.60	69.43	16.69
BTU/LB	13399	14498	3302	13480	14585	3318	15293	15668	7099

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	75.12	80.07	23.69	75.58	80.55	23.81	85.74	86.53	50.94
HYDROGEN	4.54	4.97	.85	4.50	4.93	.80	5.10	5.30	1.71
NITROGEN	1.62	1.78	.30	1.63	1.79	.30	1.85	1.92	.64
SULFUR	4.32	3.48	6.65	4.35	3.50	6.68	4.93	3.76	14.30
OXYGEN	2.62	2.84	15.52	2.09	2.32	15.15	2.38	2.49	32.41
ASH	11.78	6.87	52.99	11.86	6.91	53.26	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.32	3.07	6.50	3.34	3.09	6.53	3.79	3.32	13.98
SULFATIC	.00	.00	.01	.01	.00	.01	.01	.00	.02
ORGANIC	.99	.41	.14	1.00	.41	.14	1.13	.44	.30
TOTAL	4.32	3.48	6.65	4.35	3.50	6.68	4.93	3.76	14.30

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	5.48	6.39	4.26
AL2O3	(ALUMINUM OXIDE)	2.87	5.09	1.13
FE2O3	(IRON OXIDE)	38.18	59.62	16.59
TIO2	(TITANIUM OXIDE)	1.27	2.45	.60
CAO	(CALCIUM OXIDE)	30.66	8.87	64.37
MGO	(MAGNESIUM OXIDE)	3.43	3.98	2.09
NA2O	(SODIUM OXIDE)	.86	.31	.03
K2O	(POTASSIUM OXIDE)	.32	.28	.10
SO3	(SULFITES)	17.81	12.46	4.87

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	7.64	5.24
DOLOMITE	.46	.18
HYDROGEN/CARBON	.71	.73
OXYGEN/CARBON	.02	.02
R250	.11	.14
SILICA	.07	.08
SILICA/ALUMINA	1.91	1.26

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2140	2390	--
SOFTENING TEMPERATURE (ST)	2250	2440	--
FLUID TEMPERATURE (FT)	2320	2510	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.06	--	--
NA (SODIUM) (CALCULATED)	.08	.02	.01
MINERAL MATTER (PARR)	15.19	9.39	61.19

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	9	9	1
HARDGROVE GRINDABILITY (HGI)	100	--	--

STATE: OKLAHOMA
COUNTY: WAGONER

BED: SECOR
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 527
SAMPLE NO. 712

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	90.6	91.6	1.7	.32	.60	14870	.8
FLOAT 1.40	97.0	97.9	1.9	.44	.73	14830	1.0
FLOAT 1.60	98.7	99.4	2.1	.55	.85	14800	1.1
CUM(1-1/2" X 100M)	100.0	100.0	2.7	.67	.98	14700	1.3
100M X 0	4.3	4.2	5.5	.58	.95	14190	1.3
TOTAL(1-1/2" X 0)	100.0	100.0	2.8	.67	.98	14678	1.3

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	94.7	95.8	1.7	.23	.58	14840	.8
FLOAT 1.40	97.3	98.3	1.8	.27	.62	14820	.8
FLOAT 1.60	98.2	99.1	1.9	.32	.67	14800	.9
CUM(3/8" X 100M)	100.0	100.0	2.7	.53	.91	14670	1.2
100M X 0	5.6	5.4	5.3	.91	1.19	14210	1.7
TOTAL(3/8" X 0)	100.0	100.0	2.8	.55	.93	14644	1.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	88.8	90.4	1.4	.16	.51	14950	.7
FLOAT 1.40	96.5	97.9	1.6	.21	.56	14900	.8
FLOAT 1.60	98.2	99.4	1.8	.26	.61	14870	.8
CUM(14M X 0)	100.0	100.0	2.8	.61	.99	14690	1.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	46.6
3/8" X 14M	37.2
14M X 100M	11.9
100M X 0	4.3

MOISTURE, %

TOTAL	4.0
AS RECEIVED	2.6

STATE: OKLAHOMA
COUNTY: WAGONER

BED: SECOR
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 527
SAMPLE NO. 712

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	2.60	2.50	2.50	--	--	--	--	--	--
ASH	2.84	1.68	57.04	2.91	1.73	58.50	--	--	--
VOLATILE MATTER	34.12	34.70	--	35.03	35.59	--	36.08	36.22	--
FIXED CARBON	60.44	61.12	--	62.06	62.68	--	63.92	63.78	--
BTU/LB	14292	14509	4621	14673	14881	4739	15113	15143	11420

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	79.66	80.78	20.01	81.79	82.85	20.52	84.24	84.31	49.45
HYDROGEN	5.57	5.63	1.97	5.42	5.49	1.73	5.58	5.59	4.17
NITROGEN	2.44	1.85	.42	2.51	1.90	.43	2.58	1.93	1.04
SULFUR	1.03	.54	19.06	1.06	.55	19.55	1.09	.56	47.11
OXYGEN	8.46	9.51	--	6.31	7.48	--	6.50	7.61	--
ASH	2.84	1.68	57.04	2.91	1.73	58.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.62	.23	17.29	.64	.23	17.73	.66	.24	42.73
SULFATIC	.01	.01	.02	.02	.01	.02	.02	.01	.05
ORGANIC	.40	.30	1.75	.41	.31	1.80	.42	.31	4.33
TOTAL	1.03	.54	19.06	1.06	.55	19.55	1.09	.56	47.11

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	30.53	43.46	14.49
AL2O3	(ALUMINUM OXIDE)	17.26	28.66	7.92
FE2O3	(IRON OXIDE)	37.40	15.44	57.48
TIO2	(TITANIUM OXIDE)	1.37	1.80	.18
CAO	(CALCIUM OXIDE)	8.54	3.96	12.31
MGO	(MAGNESIUM OXIDE)	.91	1.13	.36
NA2O	(SODIUM OXIDE)	.52	.16	.05
K2O	(POTASSIUM OXIDE)	1.13	1.88	.46
SO3	(SULFITES)	3.82	.72	3.29

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.99	.31
DOLOMITE	.19	.23
HYDROGEN/CARBON	.80	.80
OXYGEN/CARBON	.06	.07
R250	.51	.79
SILICA	.39	.68
SILICA/ALUMINA	1.77	1.52

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	1900	2090	1880
SOFTENING TEMPERATURE (ST)	1990	2220	1960
FLUID TEMPERATURE (FT)	2120	2360	2030

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.32	--	--
NA (SODIUM) (CALCULATED)	.01	.00	.02
MINERAL MATTER (PARR)	3.73	2.06	73.53

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	7 1/2	6 1/2	--
HARDGROVE GRINDABILITY (HGI)	53	45	--

STATE: OKLAHOMA
COUNTY: HASKELL

BED: STIGLER
RANK: MED VOLATILE BITUMINOUS

BED CODE: 556
SAMPLE NO. 713

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	84.4	86.2	2.2	.08	.63	15329	.8
FLOAT 1.40	95.9	97.4	2.7	.11	.66	15239	.9
FLOAT 1.60	98.2	99.3	3.1	.14	.68	15167	.9
FLOAT 1.90	98.9	99.7	3.3	.15	.69	15130	.9
CUM(1-1/2" X 100M)	100.0	100.0	4.0	.16	.70	15004	.9
100M X 0	.3	.3	9.3	.93	1.49	14046	2.1
TOTAL(1-1/2" X 0)	100.0	100.0	4.0	.16	.70	15001	.9

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	89.7	91.6	2.1	.03	.58	15347	.8
FLOAT 1.40	94.7	96.5	2.3	.05	.59	15311	.8
FLOAT 1.60	97.3	98.7	2.7	.07	.61	15239	.8
FLOAT 1.90	98.9	99.7	3.3	.15	.69	15130	.9
CUM(3/8" X 100M)	100.0	100.0	3.9	.15	.69	15022	.9
100M X 0	.4	.4	8.3	.69	1.21	14227	1.7
TOTAL(3/8" X 0)	100.0	100.0	3.9	.15	.69	15019	.9

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	88.2	90.4	1.9	.01	.56	15384	.7
FLOAT 1.40	93.8	95.9	2.1	.02	.57	15347	.7
FLOAT 1.60	96.5	98.4	2.4	.04	.58	15293	.8
FLOAT 1.90	98.9	99.7	3.3	.15	.69	15130	.9
CUM(14M X 0)	100.0	100.0	4.0	.16	.70	15004	.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.3

MOISTURE, %

TOTAL	.8
AS RECEIVED	.5

STATE: OKLAHOMA
COUNTY: HASKELL

BED: STIGLER
RANK: MED VOLATILE BITUMINOUS

BED CODE: 556
SAMPLE NO. 713

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.50	--	--	--	--	--	--	--	--
ASH	3.98	--	--	4.00	--	--	--	--	--
VOLATILE MATTER	26.87	--	--	27.00	--	--	28.13	--	--
FIXED CARBON	68.66	--	--	69.00	--	--	71.88	--	--
BTU/LB	14929	--	--	15004	--	--	15629	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	.66	--	--	.67	--	--	.70	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	3.98	--	--	4.00	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.17	--	--	.17	--	--	.18	--	--
SULFATIC	.02	--	--	.02	--	--	.02	--	--
ORGANIC	.47	--	--	.47	--	--	.49	--	--
TOTAL	.66	--	--	.67	--	--	.70	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	--	--
SOFTENING TEMPERATURE (ST)	--	--	--
FLUID TEMPERATURE (FT)	--	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	--	--	--
NA (SODIUM) (CALCULATED)	--	--	--
MINERAL MATTER (PARR)	4.69	--	--

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	--	--	--

STATE: OKLAHOMA
COUNTY: LATIMER

BED: STIGLER
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 556
SAMPLE NO. 714

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.3	24.6	6.8	1.74	2.76	14540	3.8
FLOAT 1.40	69.0	72.9	10.3	2.99	3.99	13930	5.7
FLOAT 1.60	92.8	96.2	11.9	3.65	4.63	13660	6.8
CUM(1-1/2" X 100M)	100.0	100.0	14.5	4.46	5.56	13180	8.4
100M X 0	2.5	2.1	24.4	3.59	4.51	11260	8.0
TOTAL(1-1/2" X 0)	100.0	100.0	14.7	4.44	5.53	13132	8.4

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	14.4	15.9	6.1	1.57	2.56	14570	3.5
FLOAT 1.40	74.4	79.4	9.4	2.75	3.71	14060	5.3
FLOAT 1.60	91.9	96.1	11.0	3.38	4.41	13780	6.4
CUM(3/8" X 100M)	100.0	100.0	14.3	4.31	5.49	13180	8.3
100M X 0	4.4	3.8	23.7	3.82	4.40	11510	7.6
TOTAL(3/8" X 0)	100.0	100.0	14.7	4.29	5.44	13107	8.3

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	37.0	41.0	6.9	1.80	2.81	14510	3.9
FLOAT 1.40	79.7	85.6	9.5	2.79	3.82	14050	5.4
FLOAT 1.60	90.1	95.5	10.7	3.22	4.32	13860	6.2
CUM(14M X 0)	100.0	100.0	15.1	4.42	5.63	13080	8.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	47.8
3/8" X 14M	40.5
14M X 100M	9.2
100M X 0	2.5

MOISTURE, %

TOTAL	2.4
AS RECEIVED	.9

STATE: OKLAHOMA
COUNTY: LATIMER

BED: STIGLER
RANK: HIGH VOLATILE A BITUMINOUS

BED CODE: 556
SAMPLE NO. 714

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.90	1.30	1.10	--	--	--	--	--	--
ASH	14.77	10.14	56.72	14.90	10.27	57.35	--	--	--
VOLATILE MATTER	32.75	32.58	33.08	33.05	33.01	33.45	38.83	36.79	78.43
FIXED CARBON	51.58	55.98	9.10	52.05	56.72	9.20	61.17	63.21	21.57
BTU/LB	12993	13745	5625	13111	13926	5687	15406	15521	13334

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	69.94	75.77	16.20	70.58	76.77	16.38	82.94	85.56	38.41
HYDROGEN	4.59	5.01	.87	4.53	4.93	.76	5.32	5.50	1.78
NITROGEN	1.61	1.74	.28	1.62	1.77	.28	1.91	1.97	.67
SULFUR	6.03	3.98	19.10	6.09	4.03	19.31	7.15	4.49	45.27
OXYGEN	3.06	3.36	6.83	2.28	2.23	5.92	2.68	2.49	13.88
ASH	14.77	10.14	56.72	14.90	10.27	57.35	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	4.61	2.89	16.69	4.65	2.93	16.88	5.46	3.27	39.57
SULFATIC	.01	.00	.10	.01	.00	.10	.01	.00	.24
ORGANIC	1.42	1.09	2.30	1.43	1.10	2.33	1.68	1.23	5.46
TOTAL	6.03	3.98	19.10	6.09	4.03	19.31	7.15	4.49	45.27

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	14.33	20.24	20.03
AL2O3	(ALUMINUM OXIDE)	8.17	11.31	11.69
FE2O3	(IRON OXIDE)	40.10	40.89	32.03
TIO2	(TITANIUM OXIDE)	.97	.65	2.40
CAO	(CALCIUM OXIDE)	14.98	8.12	23.79
MGO	(MAGNESIUM OXIDE)	3.94	4.48	1.13
NA2O	(SODIUM OXIDE)	1.10	1.24	.13
K2O	(POTASSIUM OXIDE)	.95	1.33	1.08
SO3	(SULFITES)	13.63	9.47	3.16

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	2.60	1.74
DOLOMITE	.31	.22
HYDROGEN/CARBON	.77	.77
OXYGEN/CARBON	.02	.02
R250	.29	.39
SILICA	.20	.28
SILICA/ALUMINA	1.75	1.79

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2110	2030	--
SOFTENING TEMPERATURE (ST)	2170	2080	--
FLUID TEMPERATURE (FT)	2220	2130	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.09	--	--
NA (SODIUM) (CALCULATED)	.12	.09	.06
MINERAL MATTER (PARR)	19.56	13.31	75.82

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	8 1/2	9	0
HARDGROVE GRINDABILITY (HGI)	66	--	--

STATE: OKLAHOMA
COUNTY: HASKELL

BED: UPPER AND LOWER HARTSHORNE
RANK: MED VOLATILE BITUMINOUS

BED CODE: 880
SAMPLE NO. 715

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.6	58.4	3.0	.21	.75	15289	1.0
FLOAT 1.40	72.2	88.8	4.6	.56	1.12	15002	1.5
FLOAT 1.60	77.7	94.5	5.5	.68	1.26	14840	1.7
FLOAT 1.90	81.3	97.1	7.0	.73	1.32	14570	1.8
CUM(1-1/2" X 100M)	100.0	100.0	20.2	.71	1.21	12196	2.0
100M X 0	.3	.3	20.1	.89	1.38	12214	2.3
TOTAL(1-1/2" X 0)	100.0	100.0	20.2	.71	1.21	12196	2.0

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.0	70.5	2.6	.18	.72	15361	.9
FLOAT 1.40	72.0	89.6	3.6	.39	.95	15181	1.3
FLOAT 1.60	76.9	94.7	4.5	.51	1.07	15020	1.4
FLOAT 1.90	81.3	97.1	7.0	.73	1.32	14570	1.8
CUM(3/8" X 100M)	100.0	100.0	20.2	.62	1.09	12196	1.8
100M X 0	1.0	1.0	20.2	.97	1.50	12196	2.5
TOTAL(3/8" X 0)	100.0	100.0	20.2	.62	1.09	12196	1.8

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.6	58.7	2.6	.13	.69	15361	.9
FLOAT 1.40	68.1	84.5	3.9	.33	.90	15128	1.2
FLOAT 1.60	76.6	93.5	5.2	.45	1.03	14894	1.4
FLOAT 1.90	81.3	97.1	7.0	.73	1.32	14570	1.8
CUM(14M X 0)	100.0	100.0	20.2	.62	1.14	12196	1.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	--
3/8" X 14M	--
14M X 100M	--
100M X 0	.3

MOISTURE, %

TOTAL	.8
AS RECEIVED	.5

STATE: OKLAHOMA
COUNTY: HASKELL

BED: UPPER AND LOWER HARTSHORNE
RANK: MED VOLATILE BITUMINOUS

BED CODE: 880
SAMPLE NO. 715

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	.50	--	--	--	--	--	--	--	--
ASH	19.30	--	--	19.39	--	--	--	--	--
VOLATILE MATTER	21.09	--	--	21.19	--	--	26.29	--	--
FIXED CARBON	59.12	--	--	59.42	--	--	73.71	--	--
BTU/LB	12279	--	--	12341	--	--	15310	--	--

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	--	--	--	--	--	--	--	--	--
HYDROGEN	--	--	--	--	--	--	--	--	--
NITROGEN	--	--	--	--	--	--	--	--	--
SULFUR	1.09	--	--	1.09	--	--	1.35	--	--
OXYGEN	--	--	--	--	--	--	--	--	--
ASH	19.30	--	--	19.39	--	--	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.71	--	--	.72	--	--	.89	--	--
SULFATIC	.03	--	--	.03	--	--	.04	--	--
ORGANIC	.34	--	--	.34	--	--	.43	--	--
TOTAL	1.09	--	--	1.09	--	--	1.35	--	--

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	--	--	--
AL2O3	(ALUMINUM OXIDE)	--	--	--
FE2O3	(IRON OXIDE)	--	--	--
TIO2	(TITANIUM OXIDE)	--	--	--
CAO	(CALCIUM OXIDE)	--	--	--
MGO	(MAGNESIUM OXIDE)	--	--	--
NA2O	(SODIUM OXIDE)	--	--	--
K2O	(POTASSIUM OXIDE)	--	--	--
SO3	(SULFITES)	--	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	--	--
DOLOMITE	--	--
HYDROGEN/CARBON	--	--
OXYGEN/CARBON	--	--
R250	--	--
SILICA	--	--
SILICA/ALUMINA	--	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	--	--	--
SOFTENING TEMPERATURE	(ST)	--	--	--
FLUID TEMPERATURE	(FT)	--	--	--

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	--	--	--
NA (SODIUM)	(CALCULATED)	--	--	--
MINERAL MATTER (PARR)		21.54	--	--

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	--	--	--
HARDGROVE GRINDABILITY	(HGI)	--	--	--

STATE: TEXAS
COUNTY: COLEMAN

BED: BULL CREEK
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 536
SAMPLE NO. 716

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	31.8	38.8	6.8	.59	1.36	13150	2.1
FLOAT 1.40	56.2	65.8	10.3	.80	1.54	12620	2.4
FLOAT 1.60	80.6	89.6	14.5	1.08	1.83	11980	3.1
CUM(1-1/2" X 100M)	100.0	100.0	22.1	2.23	2.93	10780	5.4
100M X 0	2.5	1.8	39.6	2.77	3.67	7790	9.4
TOTAL(1-1/2" X 0)	100.0	100.0	22.5	2.24	2.95	10705	5.5

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	35.4	43.4	6.1	.37	1.24	13360	1.9
FLOAT 1.40	66.0	77.1	10.2	.46	1.28	12740	2.0
FLOAT 1.60	81.1	91.4	13.0	.57	1.36	12290	2.2
CUM(3/8" X 100M)	100.0	100.0	21.5	2.64	3.31	10900	6.1
100M X 0	6.9	5.3	35.7	2.83	3.39	8350	8.1
TOTAL(3/8" X 0)	100.0	100.0	22.5	2.65	3.32	10724	6.2

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	29.8	36.0	8.7	.50	1.23	13190	1.9
FLOAT 1.40	62.6	73.7	10.6	.52	1.23	12860	1.9
FLOAT 1.60	79.8	90.7	13.2	.55	1.25	12420	2.0
CUM(14M X 0)	100.0	100.0	22.1	2.48	3.23	10930	5.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	54.1
3/8" X 14M	35.1
14M X 100M	8.3
100M X 0	2.5

MOISTURE, %

TOTAL	12.0
AS RECEIVED	9.2

STATE: TEXAS
COUNTY: COLEMAN

BED: BULL CREEK
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 536
SAMPLE NO. 716

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	9.20	9.40	2.70	--	--	--	--	--	--
ASH	20.52	11.78	55.36	22.60	13.00	56.90	--	--	--
VOLATILE MATTER	29.74	31.53	24.33	32.75	34.81	25.00	42.31	40.01	58.00
FIXED CARBON	40.54	47.29	17.61	44.65	52.19	18.10	57.69	59.99	42.00
BTU/LB	9861	11278	4949	10860	12449	5086	14031	14309	11801

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	54.70	61.73	25.58	60.24	68.14	26.29	77.83	78.32	61.00
HYDROGEN	4.33	4.74	2.34	3.65	4.08	2.10	4.71	4.69	4.87
NITROGEN	1.21	1.43	.49	1.34	1.58	.50	1.72	1.81	1.16
SULFUR	3.01	1.25	10.65	3.32	1.38	10.94	4.29	1.58	25.39
OXYGEN	16.23	19.07	5.57	8.86	11.83	3.26	11.45	13.59	7.57
ASH	20.52	11.78	55.36	22.60	13.00	56.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	2.15	.45	9.83	2.37	.50	10.10	3.06	.57	23.44
SULFATIC	.01	.01	.02	.02	.01	.02	.02	.01	.05
ORGANIC	.85	.79	.80	.93	.87	.82	1.20	1.00	1.90
TOTAL	3.01	1.25	10.65	3.32	1.38	10.94	4.29	1.58	25.39

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	51.05	--	--
AL2O3	(ALUMINUM OXIDE)	22.26	--	--
FE2O3	(IRON OXIDE)	19.59	--	--
TIO2	(TITANIUM OXIDE)	1.34	--	--
CAO	(CALCIUM OXIDE)	.92	--	--
MGO	(MAGNESIUM OXIDE)	1.99	--	--
NA2O	(SODIUM OXIDE)	.37	--	--
K2O	(POTASSIUM OXIDE)	2.24	--	--
SO3	(SULFITES)	.60	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.34	--
DOLOMITE	.12	--
HYDROGEN/CARBON	.73	.72
OXYGEN/CARBON	.11	.13
R250	.78	--
SILICA	.69	--
SILICA/ALUMINA	2.29	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	2460	--
SOFTENING TEMPERATURE (ST)	2080	2580	--
FLUID TEMPERATURE (FT)	--	2670	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.20	--	--
NA (SODIUM) (CALCULATED)	.06	--	--
MINERAL MATTER (PARR)	26.23	14.81	67.47

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	1	1	--
HARDGROVE GRINDABILITY (HGI)	52	42	--

STATE: TEXAS
COUNTY: FREESTONE

BED: LOWER CALVERT BLUFF
RANK: LIGNITE A

BED CODE: 410
SAMPLE NO. 717

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	79.3	82.9	10.5	.11	.67	11269	1.2
FLOAT 1.40	93.2	96.0	11.8	.12	.98	11106	1.8
FLOAT 1.60	97.5	99.0	12.8	.14	.99	10950	1.8
CUM(1-1/2" X 100M)	100.0	100.0	13.9	.33	1.16	10782	2.2
100M X 0	.7	.6	24.0	.61	1.45	9270	3.1
TOTAL(1-1/2" X 0)	100.0	100.0	14.0	.33	1.16	10772	2.2

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	62.2	65.4	8.5	.07	.93	11510	1.6
FLOAT 1.40	92.7	95.3	10.1	.09	.94	11257	1.7
FLOAT 1.60	97.4	98.8	11.1	.10	.94	11110	1.7
CUM(3/8" X 100M)	100.0	100.0	12.1	.27	1.10	10950	2.0
100M X 0	9.8	9.3	16.5	.30	1.20	10401	2.3
TOTAL(3/8" X 0)	100.0	100.0	12.5	.27	1.11	10896	2.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.3	60.7	8.2	.08	.94	11769	1.6
FLOAT 1.40	87.9	92.4	9.9	.09	.94	11487	1.6
FLOAT 1.60	96.0	98.8	11.4	.23	.95	11244	1.7
CUM(14M X 0)	100.0	100.0	13.5	.46	1.20	10923	2.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.3
3/8" X 14M	17.4
14M X 100M	4.6
100M X 0	.7

MOISTURE, %

TOTAL	33.2
AS RECEIVED	28.4

STATE: TEXAS
COUNTY: FREESTONE

BED: LOWER CALVERT BLUFF
RANK: LIGNITE A

BED CODE: 410
SAMPLE NO. 717

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	28.40	11.40	3.80	--	--	--	--	--	--
ASH	9.95	9.83	61.66	13.90	11.10	64.10	--	--	--
VOLATILE MATTER	32.78	41.40	27.13	45.78	46.72	28.20	53.17	52.56	78.55
FIXED CARBON	28.87	37.37	7.41	40.32	42.18	7.70	46.83	47.44	21.45
BTU/LB	7785	9996	3095	10873	11282	3217	12628	12690	8961

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	44.37	57.07	16.45	61.97	64.41	17.10	71.97	72.46	47.63
HYDROGEN	6.39	5.41	1.87	4.52	4.68	1.50	5.25	5.26	4.18
NITROGEN	.70	.90	.29	.98	1.02	.30	1.14	1.15	.84
SULFUR	.87	.82	6.94	1.22	.92	7.21	1.41	1.03	20.08
OXYGEN	37.71	25.97	12.80	17.42	17.87	9.79	20.23	20.10	27.27
ASH	9.95	9.83	61.66	13.90	11.10	64.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.24	.18	5.75	.34	.21	5.98	.39	.23	16.66
SULFATIC	.01	.01	.03	.02	.01	.03	.02	.01	.08
ORGANIC	.62	.62	1.15	.86	.70	1.20	1.00	.79	3.34
TOTAL	.87	.82	6.94	1.22	.92	7.21	1.41	1.03	20.08

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	39.63	38.78	42.19
AL2O3	(ALUMINUM OXIDE)	16.97	18.10	13.20
FE2O3	(IRON OXIDE)	5.43	2.86	20.59
TIO2	(TITANIUM OXIDE)	1.00	1.33	.33
CAO	(CALCIUM OXIDE)	15.39	17.49	16.09
MGO	(MAGNESIUM OXIDE)	2.75	2.72	.70
NA2O	(SODIUM OXIDE)	1.08	--	--
K2O	(POTASSIUM OXIDE)	.24	.24	.72
SO3	(SULFITES)	14.79	12.69	3.82

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.43	--
DOLOMITE	.73	--
HYDROGEN/CARBON	.87	.87
OXYGEN/CARBON	.21	.21
R250	.73	.74
SILICA	.63	.63
SILICA/ALUMINA	2.34	2.14

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2140	2150	--
SOFTENING TEMPERATURE (ST)	2190	2200	--
FLUID TEMPERATURE (FT)	2240	2250	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.00	--	--
NA (SODIUM) (CALCULATED)	.11	--	--
MINERAL MATTER (PARR)	15.68	12.49	73.19

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	57	49	--

STATE: TEXAS
COUNTY: FREESTONE

BED: LOWER CALVERT BLUFF
RANK: LIGNITE A

BED CODE: 410
SAMPLE NO. 718

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	87.7	88.8	9.5	.01	.80	11321	1.4
FLOAT 1.40	98.0	98.7	9.8	.02	.81	11266	1.4
FLOAT 1.60	99.2	99.8	9.9	.02	.81	11247	1.4
CUM(1-1/2" X 100M)	100.0	100.0	10.3	.17	.95	11184	1.7
100M X 0	.6	.5	19.8	.13	1.12	9746	2.3
TOTAL(1-1/2" X 0)	100.0	100.0	10.4	.17	.95	11175	1.7

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	58.7	62.7	7.9	.01	.98	11441	1.7
FLOAT 1.40	89.8	93.8	8.8	.02	.98	11187	1.8
FLOAT 1.60	94.6	97.9	9.2	.02	.97	11087	1.7
CUM(3/8" X 100M)	100.0	100.0	9.8	.10	1.05	10708	2.0
100M X 0	10.3	10.3	13.2	.06	1.02	10727	1.9
TOTAL(3/8" X 0)	100.0	100.0	10.2	.10	1.05	10710	2.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	22.0	23.3	7.2	.03	.97	11975	1.6
FLOAT 1.40	88.7	91.3	8.3	.02	.98	11639	1.7
FLOAT 1.60	97.8	99.4	9.0	.02	.97	11495	1.7
CUM(14M X 0)	100.0	100.0	10.2	.09	1.03	11310	1.8

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.9
3/8" X 14M	17.6
14M X 100M	3.9
100M X 0	.6

MOISTURE, %

TOTAL	36.0
AS RECEIVED	25.7

STATE: TEXAS
COUNTY: FREESTONE

BED: LOWER CALVERT BLUFF
RANK: LIGNITE A

BED CODE: 410
SAMPLE NO. 718

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	25.70	20.50	6.80	--	--	--	--	--	--
ASH	7.88	7.10	61.45	10.61	8.93	65.93	--	--	--
VOLATILE MATTER	34.18	37.04	24.90	46.00	46.59	26.72	51.46	51.15	78.43
FIXED CARBON	32.24	35.36	6.85	43.39	44.48	7.35	48.54	48.85	21.57
BTU/LB	8188	9145	2711	11020	11503	2908	12328	12631	8537

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	48.76	53.37	13.15	65.63	67.13	14.11	73.42	73.71	41.41
HYDROGEN	6.13	5.83	2.30	4.40	4.47	1.65	4.92	4.90	4.85
NITROGEN	.78	.85	.24	1.05	1.07	.26	1.17	1.17	.77
SULFUR	.82	.85	3.79	1.11	1.07	4.07	1.24	1.17	11.94
OXYGEN	35.63	32.01	19.07	17.21	17.34	13.98	19.25	19.04	41.03
ASH	7.88	7.10	61.45	10.61	8.93	65.93	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.10	.02	3.28	.13	.02	3.52	.15	.02	10.34
SULFATIC	.01	.01	.05	.02	.01	.05	.02	.01	.16
ORGANIC	.72	.82	.46	.96	1.04	.49	1.08	1.14	1.44
TOTAL	.82	.85	3.79	1.11	1.07	4.07	1.24	1.17	11.94

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	29.83	29.30	43.04
AL2O3	(ALUMINUM OXIDE)	14.71	13.67	30.17
FE2O3	(IRON OXIDE)	5.29	5.00	8.44
TIO2	(TITANIUM OXIDE)	2.33	2.50	.33
CAO	(CALCIUM OXIDE)	18.19	19.24	10.49
MGO	(MAGNESIUM OXIDE)	9.12	10.44	.99
NA2O	(SODIUM OXIDE)	1.62	--	--
K2O	(POTASSIUM OXIDE)	.05	.09	.05
SO3	(SULFITES)	17.78	16.84	2.43

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.73	--
DOLOMITE	.80	--
HYDROGEN/CARBON	.80	.80
OXYGEN/CARBON	.19	.19
R250	.65	.64
SILICA	.48	.47
SILICA/ALUMINA	2.03	2.14

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2140	--	--
SOFTENING TEMPERATURE	(ST)	2170	--	--
FLUID TEMPERATURE	(FT)	2200	--	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.01	--	--
NA (SODIUM) (CALCULATED)	.13	--	--
MINERAL MATTER (PARR)	12.37	10.25	81.13

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	0	0	--
HARDGROVE GRINDABILITY	(HGI)	57	51	--

STATE: TEXAS
COUNTY: MILAM

BED: LOWER CALVERT BLUFF
RANK: LIGNITE A

BED CODE: 410
SAMPLE NO. 719

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	75.9	84.1	11.6	.04	1.37	11118	2.5
FLOAT 1.40	87.0	94.5	13.1	.07	1.39	10907	2.5
FLOAT 1.60	91.6	97.9	14.3	.08	1.38	10731	2.6
CUM(1-1/2" X 100M)	100.0	100.0	19.2	.15	1.38	10038	2.7
100M X 0	1.1	1.0	22.7	.16	.94	9520	2.0
TOTAL(1-1/2" X 0)	100.0	100.0	19.2	.15	1.38	10032	2.7

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.6	69.2	9.7	.04	1.33	11379	2.3
FLOAT 1.40	80.5	89.9	11.5	.06	1.35	11128	2.4
FLOAT 1.60	89.7	97.3	13.6	.06	1.32	10812	2.4
CUM(3/8" X 100M)	100.0	100.0	19.5	.18	1.34	9970	2.7
100M X 0	9.2	8.6	24.4	.16	1.20	9274	2.6
TOTAL(3/8" X 0)	100.0	100.0	20.0	.18	1.33	9906	2.7

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	56.1	65.0	9.6	.03	1.30	11434	2.3
FLOAT 1.40	79.5	89.5	11.9	.05	1.30	11101	2.3
FLOAT 1.60	89.3	97.5	14.2	.06	1.28	10768	2.4
CUM(14M X 0)	100.0	100.0	20.3	.13	1.24	9864	2.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.7
3/8" X 14M	17.4
14M X 100M	3.8
100M X 0	1.1

MOISTURE, %

TOTAL	35.2
AS RECEIVED	29.9

STATE: TEXAS
COUNTY: MILAM

BED: LOWER CALVERT BLUFF
RANK: LIGNITE A

BED CODE: 410
SAMPLE NO. 719

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	29.90	9.00	4.90	--	--	--	--	--	--
ASH	13.95	13.56	70.47	19.90	14.90	74.10	--	--	--
VOLATILE MATTER	28.88	39.23	18.83	41.19	43.11	19.80	51.42	50.66	76.45
FIXED CARBON	27.27	38.21	5.80	38.91	41.99	6.10	48.58	49.34	23.55
BTU/LB	6949	9719	1983	9913	10680	2085	12376	12550	8051

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	40.41	56.09	12.71	57.65	61.63	13.36	71.97	72.42	51.58
HYDROGEN	6.36	5.16	2.16	4.34	4.57	1.70	5.41	5.37	6.56
NITROGEN	.78	.99	1.62	1.12	1.08	1.70	1.40	1.27	6.56
SULFUR	.87	1.13	.87	1.24	1.24	.91	1.55	1.45	3.52
OXYGEN	37.62	23.08	12.18	15.76	16.57	8.23	19.67	19.48	31.77
ASH	13.95	13.56	70.47	19.90	14.90	74.10	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.10	.05	.68	.14	.06	.71	.17	.07	2.76
SULFATIC	.00	.00	.01	.01	.00	.01	.01	.00	.04
ORGANIC	.77	1.07	.18	1.10	1.18	.19	1.38	1.39	.72
TOTAL	.87	1.13	.87	1.24	1.24	.91	1.55	1.45	3.52

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	40.06	38.35	52.42
AL2O3	(ALUMINUM OXIDE)	25.64	24.89	28.66
FE2O3	(IRON OXIDE)	2.57	1.72	3.15
TIO2	(TITANIUM OXIDE)	1.67	1.67	1.67
CAO	(CALCIUM OXIDE)	12.59	14.69	6.72
MGO	(MAGNESIUM OXIDE)	2.72	3.27	1.46
NA2O	(SODIUM OXIDE)	1.62	--	--
K2O	(POTASSIUM OXIDE)	.75	.58	1.45
SO3	(SULFITES)	11.34	12.48	1.35

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.30	--
DOLOMITE	.76	--
HYDROGEN/CARBON	.90	.89
OXYGEN/CARBON	.20	.20
R250	.81	.79
SILICA	.69	.67
SILICA/ALUMINA	1.56	1.54

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2400	2350	--
SOFTENING TEMPERATURE (ST)	2450	2400	--
FLUID TEMPERATURE (FT)	2520	2460	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.01	--	--
NA (SODIUM) (CALCULATED)	.24	--	--
MINERAL MATTER (PARR)	22.18	16.77	80.53

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	56	48	--

STATE: TEXAS
COUNTY: MAVERICK

BED: OLMOS
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 799
SAMPLE NO. 720

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	11.6	18.5	9.7	.06	.85	12807	1.3
FLOAT 1.40	26.7	40.2	14.5	.08	.81	12099	1.3
FLOAT 1.60	65.2	84.5	25.0	.13	.71	10411	1.4
CUM(1-1/2" X 100M)	100.0	100.0	39.6	.27	.72	8032	1.8
100M X 0	1.6	1.7	37.9	1.05	1.39	8344	3.3
TOTAL(1-1/2" X 0)	100.0	100.0	39.6	.28	.73	8037	1.8

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	12.2	19.8	8.2	.05	.69	13087	1.1
FLOAT 1.40	23.7	37.2	11.2	.06	.78	12643	1.2
FLOAT 1.60	58.9	79.7	21.8	.11	.72	10899	1.3
CUM(3/8" X 100M)	100.0	100.0	39.2	.33	.78	8052	1.9
100M X 0	6.7	6.3	42.6	.76	.94	7596	2.5
TOTAL(3/8" X 0)	100.0	100.0	39.4	.36	.79	8021	2.0

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	6.1	10.2	5.7	.07	.93	13421	1.4
FLOAT 1.40	19.5	31.4	8.7	.09	.85	12968	1.3
FLOAT 1.60	45.1	65.6	17.0	.10	.74	11701	1.3
CUM(14M X 0)	100.0	100.0	39.8	.33	.77	8049	1.9

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	68.4
3/8" X 14M	23.0
14M X 100M	7.0
100M X 0	1.6

MOISTURE, %

TOTAL	11.1
AS RECEIVED	5.2

STATE: TEXAS
COUNTY: MAVERICK

BED: OLMOS
RANK: HIGH VOLATILE C BITUMINOUS

BED CODE: 799
SAMPLE NO. 720

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	5.20	4.60	1.60	--	--	--	--	--	--
ASH	38.11	16.58	58.94	40.20	17.38	59.90	--	--	--
VOLATILE MATTER	27.82	35.62	22.63	29.35	37.34	23.00	49.08	45.19	57.36
FIXED CARBON	28.87	43.20	16.83	30.45	45.28	17.10	50.92	54.81	42.64
BTU/LB	7580	11111	4804	7995	11647	4882	13370	14097	12175

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	43.41	62.22	24.66	45.79	65.22	25.06	76.57	78.94	62.49
HYDROGEN	3.67	4.74	2.24	3.26	4.43	2.10	5.45	5.37	5.24
NITROGEN	.80	1.23	.49	.84	1.29	.50	1.41	1.56	1.25
SULFUR	.76	.72	.79	.80	.75	.80	1.34	.91	2.01
OXYGEN	13.26	14.52	12.87	9.11	10.93	11.64	15.24	13.23	29.02
ASH	38.11	16.58	58.94	40.20	17.38	59.90	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.31	.09	.51	.33	.09	.52	.55	.11	1.29
SULFATIC	.01	.00	.02	.01	.00	.02	.02	.00	.05
ORGANIC	.44	.63	.26	.46	.66	.27	.77	.80	.66
TOTAL	.76	.72	.79	.80	.75	.80	1.34	.91	2.01

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	62.64	68.16	60.69
AL2O3	(ALUMINUM OXIDE)	29.42	24.51	31.68
FE2O3	(IRON OXIDE)	2.57	3.15	2.57
TIO2	(TITANIUM OXIDE)	1.00	1.67	1.00
CAO	(CALCIUM OXIDE)	1.23	.45	1.34
MGO	(MAGNESIUM OXIDE)	.50	.56	.50
NA2O	(SODIUM OXIDE)	.84	.75	.89
K2O	(POTASSIUM OXIDE)	.70	.31	.82
SO3	(SULFITES)	.16	.09	.14

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.06	.06
DOLOMITE	.30	.19
HYDROGEN/CARBON	.85	.82
OXYGEN/CARBON	.15	.13
R250	.96	.96
SILICA	.94	.94
SILICA/ALUMINA	2.13	2.78

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2910+	2910+	--
SOFTENING TEMPERATURE (ST)	2910+	2910+	--
FLUID TEMPERATURE (FT)	2910+	2910+	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.00	--	--
NA (SODIUM) (CALCULATED)	.25	.10	.40
MINERAL MATTER (PARR)	43.86	19.18	65.13

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	0 1/2	1	--
HARDGROVE GRINDABILITY (HGI)	51	45	--

STATE: TEXAS
COUNTY: WEBB

BED: SAN PEDRO
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 538
SAMPLE NO. 721

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	66.5	71.7	8.5	.44	1.22	13700	1.8
FLOAT 1.40	86.6	91.3	10.1	.69	1.48	13400	2.2
FLOAT 1.60	95.6	98.7	11.6	.91	1.73	13120	2.6
CUM(1-1/2" X 100M)	100.0	100.0	13.9	1.04	2.06	12710	3.2
100M X 0	1.8	1.1	41.4	1.11	3.41	7430	9.2
TOTAL(1-1/2" X 0)	100.0	100.0	14.4	1.04	2.08	12615	3.3

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	69.2	74.7	8.2	.38	1.22	13770	1.8
FLOAT 1.40	87.0	91.9	9.7	.56	1.40	13480	2.1
FLOAT 1.60	94.9	98.3	11.1	.78	1.62	13220	2.5
CUM(3/8" X 100M)	100.0	100.0	13.6	1.06	2.12	12760	3.3
100M X 0	5.5	4.2	29.0	1.19	3.02	9700	6.2
TOTAL(3/8" X 0)	100.0	100.0	14.4	1.07	2.17	12592	3.4

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	74.5	79.8	9.0	.44	1.24	13510	1.8
FLOAT 1.40	86.0	90.8	10.0	.55	1.35	13320	2.0
FLOAT 1.60	94.0	97.4	11.5	.68	1.53	13060	2.3
CUM(14M X 0)	100.0	100.0	14.1	.98	2.04	12610	3.2

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	68.7
3/8" X 14M	23.6
14M X 100M	5.9
100M X 0	1.8

MOISTURE, %

TOTAL	7.3
AS RECEIVED	3.7

STATE: TEXAS
COUNTY: WEBB

BED: SAN PEDRO
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 538
SAMPLE NO. 721

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	3.70	3.10	2.50	--	--	--	--	--	--
ASH	14.16	10.70	55.60	14.70	11.04	57.03	--	--	--
VOLATILE MATTER	46.13	47.22	36.73	47.90	48.73	37.67	56.15	54.78	87.67
FIXED CARBON	36.02	38.98	5.17	37.40	40.23	5.30	43.85	45.22	12.33
BTU/LB	12059	12721	5158	12522	13128	5290	14680	14757	12310

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	64.13	68.34	20.00	66.59	70.53	20.51	78.07	79.28	47.73
HYDROGEN	5.96	6.19	2.72	5.76	6.03	2.50	6.75	6.78	5.82
NITROGEN	1.41	1.49	.49	1.46	1.54	.50	1.71	1.73	1.16
SULFUR	1.96	1.40	9.96	2.04	1.44	10.22	2.39	1.62	23.77
OXYGEN	12.39	11.89	11.24	9.45	9.42	9.25	11.08	10.59	21.52
ASH	14.16	10.70	55.60	14.70	11.04	57.03	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.95	.72	5.54	.99	.75	5.68	1.16	.84	13.22
SULFATIC	.19	.01	.44	.20	.01	.45	.23	.01	1.06
ORGANIC	.82	.66	3.98	.85	.68	4.08	1.00	.77	9.50
TOTAL	1.96	1.40	9.96	2.04	1.44	10.22	2.39	1.62	23.77

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	45.79	48.15	36.65
AL2O3	(ALUMINUM OXIDE)	19.89	24.51	11.69
FE2O3	(IRON OXIDE)	15.76	10.87	25.74
TIO2	(TITANIUM OXIDE)	1.16	1.77	.43
CAO	(CALCIUM OXIDE)	8.12	6.44	8.96
MGO	(MAGNESIUM OXIDE)	1.01	1.13	.33
NA2O	(SODIUM OXIDE)	.91	.91	.75
K2O	(POTASSIUM OXIDE)	.68	.63	.96
SO3	(SULFITES)	8.38	4.16	13.04

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.40	.27
DOLOMITE	.34	.38
HYDROGEN/CARBON	1.04	1.03
OXYGEN/CARBON	.11	.10
R250	.73	.81
SILICA	.65	.72
SILICA/ALUMINA	2.30	1.96

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2120	2140	1860
SOFTENING TEMPERATURE (ST)	2190	2220	1950
FLUID TEMPERATURE (FT)	2270	2310	2040

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.06	--	--
NA (SODIUM) (CALCULATED)	.10	.07	.32
MINERAL MATTER (PARR)	17.00	12.72	67.21

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	1	1	--
HARDGROVE GRINDABILITY (HGI)	22	18	--

STATE: TEXAS
COUNTY: ERATH

BED: THURBER
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 528
SAMPLE NO. 722

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	20.5	24.9	8.3	1.31	2.09	13530	3.1
FLOAT 1.40	68.2	79.6	11.9	1.97	2.74	13010	4.2
FLOAT 1.60	80.1	91.7	13.4	2.40	3.20	12760	5.0
CUM(1-1/2" X 100M)	100.0	100.0	22.7	3.74	4.54	11150	8.1
100M X 0	1.8	1.2	41.5	3.63	6.45	7720	16.7
TOTAL(1-1/2" X 0)	100.0	100.0	23.0	3.74	4.57	11088	8.3

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	61.0	72.4	10.1	1.59	2.46	13280	3.7
FLOAT 1.40	66.3	78.6	10.2	1.61	2.47	13260	3.7
FLOAT 1.60	78.5	91.4	11.7	2.02	2.91	13030	4.5
CUM(3/8" X 100M)	100.0	100.0	23.0	3.90	4.68	11190	8.4
100M X 0	4.5	3.6	35.3	4.26	5.97	9070	13.2
TOTAL(3/8" X 0)	100.0	100.0	23.6	3.92	4.74	11095	8.5

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	30.0	37.3	7.8	1.08	1.93	13670	2.8
FLOAT 1.40	70.1	84.3	10.1	1.46	2.32	13230	3.5
FLOAT 1.60	78.4	92.9	11.3	1.80	2.64	13030	4.1
CUM(14M X 0)	100.0	100.0	23.5	3.62	4.63	11000	8.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	64.0
3/8" X 14M	27.5
14M X 100M	6.7
100M X 0	1.8

MOISTURE, %

TOTAL	4.8
AS RECEIVED	4.3

STATE: TEXAS
COUNTY: ERATH

BED: THURBER
RANK: HIGH VOLATILE B BITUMINOUS

BED CODE: 528
SAMPLE NO. 722

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	4.30	3.80	3.60	--	--	--	--	--	--
ASH	22.68	10.44	62.85	23.70	10.85	65.20	--	--	--
VOLATILE MATTER	35.52	38.75	25.84	37.11	40.28	26.80	48.64	45.18	77.01
FIXED CARBON	37.50	47.02	7.71	39.19	48.88	8.00	51.36	54.82	22.99
BTU/LB	10499	12599	3782	10971	13096	3923	14379	14690	11273

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	58.64	69.16	19.88	61.28	71.89	20.62	80.31	80.64	59.25
HYDROGEN	4.60	5.40	1.85	4.31	5.18	1.50	5.64	5.81	4.31
NITROGEN	1.38	1.68	.39	1.44	1.75	.40	1.89	1.96	1.15
SULFUR	4.08	2.41	11.48	4.27	2.50	11.91	5.59	2.80	34.22
OXYGEN	8.61	10.91	3.56	5.00	7.83	.37	6.56	8.78	1.07
ASH	22.68	10.44	62.85	23.70	10.85	65.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	3.24	1.64	9.86	3.39	1.70	10.23	4.44	1.91	29.38
SULFATIC	.06	.01	.12	.07	.01	.12	.09	.01	.34
ORGANIC	.78	.76	1.51	.81	.79	1.56	1.06	.89	4.49
TOTAL	4.08	2.41	11.48	4.27	2.50	11.91	5.59	2.80	34.22

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	33.94	--	--
AL2O3	(ALUMINUM OXIDE)	15.77	--	--
FE2O3	(IRON OXIDE)	20.86	--	--
TIO2	(TITANIUM OXIDE)	1.81	--	--
CAO	(CALCIUM OXIDE)	10.92	--	--
MGO	(MAGNESIUM OXIDE)	.81	--	--
NA2O	(SODIUM OXIDE)	.34	--	--
K2O	(POTASSIUM OXIDE)	1.39	--	--
SO3	(SULFITES)	12.82	--	--

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.67	--
DOLOMITE	.34	--
HYDROGEN/CARBON	.84	.86
OXYGEN/CARBON	.06	.08
R250	.61	--
SILICA	.51	--
SILICA/ALUMINA	2.15	--

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	--	2010	--
SOFTENING TEMPERATURE (ST)	2030	2080	--
FLUID TEMPERATURE (FT)	--	2190	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.14	--	--
NA (SODIUM) (CALCULATED)	.06	--	--
MINERAL MATTER (PARR)	27.94	13.09	76.97

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	5 1/2	4 1/2	--
HARDGROVE GRINDABILITY (HGI)	52	43	--

STATE: TEXAS
COUNTY: ANGELINA

BED: UNCORRELATED
RANK: LIGNITE A

BED CODE: 413
SAMPLE NO. 723

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	88.6	92.4	11.1	.04	1.21	11046	2.2
FLOAT 1.40	95.2	98.2	11.9	.04	1.22	10924	2.2
FLOAT 1.60	97.0	99.3	12.5	.05	1.22	10834	2.3
CUM(1-1/2" X 100M)	100.0	100.0	14.3	.08	1.23	10586	2.3
100M X 0	1.1	.8	35.7	.26	1.31	7690	3.4
TOTAL(1-1/2" X 0)	100.0	100.0	14.5	.08	1.23	10554	2.3

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	89.5	93.6	9.9	.06	1.30	11262	2.3
FLOAT 1.40	93.6	97.1	10.5	.06	1.30	11168	2.3
FLOAT 1.60	96.5	99.1	11.2	.06	1.30	11056	2.4
CUM(3/8" X 100M)	100.0	100.0	13.2	.09	1.30	10770	2.4
100M X 0	6.2	5.2	25.5	.12	1.20	9090	2.6
TOTAL(3/8" X 0)	100.0	100.0	14.0	.09	1.29	10666	2.4

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	85.5	91.2	10.0	.06	1.29	11239	2.3
FLOAT 1.40	92.5	97.3	11.0	.06	1.29	11089	2.3
FLOAT 1.60	96.2	99.4	12.4	.06	1.27	10895	2.3
CUM(14M X 0)	100.0	100.0	15.0	.09	1.26	10540	2.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	77.9
3/8" X 14M	16.2
14M X 100M	4.8
100M X 0	1.1

MOISTURE, %

TOTAL	37.4
AS RECEIVED	32.9

STATE: TEXAS
COUNTY: ANGELINA

BED: UNCORRELATED
RANK: LIGNITE A

BED CODE: 413
SAMPLE NO. 723

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	32.90	23.90	6.00	--	--	--	--	--	--
ASH	10.47	9.81	75.39	15.60	12.90	80.20	--	--	--
VOLATILE MATTER	31.65	36.91	13.63	47.17	48.51	14.50	55.89	55.69	73.23
FIXED CARBON	24.98	29.37	4.98	37.23	38.60	5.30	44.11	44.31	26.77
BTU/LB	7022	8244	1491	10465	10834	1586	12400	12438	8009

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	40.19	47.18	9.28	59.90	62.00	9.87	70.97	71.18	49.85
HYDROGEN	6.81	6.33	1.89	4.70	4.83	1.30	5.57	5.55	6.57
NITROGEN	.73	.85	.19	1.08	1.12	.20	1.28	1.29	1.01
SULFUR	.85	1.03	.95	1.26	1.36	1.01	1.49	1.56	5.09
OXYGEN	40.96	34.78	12.31	17.46	17.79	7.42	20.69	20.42	37.49
ASH	10.47	9.81	75.39	15.60	12.90	80.20	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.06	.04	.80	.09	.05	.85	.11	.06	4.29
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.05
ORGANIC	.78	.99	.14	1.16	1.30	.15	1.37	1.49	.74
TOTAL	.85	1.03	.95	1.26	1.36	1.01	1.49	1.56	5.09

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	51.56	48.15	66.91
AL2O3	(ALUMINUM OXIDE)	22.63	23.38	19.60
FE2O3	(IRON OXIDE)	4.58	4.86	3.72
TIO2	(TITANIUM OXIDE)	1.00	1.67	.33
CAO	(CALCIUM OXIDE)	7.64	8.96	.92
MGO	(MAGNESIUM OXIDE)	1.69	2.19	.76
NA2O	(SODIUM OXIDE)	1.27	--	--
K2O	(POTASSIUM OXIDE)	.65	.48	1.45
SO3	(SULFITES)	8.76	9.13	.51

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.21	--
DOLOMITE	.59	--
HYDROGEN/CARBON	.94	.93
OXYGEN/CARBON	.22	.22
R250	.86	.84
SILICA	.79	.76
SILICA/ALUMINA	2.28	2.06

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2300	2180	--
SOFTENING TEMPERATURE (ST)	2350	2240	--
FLUID TEMPERATURE (FT)	2410	2360	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.00	--	--
NA (SODIUM) (CALCULATED)	.15	--	--
MINERAL MATTER (PARR)	17.54	14.68	87.17

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	0	0	--
HARDGROVE GRINDABILITY (HGI)	45	43	--

STATE: TEXAS
COUNTY: HARRISON

BED: WILCOX
RANK: LIGNITE A

BED CODE: 900
SAMPLE NO. 724

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	96.7	97.2	9.1	.06	.78	11306	1.4
FLOAT 1.40	99.1	99.4	9.3	.06	.78	11282	1.4
FLOAT 1.60	99.7	99.9	9.4	.06	.78	11267	1.4
CUM(1-1/2" X 100M)	100.0	100.0	9.5	.07	.79	11242	1.4
100M X 0	1.0	.9	16.6	.19	.86	10250	1.7
TOTAL(1-1/2" X 0)	100.0	100.0	9.6	.07	.79	11233	1.4

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	86.3	87.3	8.4	.05	.81	11325	1.4
FLOAT 1.40	97.5	98.2	8.8	.06	.81	11274	1.4
FLOAT 1.60	99.5	99.8	9.1	.06	.81	11233	1.4
CUM(3/8" X 100M)	100.0	100.0	9.3	.07	.82	11199	1.5
100M X 0	11.0	10.7	11.7	.10	.82	10926	1.5
TOTAL(3/8" X 0)	100.0	100.0	9.6	.07	.82	11169	1.5

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	80.7	81.7	7.7	.04	.80	11523	1.4
FLOAT 1.40	97.7	98.3	8.2	.05	.79	11450	1.4
FLOAT 1.60	99.6	99.9	8.5	.06	.79	11409	1.4
CUM(14M X 0)	100.0	100.0	8.8	.07	.80	11378	1.4

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	78.3
3/8" X 14M	17.0
14M X 100M	3.7
100M X 0	1.0

MOISTURE, %

TOTAL	33.4
AS RECEIVED	30.9

STATE: TEXAS
COUNTY: HARRISON

BED: WILCOX
RANK: LIGNITE A

BED CODE: 900
SAMPLE NO. 724

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	30.90	15.00	1.50	--	--	--	--	--	--
ASH	6.70	7.57	78.96	9.70	8.90	80.16	--	--	--
VOLATILE MATTER	31.54	39.15	10.48	45.65	46.05	10.64	50.55	50.55	53.63
FIXED CARBON	30.85	38.29	9.06	44.65	45.05	9.20	49.45	49.45	46.37
BTU/LB	7684	9655	1450	11120	11359	1472	12315	12469	7419

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	46.23	57.04	14.07	66.90	67.10	14.28	74.09	73.66	71.98
HYDROGEN	6.75	5.76	1.84	4.80	4.81	1.70	5.32	5.29	8.57
NITROGEN	.83	1.02	.49	1.20	1.20	.50	1.33	1.32	2.52
SULFUR	.54	.64	3.24	.78	.75	3.29	.86	.82	16.58
OXYGEN	38.95	27.98	1.40	16.62	17.23	.07	18.40	18.92	.35
ASH	6.70	7.57	78.96	9.70	8.90	80.16	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.05	.05	2.52	.07	.06	2.56	.08	.07	12.90
SULFATIC	.01	.01	.01	.01	.01	.01	.01	.01	.05
ORGANIC	.48	.58	.71	.70	.68	.72	.78	.75	3.63
TOTAL	.54	.64	3.24	.78	.75	3.29	.86	.82	16.58

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	30.77	31.53	58.81
AL2O3	(ALUMINUM OXIDE)	13.41	13.58	26.40
FE2O3	(IRON OXIDE)	4.76	4.86	7.43
TIO2	(TITANIUM OXIDE)	1.12	1.33	.67
CAO	(CALCIUM OXIDE)	24.10	24.49	1.68
MGO	(MAGNESIUM OXIDE)	4.79	5.14	.76
NA2O	(SODIUM OXIDE)	.90	--	--
K2O	(POTASSIUM OXIDE)	.27	.24	.96
SO3	(SULFITES)	16.83	15.81	1.03

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.77	--
DOLOMITE	.83	--
HYDROGEN/CARBON	.86	.86
OXYGEN/CARBON	.19	.19
R250	.60	.61
SILICA	.48	.48
SILICA/ALUMINA	2.29	2.32

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2080	2100	--
SOFTENING TEMPERATURE (ST)	2110	2140	--
FLUID TEMPERATURE (FT)	2140	2180	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.00	--	--
NA (SODIUM) (CALCULATED)	.06	--	--
MINERAL MATTER (PARR)	10.91	10.02	88.38

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	0	0	--
HARDGROVE GRINDABILITY (HGI)	60	51	--

STATE: TEXAS
COUNTY: PANOLA

BED: WILCOX
RANK: LIGNITE A

BED CODE: 900
SAMPLE NO. 725

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	94.1	95.1	7.1	.10	1.26	11339	2.2
FLOAT 1.40	98.3	99.0	7.5	.12	1.29	11298	2.3
FLOAT 1.60	99.3	99.8	7.6	.13	1.30	11276	2.3
CUM(1-1/2" X 100M)	100.0	100.0	8.1	.22	1.38	11220	2.5
100M X 0	1.2	1.0	20.1	.49	1.51	9388	3.2
TOTAL(1-1/2" X 0)	100.0	100.0	8.2	.22	1.38	11198	2.5

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	85.3	87.1	6.7	.06	1.08	11499	1.9
FLOAT 1.40	95.0	96.5	7.2	.07	1.07	11438	1.9
FLOAT 1.60	98.5	99.5	7.7	.09	1.08	11370	1.9
CUM(3/8" X 100M)	100.0	100.0	8.5	.29	1.26	11255	2.2
100M X 0	10.1	9.3	13.7	.29	1.77	10382	3.4
TOTAL(3/8" X 0)	100.0	100.0	9.0	.29	1.31	11167	2.3

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	77.0	78.7	6.5	.06	1.03	11449	1.8
FLOAT 1.40	96.6	98.0	7.3	.07	1.06	11368	1.9
FLOAT 1.60	98.5	99.6	7.7	.08	1.06	11328	1.9
CUM(14M X 0)	100.0	100.0	8.5	.28	1.27	11200	2.3

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	78.8
3/8" X 14M	15.9
14M X 100M	4.1
100M X 0	1.2

MOISTURE, %

TOTAL	34.2
AS RECEIVED	33.0

STATE: TEXAS
COUNTY: PANOLA

BED: WILCOX
RANK: LIGNITE A

BED CODE: 900
SAMPLE NO. 725

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	33.00	18.00	2.20	--	--	--	--	--	--
ASH	5.92	6.31	62.08	8.84	7.70	63.47	--	--	--
VOLATILE MATTER	29.39	36.29	24.96	43.87	44.25	25.53	48.12	47.94	69.88
FIXED CARBON	31.68	39.40	10.76	47.29	48.05	11.00	51.88	52.06	30.12
BTU/LB	7476	9289	2593	11159	11328	2652	12241	12273	7260

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	44.17	54.98	11.44	65.92	67.05	11.70	72.31	72.64	32.03
HYDROGEN	6.70	5.77	1.42	4.53	4.60	1.20	4.97	4.98	3.29
NITROGEN	.83	1.04	.29	1.24	1.26	.30	1.36	1.37	.82
SULFUR	.86	.81	14.74	1.28	.99	15.07	1.40	1.07	41.26
OXYGEN	41.52	31.09	10.03	18.19	18.41	8.26	19.95	19.94	22.60
ASH	5.92	6.31	62.08	8.84	7.70	63.47	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.19	.07	13.12	.28	.09	13.41	.30	.09	36.72
SULFATIC	.02	.02	.04	.03	.02	.04	.03	.02	.11
ORGANIC	.65	.72	1.58	.97	.88	1.62	1.06	.95	4.43
TOTAL	.86	.81	14.74	1.28	.99	15.07	1.40	1.07	41.26

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	28.98	31.96	34.94
AL2O3	(ALUMINUM OXIDE)	12.82	13.58	21.12
FE2O3	(IRON OXIDE)	9.15	5.72	40.32
TIO2	(TITANIUM OXIDE)	1.67	2.00	.33
CAO	(CALCIUM OXIDE)	16.79	20.29	1.12
MGO	(MAGNESIUM OXIDE)	5.54	6.66	.33
NA2O	(SODIUM OXIDE)	1.35	--	--
K2O	(POTASSIUM OXIDE)	.24	.24	.36
SO3	(SULFITES)	17.70	16.86	1.22

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.76	--
DOLOMITE	.68	--
HYDROGEN/CARBON	.82	.82
OXYGEN/CARBON	.21	.21
R250	.62	.64
SILICA	.48	.50
SILICA/ALUMINA	2.26	2.35

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

		RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION	(ID)	2080	1950	--
SOFTENING TEMPERATURE	(ST)	2110	1980	--
FLUID TEMPERATURE	(FT)	2140	2010	--

MISCELLANEOUS DATA, %

		RAW	FL 1.60	SK 1.60
CL (CHLORINE)	(ANALYZED)	.01	--	--
NA (SODIUM)	(CALCULATED)	.09	--	--
MINERAL MATTER	(PARR)	10.25	8.86	76.84

PHYSICAL PARAMETERS, INDEX

		RAW	FL 1.60	SK 1.60
FREE SWELLING	(FSI)	0	0	--
HARDGROVE GRINDABILITY	(HGI)	63	56	--

STATE: TEXAS
COUNTY: TITUS

BED: WILCOX
RANK: LIGNITE A

BED CODE: 900
SAMPLE NO. 726

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	76.4	81.0	12.5	.06	.84	10705	1.6
FLOAT 1.40	90.3	94.2	13.9	.07	.84	10536	1.6
FLOAT 1.60	96.2	98.7	15.2	.09	.85	10360	1.6
CUM(1-1/2" X 100M)	100.0	100.0	17.2	.12	.86	10095	1.7
100M X 0	.9	.7	36.1	.27	.88	7603	2.3
TOTAL(1-1/2" X 0)	100.0	100.0	17.4	.12	.86	10072	1.7

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	67.6	72.7	10.9	.04	.81	10975	1.5
FLOAT 1.40	86.9	91.8	12.3	.07	.81	10776	1.5
FLOAT 1.60	95.2	98.3	13.9	.10	.81	10544	1.5
CUM(3/8" X 100M)	100.0	100.0	16.4	.12	.86	10207	1.7
100M X 0	8.7	7.4	27.7	.08	.81	8715	1.9
TOTAL(3/8" X 0)	100.0	100.0	17.4	.12	.86	10077	1.7

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	55.2	60.2	9.8	.01	.81	11116	1.5
FLOAT 1.40	82.3	87.4	11.9	.01	.79	10828	1.5
FLOAT 1.60	96.1	98.8	14.2	.02	.77	10480	1.5
CUM(14M X 0)	100.0	100.0	16.4	.06	.80	10193	1.6

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %
SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	78.1
3/8" X 14M	17.4
14M X 100M	3.6
100M X 0	.9

MOISTURE, %

TOTAL	33.1
AS RECEIVED	29.2

STATE: TEXAS
COUNTY: TITUS

BED: WILCOX
RANK: LIGNITE A

BED CODE: 900
SAMPLE NO. 726

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	29.16	15.90	2.90	--	--	--	--	--	--
ASH	12.08	12.42	65.54	17.06	14.77	67.50	--	--	--
VOLATILE MATTER	31.51	38.43	19.03	44.49	45.69	19.60	53.63	53.61	60.31
FIXED CARBON	27.24	33.25	12.53	38.46	39.54	12.90	46.36	46.39	39.69
BTU/LB	7164	8755	3354	10113	10411	3455	12193	12215	10630

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	42.15	51.50	18.36	59.50	61.23	18.91	71.74	71.84	58.18
HYDROGEN	6.31	5.50	1.89	4.33	4.44	1.62	5.22	5.21	4.98
NITROGEN	.60	.73	.35	.85	.87	.36	1.02	1.02	1.11
SULFUR	.65	.71	1.64	.92	.84	1.69	1.11	.98	5.21
OXYGEN	38.20	29.15	12.21	17.34	17.85	9.92	20.91	20.94	30.52
ASH	12.08	12.42	65.54	17.06	14.77	67.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.08	.02	1.12	.11	.02	1.15	.13	.02	3.54
SULFATIC	.00	.00	.11	.01	.00	.12	.01	.00	.35
ORGANIC	.57	.69	.42	.81	.82	.43	.97	.96	1.32
TOTAL	.65	.71	1.64	.92	.84	1.69	1.11	.98	5.21

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	46.88	46.02	69.04
AL2O3	(ALUMINUM OXIDE)	18.86	19.61	13.95
FE2O3	(IRON OXIDE)	4.00	3.43	4.29
TIO2	(TITANIUM OXIDE)	1.67	1.67	.67
CAO	(CALCIUM OXIDE)	13.29	14.69	3.92
MGO	(MAGNESIUM OXIDE)	2.95	3.28	.73
NA2O	(SODIUM OXIDE)	.27	--	--
K2O	(POTASSIUM OXIDE)	.72	.72	1.45
SO3	(SULFITES)	8.85	7.96	2.21

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.31	--
DOLOMITE	.76	--
HYDROGEN/CARBON	.87	.87
OXYGEN/CARBON	.21	.22
R250	.79	.78
SILICA	.70	.69
SILICA/ALUMINA	2.49	2.35

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2140	2190	--
SOFTENING TEMPERATURE (ST)	2190	2240	--
FLUID TEMPERATURE (FT)	2250	2290	--

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.00	--	--
NA (SODIUM) (CALCULATED)	.03	--	--
MINERAL MATTER (PARR)	19.18	16.41	79.28

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	--	--	--
HARDGROVE GRINDABILITY (HGI)	56	49	--

STATE: TEXAS
COUNTY: TITUS

BED: WILCOX (BOT)
RANK: LIGNITE A

BED CODE: 900
SAMPLE NO. 727

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"
(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	73.7	79.1	12.2	.05	.88	11120	1.6
FLOAT 1.40	91.4	95.4	14.4	.05	.87	10810	1.6
FLOAT 1.60	95.8	98.5	15.6	.05	.86	10650	1.6
CUM(1-1/2" X 100M)	100.0	100.0	17.7	.05	.84	10360	1.6
100M X 0	.8	.7	26.8	.08	.72	9270	1.6
TOTAL(1-1/2" X 0)	100.0	100.0	17.8	.05	.84	10351	1.6

SAMPLE CRUSHED TO PASS 3/8"
(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	73.2	79.4	11.6	.02	.86	11330	1.5
FLOAT 1.40	87.2	92.3	13.5	.02	.85	11060	1.5
FLOAT 1.60	95.3	98.1	15.6	.02	.83	10760	1.5
CUM(3/8" X 100M)	100.0	100.0	17.8	.03	.82	10450	1.6
100M X 0	2.9	1.8	22.4	.04	.78	6360	2.5
TOTAL(3/8" X 0)	100.0	100.0	17.9	.03	.82	10331	1.6

SAMPLE CRUSHED TO PASS 14M
(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	60.9	66.1	11.8	.09	.84	11360	1.5
FLOAT 1.40	84.9	90.0	13.4	.09	.82	11090	1.5
FLOAT 1.60	93.3	96.8	15.0	.08	.81	10850	1.5
CUM(14M X 0)	100.0	100.0	17.6	.09	.80	10460	1.5

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, % — SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	68.5
3/8" X 14M	26.0
14M X 100M	4.7
100M X 0	.8

MOISTURE, %

TOTAL	32.8
AS RECEIVED	29.2

STATE: TEXAS
COUNTY: TITUS

BED: WILCOX (BOT)
RANK: LIGNITE A

BED CODE: 900
SAMPLE NO. 727

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	29.20	21.40	2.70	--	--	--	--	--	--
ASH	12.96	12.40	52.06	18.30	15.77	53.50	--	--	--
VOLATILE MATTER	34.78	39.82	26.95	49.12	50.66	27.70	60.12	60.14	59.57
FIXED CARBON	23.07	26.39	18.29	32.58	33.57	18.80	39.88	39.86	40.43
BTU/LB	7343	8451	4460	10371	10752	4583	12694	12765	9857

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	41.66	48.45	18.05	58.85	61.64	18.55	72.03	73.18	39.89
HYDROGEN	6.42	5.97	3.12	4.48	4.57	2.90	5.49	5.43	6.24
NITROGEN	.70	.81	.39	.99	1.03	.40	1.21	1.22	.86
SULFUR	.52	.66	.65	.74	.84	.67	.90	1.00	1.43
OXYGEN	37.74	31.72	25.74	16.65	16.15	23.98	20.38	19.17	51.58
ASH	12.96	12.40	52.06	18.30	15.77	53.50	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.04	.06	.22	.06	.07	.23	.08	.09	.49
SULFATIC	.02	.02	.03	.03	.02	.03	.03	.02	.06
ORGANIC	.46	.59	.40	.65	.75	.41	.80	.89	.87
TOTAL	.52	.66	.65	.74	.84	.67	.90	1.00	1.43

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	48.26	66.48	62.64
AL2O3	(ALUMINUM OXIDE)	22.52	18.86	26.02
FE2O3	(IRON OXIDE)	3.56	8.58	2.66
TIO2	(TITANIUM OXIDE)	1.52	1.07	2.30
CAO	(CALCIUM OXIDE)	.14	1.40	2.94
MGO	(MAGNESIUM OXIDE)	11.90	1.03	1.06
NA2O	(SODIUM OXIDE)	3.23	.03	.03
K2O	(POTASSIUM OXIDE)	.56	1.23	.67
SO3	(SULFITES)	.68	.58	1.40

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.27	.14
DOLOMITE	.62	.20
HYDROGEN/CARBON	.91	.89
OXYGEN/CARBON	.21	.20
R250	.95	.90
SILICA	.76	.75
SILICA/ALUMINA	2.14	3.52

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2240	2040	2730
SOFTENING TEMPERATURE (ST)	2340	2170	2800+
FLUID TEMPERATURE (FT)	2400	2260	2800+

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.05	--	--
NA (SODIUM) (CALCULATED)	.44	.00	.01
MINERAL MATTER (PARR)	20.10	17.50	58.15

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	0	0	--
HARDGROVE GRINDABILITY (HGI)	57	42	--

STATE: TEXAS
COUNTY: TITUS

BED: WILCOX (TOP)
RANK: LIGNITE A

BED CODE: 900
SAMPLE NO. 728

CUMULATIVE WASHABILITY DATA (DRY BASIS)

SAMPLE CRUSHED TO PASS 1-1/2"

(FLOAT-SINK PERFORMED ON 1-1/2" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	52.6	60.9	13.2	.06	.81	10770	1.5
FLOAT 1.40	76.6	85.2	16.7	.05	.80	10340	1.5
FLOAT 1.60	91.9	96.9	20.8	.05	.78	9810	1.6
CUM(1-1/2" X 100M)	100.0	100.0	24.5	.22	.97	9300	2.1
100M X 0	1.3	.9	48.2	.13	.67	6090	2.2
TOTAL(1-1/2" X 0)	100.0	100.0	24.8	.22	.97	9258	2.1

SAMPLE CRUSHED TO PASS 3/8"

(FLOAT-SINK PERFORMED ON 3/8" X 100M MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	46.4	55.0	11.6	.03	.83	11030	1.5
FLOAT 1.40	73.2	82.2	16.4	.13	.90	10450	1.7
FLOAT 1.60	92.1	97.1	21.0	.12	.86	9820	1.8
CUM(3/8" X 100M)	100.0	100.0	24.6	.28	1.03	9310	2.2
100M X 0	4.2	3.3	38.6	.06	.67	7219	1.9
TOTAL(3/8" X 0)	100.0	100.0	25.2	.27	1.01	9222	2.2

SAMPLE CRUSHED TO PASS 14M

(FLOAT-SINK PERFORMED ON 14M X 0 MATERIAL)

PRODUCT	RECOVERY, % WEIGHT	RECOVERY, % BTU	ASH, %	SULFUR, % PYRITIC	SULFUR, % TOTAL	HEATING VALUE BTU/LB	SO2 EMISSION LB/MM BTU
FLOAT 1.30	44.2	51.6	13.6	.06	.84	11100	1.5
FLOAT 1.40	73.4	83.3	15.3	.06	.82	10790	1.5
FLOAT 1.60	88.8	96.1	18.7	.05	.81	10290	1.6
CUM(14M X 0)	100.0	100.0	24.2	.23	.95	9510	2.0

RAW COAL SIZE AND MOISTURE ANALYSES

SIZE DISTRIBUTION, %

SAMPLE CRUSHED TO PASS 1-1/2"

1-1/2" X 3/8"	63.2
3/8" X 14M	30.0
14M X 100M	5.5
100M X 0	1.3

MOISTURE, %

TOTAL	34.1
AS RECEIVED	24.8

STATE: TEXAS
COUNTY: TITUS

BED: WILCOX (TOP)
RANK: LIGNITE A

BED CODE: 900
SAMPLE NO. 728

ANALYSES OF RAW COAL SAMPLE CRUSHED TO PASS 14M

PROXIMATE ANALYSIS, % AND BTU ANALYSIS

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
MOISTURE	24.80	18.30	3.60	--	--	--	--	--	--
ASH	18.70	14.95	64.40	24.87	18.30	66.80	--	--	--
VOLATILE MATTER	32.23	37.42	21.79	42.86	45.80	22.60	57.05	56.06	68.07
FIXED CARBON	24.27	29.33	10.22	32.27	35.90	10.60	42.95	43.94	31.93
BTU/LB	7088	8448	3306	9426	10341	3430	12546	12657	10331

ULTIMATE ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
CARBON	40.54	48.20	19.83	53.91	59.00	20.57	71.75	72.22	61.96
HYDROGEN	5.65	5.27	3.20	3.84	3.96	2.90	5.12	4.85	8.73
NITROGEN	.70	.81	.39	.93	1.00	.40	1.24	1.22	1.20
SULFUR	.66	.73	1.99	.88	.89	2.07	1.17	1.09	6.22
OXYGEN	33.75	30.03	10.20	15.57	16.85	7.26	20.73	20.62	21.88
ASH	18.70	14.95	64.40	24.87	18.30	66.80	--	--	--

SULFUR FORMS ANALYSIS, %

	AS RECEIVED			MOISTURE FREE			MOISTURE AND ASH FREE		
	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60	RAW	FL 1.60	SK 1.60
PYRITIC	.20	.04	1.60	.26	.06	1.66	.35	.07	4.99
SULFATIC	.02	.02	.03	.03	.02	.03	.03	.02	.09
ORGANIC	.44	.67	.36	.59	.82	.38	.79	1.00	1.14
TOTAL	.66	.73	1.99	.88	.89	2.07	1.17	1.09	6.22

MINERAL ANALYSIS OF ASH, %

OXIDES		RAW	FL 1.60	SK 1.60
SIO2	(SILICON OXIDE)	55.97	51.56	44.75
AL2O3	(ALUMINUM OXIDE)	21.70	22.25	20.74
FE2O3	(IRON OXIDE)	6.03	4.86	4.29
TIO2	(TITANIUM OXIDE)	1.26	2.70	2.26
CAO	(CALCIUM OXIDE)	6.02	9.24	13.71
MGO	(MAGNESIUM OXIDE)	2.49	3.02	3.32
NA2O	(SODIUM OXIDE)	.22	.16	.32
K2O	(POTASSIUM OXIDE)	.83	.72	.34
SO3	(SULFITES)	6.76	4.98	9.34

COAL UTILIZATION RATIOS

	RAW	FL 1.60
BASE/ACID	.20	.24
DOLOMITE	.55	.68
HYDROGEN/CARBON	.86	.81
OXYGEN/CARBON	.22	.21
R250	.87	.84
SILICA	.79	.76
SILICA/ALUMINA	2.58	2.32

FUSIBILITY OF ASH, DEGREES F (IN OXIDIZING ATMOSPHERE)

	RAW	FL 1.60	SK 1.60
INITIAL DEFORMATION (ID)	2150	2140	2310
SOFTENING TEMPERATURE (ST)	2240	2220	2400
FLUID TEMPERATURE (FT)	2360	2330	2540

MISCELLANEOUS DATA, %

	RAW	FL 1.60	SK 1.60
CL (CHLORINE) (ANALYZED)	.03	--	--
NA (SODIUM) (CALCULATED)	.04	.02	.16
MINERAL MATTER (PARR)	27.30	20.32	73.28

PHYSICAL PARAMETERS, INDEX

	RAW	FL 1.60	SK 1.60
FREE SWELLING (FSI)	0	0	--
HARDGROVE GRINDABILITY (HGI)	57	46	--

APPENDIX D

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA, SELECTED CHEMICAL AND PHYSICAL PROPERTIES, AND WASHABILITY DATA AT VARIOUS LEVELS OF BTU RECOVERY BY STATE, SECTION AND REGION

APPENDIX D

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA, SELECTED CHEMICAL AND PHYSICAL PROPERTIES, AND WASHABILITY DATA AT VARIOUS LEVELS OF BTU RECOVERY BY STATE, SECTION AND REGION

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STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE AND RANK (DRY BASIS)

STATE: ILLINOIS (BITUMINOUS) NUMBER OF SAMPLES: 40 TOTAL MOISTURE, %: 7.9 ST.DEV: 4.0

		WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	100.0	.0	100.0	.0	11806	453	.0	.0	15.4	2.6	.0	.0
1-1/2" X 100M	FLOAT 1.30	47.9	15.1	54.6	16.1	13561	263	14.7	7.9	4.8	1.2	68.6	12.2
	FLOAT 1.40	78.9	6.9	88.0	4.4	13190	224	11.5	7.6	7.1	1.2	53.8	15.4
	FLOAT 1.60	88.0	6.2	96.3	1.8	12950	261	9.5	7.6	8.5	1.4	44.3	18.7
	CUMULATIVE	100.0	.0	100.0	.0	11825	783	.0	.0	15.3	4.4	.0	.0
3/8" X 100M	FLOAT 1.30	45.2	12.5	51.9	12.9	13689	230	15.5	7.8	4.0	1.1	73.4	10.4
	FLOAT 1.40	76.6	6.9	86.3	4.4	13364	213	12.8	7.6	6.0	1.1	60.4	13.7
	FLOAT 1.60	87.0	6.0	96.0	1.6	13083	265	10.4	7.5	7.7	1.5	49.1	17.6
	CUMULATIVE	100.0	.0	100.0	.0	11848	770	.0	.0	15.1	4.4	.0	.0
14M X 0	FLOAT 1.30	31.5	16.5	36.7	18.0	13795	186	17.1	8.2	3.4	.8	78.2	8.1
	FLOAT 1.40	70.6	8.9	80.5	6.6	13466	209	14.3	8.0	5.4	1.0	65.4	12.2
	FLOAT 1.60	85.6	6.3	95.2	2.3	13103	284	11.2	8.0	7.6	1.5	51.2	17.2
	CUMULATIVE	100.0	.0	100.0	.0	11783	809	.0	.0	15.5	4.6	.0	.0

		PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	2.21	.60	.0	.0	3.86	.80	.0	.0	6.6	1.5	.0	.0
1-1/2" X 100M	FLOAT 1.30	.59	.25	73.4	16.9	2.39	.70	38.0	28.5	3.5	1.1	46.3	25.9
	FLOAT 1.40	.84	.28	62.1	22.0	2.60	.73	32.5	30.6	4.0	1.1	40.0	28.5
	FLOAT 1.60	1.09	.42	50.5	30.0	2.84	.87	26.3	34.6	4.4	1.4	33.2	33.0
	CUMULATIVE	2.21	1.03	.0	.0	3.85	1.37	.0	.0	6.6	2.5	.0	.0
3/8" X 100M	FLOAT 1.30	.50	.19	77.1	13.7	2.33	.70	39.4	28.1	3.4	1.0	47.9	25.3
	FLOAT 1.40	.70	.23	67.8	18.2	2.50	.72	35.0	29.7	3.8	1.1	42.8	27.4
	FLOAT 1.60	.92	.34	57.8	25.1	2.70	.83	30.0	32.9	4.1	1.3	37.0	31.1
	CUMULATIVE	2.19	1.02	.0	.0	3.85	1.37	.0	.0	6.6	2.5	.0	.0
14M X 0	FLOAT 1.30	.42	.15	81.1	11.4	2.24	.70	42.3	28.0	3.2	1.0	51.1	24.8
	FLOAT 1.40	.61	.21	72.8	16.2	2.40	.71	38.1	29.4	3.6	1.1	46.3	26.9
	FLOAT 1.60	.83	.28	62.8	22.2	2.58	.78	33.5	31.9	3.9	1.2	40.6	30.0
	CUMULATIVE	2.23	1.09	.0	.0	3.88	1.44	.0	.0	6.6	2.7	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE AND RANK

STATE: ILLINOIS (BITUMINOUS)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	40	5.0	2.7	25	4.2	1.3	25	3.3	.9
ASH	40	15.5	4.5	25	7.2	1.3	25	55.3	8.4
VOLATILE MATTER	40	38.0	3.4	25	42.4	2.2	12	19.0	7.5
FIXED CARBON	40	46.4	3.3	25	50.4	2.6	12	25.4	7.4
BTU/LB	40	12022	697	25	13204	276	12	5330	1216
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	2	69.6	1.0	2	74.5	1.0	2	23.4	1.6
HYDROGEN	2	4.7	.1	2	5.0	.0	2	1.3	.4
NITROGEN	2	1.3	.0	2	1.4	.1	2	.4	.1
OXYGEN	2	9.3	.8	2	9.5	.7	2	6.5	.5
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	40	2.23	1.02	25	.78	.23	25	11.30	3.76
SULFATIC SULFUR	40	.07	.06	25	.04	.05	25	.06	.06
ORGANIC SULFUR	40	1.55	.61	25	1.89	.57	25	1.05	.76
TOTAL SULFUR	40	3.85	1.37	25	2.71	.75	25	12.41	3.83
MINERAL ANALYSIS OF ASH, %									
SIO2 (SILICON OXIDE)	0	--	--	0	--	--	0	--	--
AL2O3 (ALUMINUM OXIDE)	0	--	--	0	--	--	0	--	--
FE2O3 (IRON OXIDE)	0	--	--	0	--	--	0	--	--
TIO2 (TITANIUM OXIDE)	0	--	--	0	--	--	0	--	--
CAO (CALCIUM OXIDE)	0	--	--	0	--	--	0	--	--
MGO (MAGNESIUM OXIDE)	0	--	--	0	--	--	0	--	--
NA2O (SODIUM OXIDE)	30	.66	.36	0	--	--	0	--	--
K2O (POTASSIUM OXIDE)	0	--	--	0	--	--	0	--	--
SO3 (SULFITES)	0	--	--	0	--	--	0	--	--
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	19	2062	147	19	2159	166	5	2056	92
SOFTENING TEMPERATURE (ST)	19	2112	150	19	2234	166	6	2110	97
FLUID TEMPERATURE (FT)	19	2205	176	19	2375	169	6	2185	150
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	40	18.9	5.0	25	9.3	1.6	25	66.6	9.3
CHLORINE	2	.08	.01	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	17	56	2	17	54	5	0	--	--
FREE SWELLING (FSI)	25	3 1/2	1	25	3 1/2	0 1/2	3	1	0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE AND RANK

STATE: ILLINOIS (BITUMINOUS) TOTAL MOISTURE, %: 7.9 ST.DEV: 4.0

SIZE	BTU RECOVERY %	NO.OF SAMPLES	WEIGHT RECOVERY AMOUNT, % AVERAGE	WEIGHT RECOVERY AMOUNT, % ST.DEV	WEIGHT RECOVERY REDUCTION, % AVERAGE	WEIGHT RECOVERY REDUCTION, % ST.DEV	HEATING VALUE BTU/LB AVERAGE	HEATING VALUE BTU/LB ST.DEV	HEATING VALUE INCREASE, % AVERAGE	HEATING VALUE INCREASE, % ST.DEV	ASH CONTENT, % AVERAGE	ASH CONTENT, % ST.DEV	ASH REDUCTION, % AVERAGE	ASH REDUCTION, % ST.DEV
ALL X 0	100.0	120	100.0	.0	.0	.0	11806	453	.0	.0	15.4	2.6	.0	.0
1-1/2" X 100M	50.0	17	40.8	3.8	59.2	3.8	13536	224	13.9	7.7	4.9	.7	66.9	11.0
	60.0	24	49.4	3.9	50.6	3.9	13460	241	13.3	7.7	5.4	1.0	63.9	12.7
	70.0	33	59.3	4.6	40.7	4.6	13356	235	12.4	7.7	6.0	1.1	59.9	14.1
	80.0	36	70.0	4.8	30.0	4.8	13250	240	11.5	7.6	6.7	1.2	55.5	15.5
	90.0	40	80.9	5.1	19.1	5.1	13121	273	10.4	7.6	7.4	1.5	50.2	17.8
	100.0	40	100.0	.0	.0	.0	11881	782	.0	.0	14.9	4.4	.0	.0
3/8" X 100M	50.0	16	40.3	3.9	59.7	3.9	13574	244	13.5	7.3	4.6	1.2	68.5	12.1
	60.0	29	49.5	4.0	50.5	4.0	13562	228	13.4	7.2	4.7	1.0	67.4	11.9
	70.0	36	58.9	4.1	41.1	4.1	13497	232	12.8	7.2	5.1	1.2	65.1	12.9
	80.0	40	69.6	4.5	30.4	4.5	13427	236	12.3	7.2	5.6	1.2	61.5	14.0
	90.0	40	80.3	5.0	19.7	5.0	13254	272	10.8	7.2	6.6	1.5	54.2	16.7
	100.0	40	100.0	.0	.0	.0	11961	734	.0	.0	14.5	4.2	.0	.0
14M X 0	50.0	29	36.1	4.5	63.9	4.5	13645	173	15.8	8.1	4.1	.9	73.6	9.7
	60.0	37	46.5	4.8	53.5	4.8	13603	200	15.4	8.1	4.3	1.0	72.0	10.4
	70.0	37	56.9	4.0	43.1	4.0	13520	204	14.7	8.1	4.9	1.1	68.7	11.5
	80.0	40	68.9	4.2	31.1	4.2	13440	251	14.1	8.1	5.5	1.2	64.7	13.0
	90.0	40	79.9	4.8	20.1	4.8	13236	290	12.3	8.1	6.7	1.5	56.8	16.0
	100.0	40	100.0	.0	.0	.0	11783	809	.0	.0	15.5	4.6	.0	.0

SIZE	BTU RECOVERY %	NO.OF SAMPLES	PYRITIC SULFUR CONTENT, % AVERAGE	PYRITIC SULFUR CONTENT, % ST.DEV	PYRITIC SULFUR REDUCTION, % AVERAGE	PYRITIC SULFUR REDUCTION, % ST.DEV	TOTAL SULFUR CONTENT, % AVERAGE	TOTAL SULFUR CONTENT, % ST.DEV	TOTAL SULFUR REDUCTION, % AVERAGE	TOTAL SULFUR REDUCTION, % ST.DEV	SO2 EMISSION LB/MM BTU AVERAGE	SO2 EMISSION LB/MM BTU ST.DEV	SO2 EMISSION REDUCTION, % AVERAGE	SO2 EMISSION REDUCTION, % ST.DEV
ALL X 0	100.0	120	2.21	.60	.0	.0	3.86	.80	.0	.0	6.6	1.5	.0	.0
1-1/2" X 100M	50.0	17	.57	.13	74.1	13.6	2.49	.70	35.2	29.4	3.7	1.0	43.8	26.9
	60.0	24	.61	.13	72.3	14.4	2.44	.69	36.6	29.0	3.6	1.1	44.6	26.8
	70.0	33	.71	.27	67.5	19.7	2.52	.76	34.5	30.7	3.8	1.2	42.3	28.5
	80.0	36	.79	.29	64.2	21.5	2.58	.76	33.0	31.1	3.9	1.2	40.6	29.1
	90.0	40	.92	.37	58.1	26.2	2.69	.82	30.2	32.9	4.1	1.3	37.3	31.2
	100.0	40	2.20	1.04	.0	.0	3.85	1.38	.0	.0	6.6	2.5	.0	.0
3/8" X 100M	50.0	16	.58	.23	73.3	16.6	2.55	.67	33.6	29.5	3.8	1.0	42.2	27.4
	60.0	29	.57	.23	73.6	16.4	2.49	.74	35.2	30.2	3.7	1.1	43.6	27.9
	70.0	36	.60	.22	72.2	16.7	2.47	.74	35.8	30.0	3.7	1.1	43.8	27.8
	80.0	40	.67	.23	69.3	18.0	2.48	.73	35.6	30.0	3.7	1.1	43.3	28.0
	90.0	40	.79	.30	63.5	22.1	2.59	.80	32.6	31.9	3.9	1.2	39.9	30.3
	100.0	40	2.17	1.03	.0	.0	3.84	1.38	.0	.0	6.5	2.5	.0	.0
14M X 0	50.0	29	.50	.18	77.5	13.5	2.32	.74	40.2	29.3	3.4	1.1	48.7	26.4
	60.0	37	.51	.18	77.2	13.8	2.34	.73	39.5	29.3	3.5	1.1	48.0	26.4
	70.0	37	.56	.20	74.9	15.1	2.38	.73	38.5	29.7	3.5	1.1	46.8	27.0
	80.0	40	.62	.22	72.2	16.8	2.41	.73	37.8	29.7	3.6	1.1	45.8	27.3
	90.0	40	.74	.28	66.6	20.5	2.51	.77	35.2	31.3	3.8	1.2	42.6	29.2
	100.0	40	2.23	1.09	.0	.0	3.88	1.44	.0	.0	6.6	2.7	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE AND RANK (DRY BASIS)

STATE: INDIANA (BITUMINOUS) NUMBER OF SAMPLES: 21 TOTAL MOISTURE, %: 8.8 ST.DEV: 2.4

		WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	100.0	.0	100.0	.0	12472	349	.0	.0	12.0	2.0	.0	.0
1-1/2" X 100M	FLOAT 1.30	53.8	15.8	58.3	15.5	13639	147	9.2	5.4	5.1	.8	56.9	14.4
	FLOAT 1.40	83.9	9.4	89.0	7.0	13294	151	6.4	5.3	7.1	.8	39.7	18.7
	FLOAT 1.60	92.9	4.6	97.1	1.7	13058	295	4.5	5.6	8.5	1.7	28.0	25.2
	CUMULATIVE	100.0	.0	100.0	.0	12496	603	.0	.0	11.9	3.4	.0	.0
3/8" X 100M	FLOAT 1.30	52.4	13.6	57.4	13.1	13786	133	10.3	5.4	4.2	.6	64.1	11.5
	FLOAT 1.40	81.3	8.6	87.3	6.1	13451	125	7.6	5.2	6.2	.6	47.4	16.0
	FLOAT 1.60	91.6	5.1	96.6	2.0	13185	222	5.5	5.3	7.8	1.2	34.2	21.5
	CUMULATIVE	100.0	.0	100.0	.0	12498	597	.0	.0	11.8	3.4	.0	.0
14M X 0	FLOAT 1.30	35.7	12.5	39.7	12.5	13964	198	11.9	5.8	3.2	.7	73.2	10.0
	FLOAT 1.40	75.1	9.8	81.7	7.4	13606	170	9.1	5.6	5.3	.8	55.6	14.7
	FLOAT 1.60	90.1	5.7	95.6	2.8	13241	223	6.1	5.6	7.5	1.2	37.6	21.1
	CUMULATIVE	100.0	.0	100.0	.0	12474	619	.0	.0	12.0	3.5	.0	.0

		PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	2.22	.72	.0	.0	3.69	.90	.0	.0	6.0	1.5	.0	.0
1-1/2" X 100M	FLOAT 1.30	.73	.36	66.8	24.6	2.25	.85	38.7	34.8	3.3	1.3	44.4	32.5
	FLOAT 1.40	1.04	.50	52.9	34.7	2.56	.99	30.2	40.0	3.9	1.5	35.0	38.3
	FLOAT 1.60	1.28	.62	42.0	42.7	2.80	1.11	23.8	44.2	4.3	1.7	27.7	43.3
	CUMULATIVE	2.21	1.23	.0	.0	3.67	1.55	.0	.0	5.9	2.6	.0	.0
3/8" X 100M	FLOAT 1.30	.65	.29	70.2	21.4	2.19	.82	39.9	33.8	3.2	1.2	46.0	31.4
	FLOAT 1.40	.90	.42	58.5	30.4	2.44	.92	33.0	37.8	3.6	1.4	38.3	35.8
	FLOAT 1.60	1.12	.53	48.4	37.9	2.64	1.02	27.4	41.3	4.0	1.6	31.8	40.0
	CUMULATIVE	2.18	1.22	.0	.0	3.64	1.52	.0	.0	5.9	2.6	.0	.0
14M X 0	FLOAT 1.30	.50	.24	77.3	17.1	2.04	.79	44.5	31.9	2.9	1.2	50.8	29.4
	FLOAT 1.40	.74	.35	66.3	25.2	2.29	.88	37.8	35.5	3.4	1.3	43.5	33.4
	FLOAT 1.60	1.01	.48	54.0	34.4	2.54	.98	31.2	39.5	3.8	1.5	35.7	38.2
	CUMULATIVE	2.20	1.27	.0	.0	3.68	1.56	.0	.0	6.0	2.7	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE AND RANK

STATE: INDIANA (BITUMINOUS)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	21	6.7	2.4	20	5.3	2.0	20	3.2	1.3
ASH	21	11.9	3.4	20	7.3	1.0	20	51.1	7.2
VOLATILE MATTER	21	40.6	2.1	20	42.6	1.9	12	22.5	5.8
FIXED CARBON	21	47.4	3.0	20	50.1	2.1	12	26.7	5.8
BTU/LB	21	12561	528	20	13266	209	12	5935	821
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	1	73.7	--	1	75.2	--	1	24.4	--
HYDROGEN	1	5.2	--	1	5.3	--	1	2.0	--
NITROGEN	1	1.6	--	1	1.7	--	1	.5	--
OXYGEN	1	9.2	--	1	9.0	--	1	8.8	--
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	21	2.18	1.28	20	1.00	.48	20	12.97	6.18
SULFATIC SULFUR	21	.11	.09	20	.08	.08	20	.12	.08
ORGANIC SULFUR	21	1.36	.54	20	1.42	.60	20	1.15	1.30
TOTAL SULFUR	21	3.65	1.61	20	2.50	1.01	20	14.23	6.24
MINERAL ANALYSIS OF ASH, %									
SIO2 (SILICON OXIDE)	0	--	--	0	--	--	0	--	--
AL2O3 (ALUMINUM OXIDE)	0	--	--	0	--	--	0	--	--
FE2O3 (IRON OXIDE)	0	--	--	0	--	--	0	--	--
TIO2 (TITANIUM OXIDE)	0	--	--	0	--	--	0	--	--
CAO (CALCIUM OXIDE)	0	--	--	0	--	--	0	--	--
MGO (MAGNESIUM OXIDE)	0	--	--	0	--	--	0	--	--
NA2O (SODIUM OXIDE)	6	.93	.43	0	--	--	0	--	--
K2O (POTASSIUM OXIDE)	0	--	--	0	--	--	0	--	--
SO3 (SULFITES)	0	--	--	0	--	--	0	--	--
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	16	2097	157	16	2190	247	7	2039	66
SOFTENING TEMPERATURE (ST)	16	2153	160	16	2286	261	7	2086	65
FLUID TEMPERATURE (FT)	16	2262	180	15	2367	192	7	2151	85
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	21	14.9	4.1	20	9.3	1.3	20	62.8	7.6
CHLORINE	1	.00	--	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	12	54	4	11	54	3	0	--	--
FREE SWELLING (FSI)	20	3 1/2	1	20	4	0 1/2	2	0 1/2	0 1/2

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE AND RANK

STATE: INDIANA (BITUMINOUS) TOTAL MOISTURE, %: 8.8 ST.DEV: 2.4

SIZE	BTU RECOVERY %	NO.OF SAMPLES	WEIGHT RECOVERY AMOUNT, % AVERAGE	WEIGHT RECOVERY AMOUNT, % ST.DEV	WEIGHT RECOVERY REDUCTION, % AVERAGE	WEIGHT RECOVERY REDUCTION, % ST.DEV	HEATING VALUE BTU/LB AVERAGE	HEATING VALUE BTU/LB ST.DEV	HEATING VALUE INCREASE, % AVERAGE	HEATING VALUE INCREASE, % ST.DEV	ASH CONTENT, % AVERAGE	ASH CONTENT, % ST.DEV	ASH REDUCTION, % AVERAGE	ASH REDUCTION, % ST.DEV
ALL X 0	100.0	63	100.0	.0	.0	.0	12472	349	.0	.0	12.0	2.0	.0	.0
1-1/2" X 100M	50.0	7	42.8	2.4	57.2	2.4	13612	158	8.9	5.4	5.3	.6	55.7	13.7
	60.0	11	51.9	2.4	48.1	2.4	13508	125	8.1	5.3	5.7	.5	51.7	14.6
	70.0	16	62.3	2.4	37.7	2.4	13448	138	7.6	5.3	6.1	.8	49.0	16.1
	80.0	20	73.4	2.8	26.6	2.8	13381	214	7.1	5.4	6.5	1.2	45.0	18.8
	90.0	21	84.7	2.9	15.3	2.9	13227	279	5.9	5.6	7.5	1.5	36.6	22.6
	100.0	21	100.0	.0	.0	.0	12496	603	.0	.0	11.9	3.4	.0	.0
3/8" X 100M	50.0	6	42.4	2.9	57.6	2.9	13781	143	10.3	5.4	4.2	.5	64.1	11.3
	60.0	13	52.2	2.8	47.8	2.8	13680	122	9.5	5.3	4.6	.6	60.9	12.2
	70.0	16	61.8	2.6	38.2	2.6	13596	121	8.8	5.3	5.2	.6	56.4	13.5
	80.0	21	73.0	3.0	27.0	3.0	13530	172	8.3	5.3	5.7	.9	51.8	15.7
	90.0	21	84.0	3.1	16.0	3.1	13360	233	6.9	5.4	6.7	1.3	43.1	19.5
	100.0	21	100.0	.0	.0	.0	12498	597	.0	.0	11.8	3.4	.0	.0
14M X 0	50.0	18	41.3	2.7	58.7	2.7	13876	179	11.2	5.7	3.7	.7	69.4	11.0
	60.0	19	50.1	2.4	49.9	2.4	13782	174	10.5	5.7	4.1	.7	65.5	11.9
	70.0	20	60.6	2.4	39.4	2.4	13702	171	9.8	5.6	4.7	.8	61.1	13.2
	80.0	21	72.3	2.7	27.7	2.7	13585	183	8.9	5.6	5.4	.9	55.1	15.5
	90.0	21	83.6	2.9	16.4	2.9	13382	244	7.3	5.7	6.6	1.3	45.0	19.8
	100.0	21	100.0	.0	.0	.0	12474	619	.0	.0	12.0	3.5	.0	.0

SIZE	BTU RECOVERY %	NO.OF SAMPLES	PYRITIC SULFUR CONTENT, % AVERAGE	PYRITIC SULFUR CONTENT, % ST.DEV	PYRITIC SULFUR REDUCTION, % AVERAGE	PYRITIC SULFUR REDUCTION, % ST.DEV	TOTAL SULFUR CONTENT, % AVERAGE	TOTAL SULFUR CONTENT, % ST.DEV	TOTAL SULFUR REDUCTION, % AVERAGE	TOTAL SULFUR REDUCTION, % ST.DEV	SO2 EMISSION LB/MM BTU AVERAGE	SO2 EMISSION LB/MM BTU ST.DEV	SO2 EMISSION REDUCTION, % AVERAGE	SO2 EMISSION REDUCTION, % ST.DEV
ALL X 0	100.0	63	2.22	.72	.0	.0	3.69	.90	.0	.0	6.0	1.5	.0	.0
1-1/2" X 100M	50.0	7	.85	.27	61.5	24.6	2.50	.32	31.9	30.0	3.7	.5	38.1	28.6
	60.0	11	.88	.40	60.3	28.5	2.54	.90	30.9	38.0	3.8	1.3	36.6	36.1
	70.0	16	.98	.43	55.4	31.4	2.66	.84	27.5	38.2	4.0	1.3	33.2	36.4
	80.0	20	.98	.49	55.4	33.3	2.56	.97	30.3	39.5	3.8	1.5	35.4	37.8
	90.0	21	1.11	.57	49.9	37.8	2.63	1.06	28.3	41.8	4.0	1.6	32.8	40.5
	100.0	21	2.21	1.23	.0	.0	3.67	1.55	.0	.0	5.9	2.6	.0	.0
3/8" X 100M	50.0	6	.72	.27	66.9	22.2	2.38	.31	34.7	28.6	3.5	.5	41.3	26.9
	60.0	13	.75	.32	65.7	24.2	2.46	.81	32.5	36.0	3.6	1.2	38.8	33.8
	70.0	16	.86	.35	60.3	27.5	2.53	.79	30.5	36.3	3.7	1.2	36.7	34.3
	80.0	21	.85	.41	61.0	29.0	2.39	.92	34.3	37.3	3.5	1.4	39.8	35.3
	90.0	21	.98	.48	55.0	33.7	2.52	.98	30.9	39.4	3.8	1.5	35.9	37.8
	100.0	21	2.18	1.22	.0	.0	3.64	1.52	.0	.0	5.9	2.6	.0	.0
14M X 0	50.0	18	.54	.28	75.4	18.9	2.05	.85	44.5	32.9	3.0	1.3	50.4	30.5
	60.0	19	.62	.30	72.0	21.2	2.14	.87	41.8	34.1	3.1	1.3	47.7	31.7
	70.0	20	.68	.33	69.0	23.2	2.20	.87	40.2	34.6	3.2	1.3	46.0	32.4
	80.0	21	.77	.37	65.3	26.2	2.31	.89	37.2	35.9	3.4	1.3	42.8	33.9
	90.0	21	.92	.47	58.3	32.1	2.46	.95	33.3	38.3	3.7	1.5	38.3	36.8
	100.0	21	2.20	1.27	.0	.0	3.68	1.56	.0	.0	6.0	2.7	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE AND RANK (DRY BASIS)

STATE: KENTUCKY(WEST) (BITUMINOUS) NUMBER OF SAMPLES: 37 TOTAL MOISTURE, %: 5.7 ST.DEV: 2.0

		WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	100.0	.0	100.0	.0	12316	509	.0	.0	13.9	3.2	.0	.0
1-1/2" X 100M	FLOAT 1.30	47.1	18.2	52.7	19.1	13916	217	13.1	8.5	3.9	.9	72.3	13.0
	FLOAT 1.40	80.7	8.6	88.5	5.0	13531	334	9.9	8.5	6.3	1.8	55.1	22.4
	FLOAT 1.60	88.7	7.5	95.9	2.2	13332	381	8.3	8.6	7.5	2.1	46.1	26.7
	CUMULATIVE	100.0	.0	100.0	.0	12309	906	.0	.0	13.9	5.7	.0	.0
3/8" X 100M	FLOAT 1.30	50.1	16.3	56.3	16.5	13987	211	13.3	8.1	3.4	.8	75.0	11.4
	FLOAT 1.40	79.9	8.2	88.0	4.8	13627	318	10.3	8.1	5.7	1.6	58.6	20.2
	FLOAT 1.60	88.3	7.2	95.7	2.2	13411	377	8.6	8.2	7.0	2.0	48.7	25.2
	CUMULATIVE	100.0	.0	100.0	.0	12350	865	.0	.0	13.7	5.4	.0	.0
14M X 0	FLOAT 1.30	44.9	16.2	50.6	16.4	14064	206	14.2	8.3	2.9	.8	78.9	10.0
	FLOAT 1.40	75.7	9.3	84.0	5.7	13718	283	11.4	8.2	5.1	1.4	63.3	17.6
	FLOAT 1.60	87.2	7.5	94.9	2.7	13429	332	9.0	8.2	6.9	1.8	50.2	23.4
	CUMULATIVE	100.0	.0	100.0	.0	12318	872	.0	.0	13.9	5.5	.0	.0

		PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	2.43	.37	.0	.0	4.06	.41	.0	.0	6.6	.8	.0	.0
1-1/2" X 100M	FLOAT 1.30	.57	.14	76.6	8.6	2.31	.58	43.1	17.4	3.3	.8	50.0	16.1
	FLOAT 1.40	.96	.26	60.2	15.2	2.70	.54	33.4	17.7	4.0	.8	39.9	17.2
	FLOAT 1.60	1.23	.36	49.2	20.3	2.96	.55	27.2	18.7	4.4	.8	33.2	18.6
	CUMULATIVE	2.42	.65	.0	.0	4.06	.71	.0	.0	6.7	1.3	.0	.0
3/8" X 100M	FLOAT 1.30	.51	.14	78.8	7.9	2.26	.61	44.1	17.9	3.2	.9	51.0	16.5
	FLOAT 1.40	.85	.25	64.6	13.7	2.59	.59	35.9	18.4	3.8	.9	42.3	17.7
	FLOAT 1.60	1.10	.33	54.3	18.0	2.82	.60	30.3	19.2	4.2	.9	36.1	18.9
	CUMULATIVE	2.40	.62	.0	.0	4.04	.70	.0	.0	6.6	1.3	.0	.0
14M X 0	FLOAT 1.30	.44	.14	81.9	7.4	2.18	.63	46.3	18.3	3.1	.9	53.2	16.6
	FLOAT 1.40	.69	.17	71.5	10.3	2.45	.58	39.7	17.9	3.6	.9	46.2	16.9
	FLOAT 1.60	.98	.26	59.8	15.0	2.69	.57	34.0	18.3	4.0	.9	39.8	17.6
	CUMULATIVE	2.44	.65	.0	.0	4.07	.73	.0	.0	6.7	1.3	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE AND RANK

STATE: KENTUCKY(WEST) (BITUMINOUS)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	37	3.2	1.3	26	2.8	1.0	26	2.5	1.1
ASH	37	13.9	5.6	26	7.0	1.7	26	56.5	9.7
VOLATILE MATTER	37	38.6	2.9	26	41.4	1.7	5	16.1	9.5
FIXED CARBON	37	47.6	3.4	26	51.6	1.5	5	31.3	6.4
BTU/LB	37	12431	911	26	13382	314	5	5893	1181
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	2	73.5	2.3	2	76.3	2.2	2	29.1	4.9
HYDROGEN	2	5.0	.1	2	5.2	.1	2	2.0	.2
NITROGEN	2	1.6	.1	2	1.7	.1	2	.6	.1
OXYGEN	2	8.3	1.0	2	8.7	1.1	0	--	--
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	37	2.45	.63	26	1.00	.24	26	14.88	4.41
SULFATIC SULFUR	37	.08	.07	26	.03	.03	26	.06	.05
ORGANIC SULFUR	37	1.42	.50	26	1.73	.39	26	.70	.46
TOTAL SULFUR	37	3.95	.71	26	2.76	.42	26	15.65	4.41
MINERAL ANALYSIS OF ASH, %									
SIO2 (SILICON OXIDE)	0	--	--	0	--	--	0	--	--
AL2O3 (ALUMINUM OXIDE)	0	--	--	0	--	--	0	--	--
FE2O3 (IRON OXIDE)	0	--	--	0	--	--	0	--	--
TIO2 (TITANIUM OXIDE)	0	--	--	0	--	--	0	--	--
CAO (CALCIUM OXIDE)	0	--	--	0	--	--	0	--	--
MGO (MAGNESIUM OXIDE)	0	--	--	0	--	--	0	--	--
NA2O (SODIUM OXIDE)	13	.56	.32	0	--	--	0	--	--
K2O (POTASSIUM OXIDE)	0	--	--	0	--	--	0	--	--
SO3 (SULFITES)	0	--	--	0	--	--	0	--	--
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	24	2036	116	24	2121	120	2	2040	85
SOFTENING TEMPERATURE (ST)	24	2099	115	24	2190	129	2	2090	85
FLUID TEMPERATURE (FT)	24	2215	153	24	2309	153	2	2140	85
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	37	17.1	6.1	26	9.0	1.9	26	69.3	10.4
CHLORINE	2	.00	.00	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	10	53	4	7	54	2	0	--	--
FREE SWELLING (FSI)	25	4 1/2	1 1/2	25	4 1/2	1	5	1 1/2	2

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE AND RANK

STATE: KENTUCKY(WEST) (BITUMINOUS) TOTAL MOISTURE, %: 5.7 ST.DEV: 2.0

	BTU RECOVERY	NO.OF SAMPLES	WEIGHT RECOVERY AMOUNT, %		WEIGHT RECOVERY REDUCTION, %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	%		AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	100.0	111	100.0	.0	.0	.0	12316	509	.0	.0	13.9	3.2	.0	.0
1-1/2" X 100M	50.0	18	40.1	5.7	59.9	5.7	13712	268	11.4	8.5	4.9	1.2	65.1	16.5
	60.0	24	49.3	5.3	50.7	5.3	13699	296	11.3	8.5	5.1	1.3	63.4	17.8
	70.0	27	59.5	5.0	40.5	5.0	13632	311	10.7	8.5	5.6	1.5	59.8	19.5
	80.0	36	70.9	4.7	29.1	4.7	13598	336	10.5	8.6	5.8	1.8	58.5	21.3
	90.0	37	82.1	4.8	17.9	4.8	13459	408	9.3	8.7	6.7	2.3	52.1	25.4
	100.0	37	100.0	.0	.0	.0	12309	906	.0	.0	13.9	5.7	.0	.0
3/8" X 100M	50.0	13	40.3	4.1	59.7	4.1	13850	314	11.7	8.5	4.2	1.2	68.7	15.8
	60.0	24	50.1	4.1	49.9	4.1	13825	279	11.5	8.5	4.4	1.1	67.2	16.3
	70.0	27	59.7	4.3	40.3	4.3	13722	283	10.7	8.4	5.0	1.3	62.9	18.4
	80.0	34	70.9	4.5	29.1	4.5	13672	322	10.3	8.5	5.3	1.7	60.4	20.9
	90.0	37	82.0	4.5	18.0	4.5	13543	405	9.2	8.6	6.1	2.2	54.0	25.4
	100.0	37	100.0	.0	.0	.0	12399	906	.0	.0	13.4	5.6	.0	.0
14M X 0	50.0	18	39.4	4.0	60.6	4.0	13972	252	13.4	8.3	3.4	.9	75.4	11.5
	60.0	24	49.3	4.5	50.7	4.5	13902	244	12.9	8.2	4.0	.9	71.4	13.2
	70.0	31	59.8	4.2	40.2	4.2	13818	272	12.2	8.2	4.4	1.3	68.6	15.4
	80.0	36	70.8	4.3	29.2	4.3	13734	304	11.5	8.3	4.9	1.5	64.4	17.9
	90.0	37	81.8	4.0	18.2	4.0	13533	398	9.9	8.4	6.2	2.1	55.4	23.4
	100.0	37	100.0	.0	.0	.0	12318	872	.0	.0	13.9	5.5	.0	.0

	BTU RECOVERY	NO.OF SAMPLES	PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	%		AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	100.0	111	2.43	.37	.0	.0	4.06	.41	.0	.0	6.6	.8	.0	.0
1-1/2" X 100M	50.0	18	.68	.16	72.0	10.2	2.33	.38	42.6	13.7	3.4	.6	48.8	13.3
	60.0	24	.72	.20	70.2	11.7	2.42	.41	40.4	14.5	3.5	.6	46.8	14.1
	70.0	27	.81	.23	66.6	13.2	2.59	.41	36.2	15.1	3.8	.6	42.8	14.7
	80.0	36	.86	.29	64.4	15.4	2.64	.50	34.9	16.9	3.9	.7	41.5	16.4
	90.0	37	1.03	.37	57.5	19.2	2.77	.54	31.8	18.0	4.1	.8	37.9	17.9
	100.0	37	2.42	.65	.0	.0	4.06	.71	.0	.0	6.7	1.3	.0	.0
3/8" X 100M	50.0	13	.58	.16	75.5	9.6	2.20	.52	45.2	16.7	3.2	.8	51.4	15.9
	60.0	24	.63	.16	73.6	10.0	2.34	.44	41.7	15.7	3.4	.6	48.2	15.1
	70.0	27	.71	.19	70.2	11.6	2.46	.42	38.7	15.6	3.6	.6	45.1	15.3
	80.0	34	.77	.26	67.6	14.3	2.53	.57	36.9	18.6	3.7	.8	43.3	17.9
	90.0	37	.92	.35	61.3	18.1	2.66	.60	33.8	19.6	3.9	.9	39.7	19.3
	100.0	37	2.38	.66	.0	.0	4.02	.77	.0	.0	6.5	1.4	.0	.0
14M X 0	50.0	18	.48	.12	80.3	7.2	2.17	.49	46.7	15.4	3.1	.7	53.4	14.1
	60.0	24	.55	.14	77.3	8.2	2.32	.46	42.9	15.2	3.3	.7	49.8	14.0
	70.0	31	.60	.17	75.2	9.5	2.33	.55	42.8	17.0	3.4	.8	49.2	15.8
	80.0	36	.67	.20	72.4	11.0	2.43	.57	40.3	17.5	3.5	.8	46.7	16.5
	90.0	37	.84	.28	65.5	14.6	2.57	.56	36.7	17.8	3.8	.9	42.5	17.2
	100.0	37	2.44	.65	.0	.0	4.07	.73	.0	.0	6.7	1.3	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE AND RANK (DRY BASIS)

STATE: ARKANSAS (BITUMINOUS) NUMBER OF SAMPLES: 7 TOTAL MOISTURE, %: 3.0 ST.DEV: 1.5

		WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		INCREASE, %		ASH CONTENT, %		REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	100.0	.0	100.0	.0	14252	471	.0	.0	8.2	2.4	.0	.0
1-1/2" X 100M	FLOAT 1.30	46.1	27.5	49.1	28.2	15264	46	6.9	6.3	2.9	.4	65.0	18.6
	FLOAT 1.40	85.1	9.8	89.6	7.2	15043	175	5.4	6.3	4.1	1.1	49.7	29.0
	FLOAT 1.60	93.1	7.4	97.0	3.5	14892	240	4.3	6.3	4.9	1.4	39.7	35.2
	CUMULATIVE	100.0	.0	100.0	.0	14277	834	.0	.0	8.2	4.2	.0	.0
3/8" X 100M	FLOAT 1.30	52.9	25.0	57.2	26.8	15265	53	7.4	7.0	2.8	.5	67.1	18.7
	FLOAT 1.40	87.4	8.2	92.6	3.4	15096	134	6.2	6.9	3.8	.9	54.6	26.7
	FLOAT 1.60	92.4	8.1	97.2	2.7	14976	176	5.3	6.9	4.4	1.1	47.1	31.6
	CUMULATIVE	100.0	.0	100.0	.0	14216	920	.0	.0	8.4	4.5	.0	.0
14M X 0	FLOAT 1.30	47.8	25.0	51.5	26.5	15297	98	7.4	6.1	2.6	.8	68.1	18.4
	FLOAT 1.40	86.0	6.6	91.1	2.7	15110	119	6.1	6.0	3.6	.9	56.1	24.1
	FLOAT 1.60	92.4	6.4	97.2	2.0	15003	150	5.4	6.0	4.2	1.1	49.5	28.1
	CUMULATIVE	100.0	.0	100.0	.0	14240	797	.0	.0	8.2	4.0	.0	.0

		PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	1.04	.59	.0	.0	1.59	.62	.0	.0	2.2	.9	.0	.0
1-1/2" X 100M	FLOAT 1.30	.45	.44	56.7	60.6	1.01	.44	35.1	53.3	1.3	.6	39.4	49.6
	FLOAT 1.40	.79	.88	24.2	113.8	1.33	.91	14.9	83.3	1.8	1.2	19.0	79.6
	FLOAT 1.60	.89	.97	14.0	126.7	1.43	1.00	8.1	90.9	1.9	1.4	11.8	87.4
	CUMULATIVE	1.04	1.04	.0	.0	1.56	1.09	.0	.0	2.2	1.5	.0	.0
3/8" X 100M	FLOAT 1.30	.44	.45	56.3	63.2	1.05	.43	33.3	52.6	1.4	.6	38.0	48.5
	FLOAT 1.40	.72	.83	28.1	110.1	1.31	.83	16.5	77.5	1.7	1.1	21.1	73.1
	FLOAT 1.60	.81	.91	18.7	122.3	1.40	.93	10.6	84.8	1.9	1.3	14.8	80.7
	CUMULATIVE	1.00	1.01	.0	.0	1.57	1.06	.0	.0	2.2	1.5	.0	.0
14M X 0	FLOAT 1.30	.42	.43	59.0	58.3	1.04	.38	35.5	48.5	1.4	.5	40.0	45.1
	FLOAT 1.40	.66	.72	36.0	94.4	1.26	.73	21.8	68.7	1.7	1.0	26.2	65.0
	FLOAT 1.60	.78	.84	24.6	110.7	1.37	.87	14.9	77.7	1.8	1.2	19.1	74.1
	CUMULATIVE	1.04	1.03	.0	.0	1.62	1.07	.0	.0	2.3	1.5	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE AND RANK

STATE: ARKANSAS (BITUMINOUS)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	7	.6	.2	6	.8	.1	6	.7	.1
ASH	7	8.5	4.2	6	4.0	1.0	6	56.4	7.0
VOLATILE MATTER	7	18.9	2.2	6	18.1	1.7	6	23.9	7.8
FIXED CARBON	7	72.6	6.1	6	77.9	1.7	6	19.7	11.8
BTU/LB	7	14204	828	6	15030	134	6	5381	1794
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	6	81.9	5.0	6	86.4	.9	6	27.0	6.2
HYDROGEN	6	4.3	.2	6	4.5	.2	6	1.4	.3
NITROGEN	6	1.6	.2	6	1.7	.2	6	.4	.2
OXYGEN	6	2.6	1.3	6	2.4	.9	6	10.1	5.5
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	7	1.05	1.07	6	.50	.57	6	3.82	3.46
SULFATIC SULFUR	7	.04	.04	6	.02	.02	6	.05	.05
ORGANIC SULFUR	7	.53	.10	6	.51	.15	6	.71	.53
TOTAL SULFUR	7	1.62	1.10	6	1.03	.45	6	4.58	3.52
MINERAL ANALYSIS OF ASH, %									
SIO2 (SILICON OXIDE)	5	29.46	5.88	5	27.96	8.39	5	36.14	14.19
AL2O3 (ALUMINUM OXIDE)	5	17.38	4.03	5	20.14	5.76	5	18.33	5.87
FE2O3 (IRON OXIDE)	5	31.70	13.12	5	24.64	10.01	5	30.00	17.91
TIO2 (TITANIUM OXIDE)	5	.74	.46	5	.68	.41	5	.65	.32
CAO (CALCIUM OXIDE)	5	6.41	1.66	5	8.74	1.45	5	5.08	4.67
MGO (MAGNESIUM OXIDE)	5	3.82	.71	5	4.88	1.00	5	2.10	1.23
NA2O (SODIUM OXIDE)	5	1.04	.41	5	1.54	.89	5	.42	.17
K2O (POTASSIUM OXIDE)	5	1.54	.30	5	1.53	.56	5	2.12	.84
SO3 (SULFITES)	5	7.19	1.93	5	8.32	4.26	5	3.67	3.70
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	6	2068	41	6	2085	95	0	--	--
SOFTENING TEMPERATURE (ST)	6	2156	33	6	2147	105	0	--	--
FLUID TEMPERATURE (FT)	6	2243	48	6	2211	124	0	--	--
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	7	10.1	4.5	6	4.8	1.3	6	65.1	7.8
CHLORINE	6	.04	.04	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	6	111	5	2	113	3	0	--	--
FREE SWELLING (FSI)	6	8 1/2	1	6	8	1	3	0	0 1/2

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE AND RANK

STATE: ARKANSAS (BITUMINOUS) TOTAL MOISTURE, %: 3.0 ST.DEV: 1.5

SIZE	BTU RECOVERY %	NO.OF SAMPLES	WEIGHT RECOVERY AMOUNT, % AVERAGE	WEIGHT RECOVERY AMOUNT, % ST.DEV	WEIGHT RECOVERY REDUCTION, % AVERAGE	WEIGHT RECOVERY REDUCTION, % ST.DEV	HEATING VALUE BTU/LB AVERAGE	HEATING VALUE BTU/LB ST.DEV	HEATING VALUE INCREASE, % AVERAGE	HEATING VALUE INCREASE, % ST.DEV	ASH CONTENT, % AVERAGE	ASH CONTENT, % ST.DEV	ASH REDUCTION, % AVERAGE	ASH REDUCTION, % ST.DEV
ALL X 0	100.0	21	100.0	.0	.0	.0	14252	471	.0	.0	8.2	2.4	.0	.0
1-1/2" X 100M	50.0	3	36.0	10.2	64.0	10.2	15162	96	6.2	6.2	3.7	.2	54.7	23.5
	60.0	4	46.9	9.4	53.1	9.4	15132	88	6.0	6.2	3.7	.7	55.3	24.6
	70.0	6	59.4	8.0	40.6	8.0	15113	104	5.9	6.2	3.8	.7	53.8	25.2
	80.0	6	70.9	6.1	29.1	6.1	15047	123	5.4	6.2	4.1	.7	49.3	27.6
	90.0	6	84.0	3.6	16.0	3.6	14939	197	4.6	6.3	4.7	1.0	41.9	32.3
	100.0	7	100.0	.0	.0	.0	14277	834	.0	.0	8.2	4.2	.0	.0
3/8" X 100M	50.0	2	37.0	2.3	63.0	2.3	15159	43	6.6	6.9	3.2	.6	62.3	21.4
	60.0	3	49.1	6.4	50.9	6.4	15148	61	6.6	6.9	3.5	.5	58.2	23.4
	70.0	4	60.8	5.6	39.2	5.6	15146	93	6.5	6.9	3.6	.5	57.0	24.1
	80.0	6	70.8	3.8	29.2	3.8	15134	93	6.5	6.9	3.6	.7	57.2	24.5
	90.0	7	83.8	4.7	16.2	4.7	15096	138	6.2	6.9	3.8	.9	54.8	26.7
	100.0	7	100.0	.0	.0	.0	14216	920	.0	.0	8.4	4.5	.0	.0
14M X 0	50.0	3	37.4	8.3	62.6	8.3	15258	82	7.1	6.0	3.1	.5	62.2	19.1
	60.0	3	45.9	7.8	54.1	7.8	15217	96	6.9	6.0	3.3	.5	59.5	20.5
	70.0	5	57.9	5.2	42.1	5.2	15199	89	6.7	6.0	3.1	.8	62.8	20.6
	80.0	7	71.6	4.9	28.4	4.9	15171	115	6.5	6.0	3.3	.9	59.9	22.3
	90.0	7	84.0	3.9	16.0	3.9	15108	130	6.1	6.0	3.6	1.0	55.9	24.3
	100.0	7	100.0	.0	.0	.0	14240	797	.0	.0	8.2	4.0	.0	.0

SIZE	BTU RECOVERY %	NO.OF SAMPLES	PYRITIC SULFUR CONTENT, % AVERAGE	PYRITIC SULFUR CONTENT, % ST.DEV	PYRITIC SULFUR REDUCTION, % AVERAGE	PYRITIC SULFUR REDUCTION, % ST.DEV	TOTAL SULFUR CONTENT, % AVERAGE	TOTAL SULFUR CONTENT, % ST.DEV	TOTAL SULFUR REDUCTION, % AVERAGE	TOTAL SULFUR REDUCTION, % ST.DEV	SO2 EMISSION LB/MM BTU AVERAGE	SO2 EMISSION LB/MM BTU ST.DEV	SO2 EMISSION REDUCTION, % AVERAGE	SO2 EMISSION REDUCTION, % ST.DEV
ALL X 0	100.0	21	1.04	.59	.0	.0	1.59	.62	.0	.0	2.2	.9	.0	.0
1-1/2" X 100M	50.0	3	1.11	.51	-7.4	118.1	1.69	.61	-8.1	84.9	2.2	.8	-1.9	80.0
	60.0	4	.97	.70	6.6	115.1	1.52	.77	2.6	84.2	2.0	1.0	8.0	79.6
	70.0	6	.77	.76	25.7	104.3	1.32	.80	15.6	78.1	1.7	1.1	20.1	74.0
	80.0	6	.85	.84	18.3	114.9	1.39	.87	11.2	83.6	1.8	1.2	15.7	79.5
	90.0	6	.93	.90	10.5	124.8	1.46	.94	6.7	88.9	2.0	1.3	10.9	84.9
	100.0	7	1.04	1.04	.0	.0	1.56	1.09	.0	.0	2.2	1.5	.0	.0
3/8" X 100M	50.0	2	.83	.85	17.6	118.8	1.49	1.05	4.9	92.7	2.0	1.4	10.8	86.6
	60.0	3	.97	.68	3.0	119.6	1.51	.83	3.5	83.8	2.0	1.1	9.4	78.3
	70.0	4	.93	.68	7.2	116.0	1.50	.77	4.6	81.1	2.0	1.0	10.4	75.9
	80.0	6	.72	.76	27.9	105.0	1.31	.79	16.4	75.4	1.7	1.1	21.3	70.9
	90.0	7	.71	.81	29.4	107.8	1.30	.82	17.1	76.4	1.7	1.1	21.7	72.1
	100.0	7	1.00	1.01	.0	.0	1.57	1.06	.0	.0	2.2	1.5	.0	.0
14M X 0	50.0	3	.64	.46	37.8	76.2	1.31	.60	18.9	65.2	1.7	.8	24.2	60.9
	60.0	3	.71	.54	31.1	86.2	1.38	.69	14.8	70.6	1.8	.9	20.2	66.2
	70.0	5	.51	.60	50.9	75.3	1.17	.67	27.5	63.5	1.5	.9	32.0	59.7
	80.0	7	.59	.65	42.7	84.3	1.20	.66	25.5	64.0	1.6	.9	29.9	60.3
	90.0	7	.67	.74	35.4	95.6	1.27	.76	21.2	69.9	1.7	1.0	25.6	66.2
	100.0	7	1.04	1.03	.0	.0	1.62	1.07	.0	.0	2.3	1.5	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE AND RANK (DRY BASIS)

STATE: IOWA (BITUMINOUS) NUMBER OF SAMPLES: 16 TOTAL MOISTURE, %: 12.2 ST.DEV: 6.2

		WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	100.0	.0	100.0	.0	11528	509	.0	.0	16.3	2.8	.0	.0
1-1/2" X 100M	FLOAT 1.30	51.4	15.5	58.1	14.7	13224	285	14.5	9.1	6.6	1.4	58.9	15.0
	FLOAT 1.40	72.2	12.3	80.6	9.8	12944	328	12.1	9.0	8.2	1.6	49.1	18.1
	FLOAT 1.60	85.1	7.7	92.7	4.7	12587	480	9.0	9.3	10.3	2.5	36.6	24.6
	CUMULATIVE	100.0	.0	100.0	.0	11547	879	.0	.0	16.2	4.8	.0	.0
3/8" X 100M	FLOAT 1.30	44.8	16.7	51.3	16.6	13556	198	16.8	9.0	4.8	.9	70.0	10.6
	FLOAT 1.40	69.8	13.6	79.1	11.3	13240	253	14.1	8.9	6.5	1.2	58.7	14.6
	FLOAT 1.60	83.1	8.0	92.0	4.5	12874	423	10.9	9.2	8.6	2.2	45.6	21.8
	CUMULATIVE	100.0	.0	100.0	.0	11606	883	.0	.0	15.8	4.8	.0	.0
14M X 0	FLOAT 1.30	28.9	16.3	33.9	18.1	13765	261	19.5	9.4	3.6	1.2	78.1	10.0
	FLOAT 1.40	64.2	14.4	74.1	12.3	13423	225	16.5	9.1	5.5	1.1	66.2	11.9
	FLOAT 1.60	81.1	8.5	91.3	4.9	12994	329	12.8	9.1	7.9	1.7	51.3	17.8
	CUMULATIVE	100.0	.0	100.0	.0	11523	882	.0	.0	16.3	4.8	.0	.0

		PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	4.64	1.32	.0	.0	6.79	1.50	.0	.0	12.1	3.2	.0	.0
1-1/2" X 100M	FLOAT 1.30	1.46	.64	67.9	21.4	3.84	1.54	43.2	31.7	5.8	2.3	51.8	29.5
	FLOAT 1.40	1.76	.79	61.3	26.0	4.13	1.55	38.8	32.9	6.4	2.4	46.8	31.8
	FLOAT 1.60	2.24	1.01	50.8	33.2	4.56	1.65	32.4	35.7	7.3	2.8	39.3	36.1
	CUMULATIVE	4.55	2.28	.0	.0	6.75	2.61	.0	.0	12.0	5.5	.0	.0
3/8" X 100M	FLOAT 1.30	1.12	.45	75.6	15.6	3.54	1.50	47.4	29.9	5.2	2.2	56.3	27.1
	FLOAT 1.40	1.43	.60	68.8	20.2	3.81	1.47	43.3	30.6	5.8	2.2	51.7	28.8
	FLOAT 1.60	1.88	.87	59.1	27.7	4.22	1.59	37.3	33.5	6.6	2.6	44.7	33.1
	CUMULATIVE	4.60	2.27	.0	.0	6.73	2.55	.0	.0	11.9	5.4	.0	.0
14M X 0	FLOAT 1.30	.89	.48	81.1	13.7	3.36	1.37	50.5	27.5	4.9	2.0	59.8	24.5
	FLOAT 1.40	1.22	.52	74.0	16.8	3.63	1.36	46.6	28.5	5.4	2.0	55.5	26.2
	FLOAT 1.60	1.71	.80	63.6	24.4	4.05	1.45	40.4	31.2	6.3	2.3	48.5	30.2
	CUMULATIVE	4.69	2.26	.0	.0	6.80	2.59	.0	.0	12.2	5.6	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE AND RANK

STATE: IOWA (BITUMINOUS)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	16	8.4	5.4	13	5.8	2.0	13	3.0	1.4
ASH	16	16.5	4.8	13	8.2	2.0	13	52.6	4.0
VOLATILE MATTER	16	42.4	2.5	13	45.4	2.5	9	30.2	1.6
FIXED CARBON	16	41.1	4.1	13	46.4	2.8	9	17.8	4.1
BTU/LB	16	11463	886	13	12988	417	9	5314	975
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	9	63.6	2.6	9	71.7	2.0	9	26.2	3.6
HYDROGEN	9	4.6	.2	9	5.3	.1	9	1.6	.3
NITROGEN	9	1.2	.2	9	1.4	.2	9	.5	.1
OXYGEN	9	7.0	1.1	9	8.8	.9	8	3.1	2.5
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	16	4.59	2.22	13	1.71	.83	13	17.79	5.28
SULFATIC SULFUR	16	.12	.09	13	.09	.09	13	.12	.11
ORGANIC SULFUR	16	2.09	1.02	13	2.40	1.15	13	1.24	.81
TOTAL SULFUR	16	6.80	2.51	13	4.20	1.56	13	19.15	5.55
MINERAL ANALYSIS OF ASH, %									
SIO2 (SILICON OXIDE)	0	--	--	0	--	--	0	--	--
AL2O3 (ALUMINUM OXIDE)	0	--	--	0	--	--	0	--	--
FE2O3 (IRON OXIDE)	0	--	--	0	--	--	0	--	--
TIO2 (TITANIUM OXIDE)	0	--	--	0	--	--	0	--	--
CAO (CALCIUM OXIDE)	0	--	--	0	--	--	0	--	--
MGO (MAGNESIUM OXIDE)	0	--	--	0	--	--	0	--	--
NA2O (SODIUM OXIDE)	4	.28	.15	4	.38	.24	4	.20	.08
K2O (POTASSIUM OXIDE)	0	--	--	0	--	--	0	--	--
SO3 (SULFITES)	0	--	--	0	--	--	0	--	--
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	13	2025	112	13	2047	221	9	2077	165
SOFTENING TEMPERATURE (ST)	13	2074	110	13	2102	225	9	2133	151
FLUID TEMPERATURE (FT)	13	2143	117	13	2176	257	9	2180	148
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	16	21.5	6.4	13	11.2	2.7	13	66.3	6.2
CHLORINE	9	.03	.02	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	9	52	3	8	49	2	0	--	--
FREE SWELLING (FSI)	13	2 1/2	1 1/2	13	3 1/2	1	5	0	0 1/2

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE AND RANK

STATE: IOWA (BITUMINOUS) TOTAL MOISTURE, %: 12.2 ST.DEV: 6.2

	BTU RECOVERY	NO.OF SAMPLES	WEIGHT RECOVERY AMOUNT, %		WEIGHT RECOVERY REDUCTION, %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	%		AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	100.0	48	100.0	.0	.0	.0	11528	509	.0	.0	16.3	2.8	.0	.0
1-1/2" X 100M	50.0	4	39.0	2.5	61.0	2.5	12897	409	11.7	9.2	8.1	2.1	49.6	20.0
	60.0	9	50.2	2.8	49.8	2.8	12958	350	12.2	9.1	7.9	1.8	51.0	18.2
	70.0	13	60.3	2.6	39.7	2.6	12987	431	12.5	9.3	8.0	2.1	50.8	19.6
	80.0	15	70.8	3.1	29.2	3.1	12842	462	11.2	9.4	8.8	2.3	45.6	21.7
	90.0	16	82.4	2.6	17.6	2.6	12596	660	9.1	10.1	10.1	3.5	37.2	28.5
	100.0	16	100.0	.0	.0	.0	11547	879	.0	.0	16.2	4.8	.0	.0
3/8" X 100M	50.0	8	40.0	3.3	60.0	3.3	13344	306	15.0	9.1	5.7	1.5	64.0	14.5
	60.0	13	50.1	2.7	49.9	2.7	13373	342	15.2	9.2	5.8	1.6	63.7	14.9
	70.0	14	59.2	2.5	40.8	2.5	13263	373	14.3	9.3	6.4	1.8	59.7	16.8
	80.0	15	69.7	3.2	30.3	3.2	13139	451	13.2	9.4	7.1	2.3	55.2	20.0
	90.0	16	81.4	2.1	18.6	2.1	12832	668	10.6	10.2	8.8	3.5	44.6	27.8
	100.0	16	100.0	.0	.0	.0	11606	883	.0	.0	15.8	4.8	.0	.0
14M X 0	50.0	13	36.7	6.7	63.3	6.7	13627	257	18.3	9.3	4.2	1.2	74.2	10.8
	60.0	15	46.8	6.1	53.2	6.1	13530	297	17.4	9.4	4.8	1.4	70.4	12.5
	70.0	16	57.0	5.2	43.0	5.2	13407	332	16.3	9.4	5.5	1.7	66.1	14.3
	80.0	16	68.1	3.6	31.9	3.6	13239	403	14.9	9.5	6.5	2.1	60.2	17.4
	90.0	16	80.2	1.9	19.8	1.9	12898	643	11.9	10.2	8.4	3.4	48.7	25.7
	100.0	16	100.0	.0	.0	.0	11523	882	.0	.0	16.3	4.8	.0	.0

	BTU RECOVERY	NO.OF SAMPLES	PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	%		AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	100.0	48	4.64	1.32	.0	.0	6.79	1.50	.0	.0	12.1	3.2	.0	.0
1-1/2" X 100M	50.0	4	2.18	1.01	52.1	32.7	4.75	1.55	29.7	35.6	7.4	2.6	38.4	35.4
	60.0	9	1.93	.82	57.5	27.8	4.47	1.26	33.8	31.7	6.9	2.1	42.5	31.5
	70.0	13	1.84	.88	59.4	28.1	4.57	1.31	32.3	32.6	7.1	2.1	41.3	32.2
	80.0	15	1.96	1.00	56.8	30.8	4.43	1.57	34.4	34.3	6.9	2.6	42.3	34.1
	90.0	16	2.33	1.57	48.7	43.0	4.68	2.08	30.6	40.8	7.6	3.7	36.9	42.5
	100.0	16	4.54	2.28	.0	.0	6.75	2.61	.0	.0	12.0	5.5	.0	.0
3/8" X 100M	50.0	8	1.50	.62	67.4	20.9	3.95	1.34	41.3	29.8	5.9	2.1	50.2	28.6
	60.0	13	1.43	.58	68.8	19.9	3.99	1.40	40.7	30.6	6.0	2.1	49.9	28.9
	70.0	14	1.52	.69	66.9	22.2	4.12	1.36	38.7	30.8	6.2	2.1	47.7	29.7
	80.0	15	1.63	.87	64.5	25.8	4.09	1.58	39.2	32.9	6.3	2.5	47.5	31.9
	90.0	16	2.05	1.45	55.4	38.4	4.41	2.04	34.5	39.2	7.0	3.7	41.0	40.7
	100.0	16	4.60	2.27	.0	.0	6.73	2.55	.0	.0	11.9	5.4	.0	.0
14M X 0	50.0	13	.97	.50	79.3	14.7	3.56	1.47	47.6	29.4	5.2	2.2	56.9	26.6
	60.0	15	1.13	.56	75.9	16.7	3.67	1.38	46.0	28.9	5.4	2.1	55.3	26.6
	70.0	16	1.25	.65	73.4	18.9	3.67	1.45	46.1	29.6	5.5	2.2	54.8	27.6
	80.0	16	1.45	.79	69.1	22.5	3.84	1.53	43.5	31.1	5.9	2.4	51.9	29.7
	90.0	16	1.93	1.32	58.8	34.5	4.31	1.94	36.6	37.4	6.9	3.5	43.5	38.7
	100.0	16	4.69	2.26	.0	.0	6.80	2.59	.0	.0	12.2	5.6	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE AND RANK (DRY BASIS)

STATE: KANSAS (BITUMINOUS) NUMBER OF SAMPLES: 10 TOTAL MOISTURE, %: 3.8 ST.DEV: 1.3

		WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	100.0	.0	100.0	.0	11692	771	.0	.0	20.4	4.3	.0	.0
1-1/2" X 100M	FLOAT 1.30	26.8	18.3	31.5	19.1	14318	169	21.9	14.2	5.6	.9	72.0	11.4
	FLOAT 1.40	65.3	18.3	75.6	16.2	13709	291	16.7	13.8	9.1	1.5	55.0	18.4
	FLOAT 1.60	82.3	9.8	92.9	3.2	13267	525	13.0	13.9	11.6	2.8	42.7	25.5
	CUMULATIVE	100.0	.0	100.0	.0	11744	1364	.0	.0	20.2	7.5	.0	.0
3/8" X 100M	FLOAT 1.30	35.1	19.0	41.8	19.6	14358	176	22.1	14.0	5.4	1.1	73.1	11.2
	FLOAT 1.40	66.1	15.5	77.3	12.1	13868	270	17.9	13.6	8.2	1.4	59.4	16.4
	FLOAT 1.60	81.0	10.1	92.5	3.5	13436	482	14.3	13.7	10.6	2.6	47.3	23.3
	CUMULATIVE	100.0	.0	100.0	.0	11760	1341	.0	.0	20.1	7.4	.0	.0
14M X 0	FLOAT 1.30	28.8	16.3	34.4	17.1	14412	246	23.6	14.5	5.0	1.5	75.5	11.6
	FLOAT 1.40	63.2	14.2	74.8	10.2	13925	247	19.4	14.1	7.8	1.4	62.3	15.3
	FLOAT 1.60	78.6	10.9	90.7	4.3	13480	380	15.6	13.9	10.3	2.1	50.0	21.0
	CUMULATIVE	100.0	.0	100.0	.0	11662	1358	.0	.0	20.6	7.5	.0	.0

		PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	3.71	.71	.0	.0	5.03	.65	.0	.0	8.7	1.4	.0	.0
1-1/2" X 100M	FLOAT 1.30	1.25	.30	66.0	14.1	2.66	.24	46.5	12.6	3.7	.3	56.9	12.3
	FLOAT 1.40	2.03	.62	44.9	25.0	3.40	.43	31.8	17.2	5.0	.7	42.6	17.6
	FLOAT 1.60	2.54	.82	31.2	32.1	3.89	.64	21.8	21.4	5.9	1.2	31.7	23.0
	CUMULATIVE	3.69	1.24	.0	.0	4.98	1.08	.0	.0	8.6	2.3	.0	.0
3/8" X 100M	FLOAT 1.30	1.22	.32	66.0	13.6	2.60	.29	47.0	12.7	3.6	.4	57.3	12.0
	FLOAT 1.40	1.81	.42	49.5	19.3	3.17	.30	35.1	14.9	4.6	.5	45.9	14.9
	FLOAT 1.60	2.24	.51	37.4	23.6	3.61	.39	26.3	17.4	5.4	.7	36.4	18.2
	CUMULATIVE	3.58	1.08	.0	.0	4.89	1.03	.0	.0	8.5	2.2	.0	.0
14M X 0	FLOAT 1.30	1.00	.36	73.5	12.9	2.40	.36	52.6	12.8	3.3	.6	62.2	11.8
	FLOAT 1.40	1.56	.42	58.6	17.7	2.96	.35	41.7	14.8	4.2	.5	52.0	14.1
	FLOAT 1.60	2.06	.55	45.2	23.3	3.43	.45	32.4	17.5	5.1	.7	42.4	17.3
	CUMULATIVE	3.76	1.24	.0	.0	5.07	1.13	.0	.0	8.8	2.4	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE AND RANK

STATE: KANSAS (BITUMINOUS)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	10	2.7	.9	8	1.8	.5	8	2.1	.5
ASH	10	20.3	7.5	8	9.8	2.3	8	53.8	7.4
VOLATILE MATTER	10	35 4	4.0	8	38.4	2.2	6	30.3	11.1
FIXED CARBON	10	44.3	4.3	8	51.8	1.8	6	16.4	6.7
BTU/LB	10	11608	1166	8	13650	321	6	5943	1670
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	6	66.3	4.5	6	74.0	1.9	6	26.1	4.8
HYDROGEN	6	4.6	.5	6	5.2	.3	6	1.9	.4
NITROGEN	6	1.1	.1	6	1.3	.1	6	.4	.1
OXYGEN	6	4.3	1.1	6	5.5	.8	5	7.3	9.5
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	10	3.71	1.18	8	2.03	.53	8	11.40	3.71
SULFATIC SULFUR	10	.08	.05	8	.06	.07	8	.12	.08
ORGANIC SULFUR	10	1.20	.28	8	1.29	.23	8	1.30	.62
TOTAL SULFUR	10	4.99	1.10	8	3.37	.43	8	12.81	3.96
MINERAL ANALYSIS OF ASH, %									
SIO2 (SILICON OXIDE)	2	38.91	15.41	2	46.88	7.23	2	27.49	9.94
AL2O3 (ALUMINUM OXIDE)	2	13.14	3.90	2	16.03	.80	2	9.99	1.87
FE2O3 (IRON OXIDE)	2	28.14	12.54	2	26.46	9.91	2	26.60	12.95
TIO2 (TITANIUM OXIDE)	2	1.09	.06	2	1.13	.00	2	.37	.14
CAO (CALCIUM OXIDE)	2	8.82	3.56	2	2.13	.23	2	17.84	2.88
MGO (MAGNESIUM OXIDE)	2	1.26	.21	2	1.05	.16	2	1.12	.59
NA2O (SODIUM OXIDE)	3	.66	.26	3	.40	.17	3	.23	.06
K2O (POTASSIUM OXIDE)	2	2.19	.44	2	2.45	.29	2	1.17	.25
SO3 (SULFITES)	2	5.89	3.56	2	1.37	.07	2	11.11	.15
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	8	1970	105	8	1983	90	6	2020	208
SOFTENING TEMPERATURE (ST)	8	2033	107	8	2045	83	6	2088	198
FLUID TEMPERATURE (FT)	8	2101	125	8	2128	110	6	2175	196
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	10	24.7	8.2	8	12.4	2.6	8	65.1	9.4
CHLORINE	6	.27	.08	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	6	55	5	6	55	4	0	--	--
FREE SWELLING (FSI)	8	7 1/2	1	8	8	0 1/2	2	1	0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE AND RANK

STATE: KANSAS (BITUMINOUS) TOTAL MOISTURE, %: 3.8 ST.DEV: 1.3

SIZE	BTU RECOVERY %	NO.OF SAMPLES	WEIGHT RECOVERY AMOUNT, % AVERAGE	WEIGHT RECOVERY AMOUNT, % ST.DEV	WEIGHT RECOVERY REDUCTION, % AVERAGE	WEIGHT RECOVERY REDUCTION, % ST.DEV	HEATING VALUE BTU/LB AVERAGE	HEATING VALUE BTU/LB ST.DEV	HEATING VALUE INCREASE, % AVERAGE	HEATING VALUE INCREASE, % ST.DEV	ASH CONTENT, % AVERAGE	ASH CONTENT, % ST.DEV	ASH REDUCTION, % AVERAGE	ASH REDUCTION, % ST.DEV
ALL X 0	100.0	30	100.0	.0	.0	.0	11692	771	.0	.0	20.4	4.3	.0	.0
1-1/2" X 100M	50.0	8	35.9	4.5	64.1	4.5	13888	428	18.3	14.2	7.9	2.4	60.8	18.8
	60.0	9	45.2	4.9	54.8	4.9	13846	496	17.9	14.3	8.1	2.7	59.6	20.3
	70.0	10	56.5	5.6	43.5	5.6	13752	509	17.1	14.3	8.8	2.7	56.5	21.2
	80.0	10	67.4	6.4	32.6	6.4	13582	533	15.6	14.2	9.7	2.8	51.7	22.9
	90.0	10	79.1	7.8	20.9	7.8	13329	532	13.5	13.9	11.2	2.8	44.5	25.0
	100.0	10	100.0	.0	.0	.0	11744	1364	.0	.0	20.1	7.5	.0	.0
3/8" X 100M	50.0	8	38.4	4.7	61.6	4.7	14097	312	19.9	13.9	6.7	1.7	66.4	15.1
	60.0	8	46.3	4.8	53.7	4.8	13969	356	18.8	13.9	7.4	2.0	62.9	16.8
	70.0	9	56.3	4.9	43.7	4.9	13910	445	18.3	14.0	7.8	2.4	61.1	18.7
	80.0	10	67.4	6.5	32.6	6.5	13751	475	16.9	13.9	8.8	2.5	56.2	20.5
	90.0	10	78.3	7.5	21.7	7.5	13479	506	14.6	13.8	10.3	2.7	48.5	23.3
	100.0	10	100.0	.0	.0	.0	11760	1341	.0	.0	20.1	7.4	.0	.0
14M X 0	50.0	8	36.3	4.8	63.7	4.8	14142	191	21.3	14.2	6.4	1.3	68.7	13.0
	60.0	9	46.3	5.6	53.7	5.6	14002	211	20.1	14.1	7.3	1.3	64.7	14.4
	70.0	9	56.3	5.7	43.7	5.7	13854	259	18.8	14.0	8.1	1.5	60.6	16.1
	80.0	10	67.3	6.9	32.7	6.9	13740	424	17.8	14.2	8.8	2.4	57.4	19.4
	90.0	10	78.5	6.9	21.5	6.9	13375	603	14.7	14.3	10.8	3.4	47.3	25.3
	100.0	10	100.0	.0	.0	.0	11662	1358	.0	.0	20.6	7.5	.0	.0

SIZE	BTU RECOVERY %	NO.OF SAMPLES	PYRITIC SULFUR CONTENT, % AVERAGE	PYRITIC SULFUR CONTENT, % ST.DEV	PYRITIC SULFUR REDUCTION, % AVERAGE	PYRITIC SULFUR REDUCTION, % ST.DEV	TOTAL SULFUR CONTENT, % AVERAGE	TOTAL SULFUR CONTENT, % ST.DEV	TOTAL SULFUR REDUCTION, % AVERAGE	TOTAL SULFUR REDUCTION, % ST.DEV	SO2 EMISSION LB/MM BTU AVERAGE	SO2 EMISSION LB/MM BTU ST.DEV	SO2 EMISSION REDUCTION, % AVERAGE	SO2 EMISSION REDUCTION, % ST.DEV
ALL X 0	100.0	30	3.71	.71	.0	.0	5.03	.65	.0	.0	8.7	1.4	.0	.0
1-1/2" X 100M	50.0	8	1.80	.67	51.1	24.6	3.13	.56	37.0	17.8	4.5	1.0	47.4	18.2
	60.0	9	1.86	.72	49.5	25.9	3.23	.57	35.2	18.1	4.7	1.0	45.6	18.9
	70.0	10	1.95	.76	47.2	27.3	3.34	.57	32.9	18.6	4.9	1.1	43.4	19.6
	80.0	10	2.15	.80	41.6	29.3	3.53	.61	29.1	19.7	5.2	1.1	39.4	21.0
	90.0	10	2.46	.83	33.2	31.8	3.82	.66	23.3	21.3	5.8	1.2	33.2	22.8
	100.0	10	3.69	1.24	.0	.0	4.98	1.08	.0	.0	8.6	2.3	.0	.0
3/8" X 100M	50.0	8	1.50	.41	58.1	17.1	2.82	.36	42.4	14.2	4.0	.6	52.6	14.0
	60.0	8	1.65	.43	54.0	18.4	2.96	.37	39.5	14.8	4.3	.6	49.7	14.8
	70.0	9	1.73	.49	51.7	20.0	3.07	.38	37.2	15.3	4.4	.7	47.5	15.6
	80.0	10	1.88	.50	47.3	21.2	3.26	.36	33.5	15.8	4.8	.7	43.8	16.4
	90.0	10	2.18	.51	39.2	23.2	3.54	.40	27.6	17.2	5.3	.7	37.6	18.0
	100.0	10	3.58	1.08	.0	.0	4.89	1.03	.0	.0	8.5	2.2	.0	.0
14M X 0	50.0	8	1.28	.40	66.0	15.4	2.63	.34	48.1	13.4	3.7	.5	57.8	12.6
	60.0	9	1.41	.40	62.5	16.3	2.79	.34	45.0	14.0	4.0	.5	54.9	13.3
	70.0	9	1.56	.44	58.4	18.0	2.93	.36	42.1	14.8	4.2	.6	52.0	14.3
	80.0	10	1.70	.50	54.9	20.0	3.09	.38	39.0	15.5	4.5	.6	48.9	15.3
	90.0	10	2.13	.64	43.4	25.3	3.50	.56	30.9	19.0	5.3	1.0	40.4	19.6
	100.0	10	3.76	1.24	.0	.0	5.07	1.13	.0	.0	8.8	2.4	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE AND RANK (DRY BASIS)

STATE: MISSOURI (BITUMINOUS) NUMBER OF SAMPLES: 18 TOTAL MOISTURE, %: 4.2 ST.DEV: 1.7

		WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	100.0	.0	100.0	.0	11943	459	.0	.0	18.6	2.4	.0	.0
1-1/2" X 100M	FLOAT 1.30	35.5	20.9	41.4	23.4	14095	336	17.8	8.5	5.9	1.1	68.2	9.6
	FLOAT 1.40	69.7	9.6	79.1	8.1	13604	286	13.7	8.1	8.8	1.9	52.6	15.1
	FLOAT 1.60	84.8	6.4	93.9	2.7	13251	309	10.7	8.0	10.9	2.0	41.2	17.6
	CUMULATIVE	100.0	.0	100.0	.0	11966	818	.0	.0	18.5	4.4	.0	.0
3/8" X 100M	FLOAT 1.30	37.2	15.3	44.1	17.2	14252	278	18.8	8.5	5.0	1.1	72.9	9.0
	FLOAT 1.40	69.9	9.1	80.5	7.6	13834	262	15.4	8.2	7.5	1.9	59.3	14.3
	FLOAT 1.60	83.3	6.1	93.8	1.9	13505	348	12.6	8.3	9.4	2.3	48.7	17.7
	CUMULATIVE	100.0	.0	100.0	.0	11993	824	.0	.0	18.3	4.4	.0	.0
14M X 0	FLOAT 1.30	35.7	15.7	42.1	17.1	14217	287	18.9	8.3	5.3	1.9	71.5	12.1
	FLOAT 1.40	67.8	10.5	78.4	9.2	13858	244	15.9	8.0	7.3	2.2	60.5	14.6
	FLOAT 1.60	81.9	6.7	92.6	2.7	13536	337	13.2	8.0	9.2	2.6	50.2	17.8
	CUMULATIVE	100.0	.0	100.0	.0	11954	793	.0	.0	18.6	4.2	.0	.0

		PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	3.96	.77	.0	.0	5.53	.83	.0	.0	9.3	1.5	.0	.0
1-1/2" X 100M	FLOAT 1.30	1.35	.71	65.8	21.1	2.91	.59	47.2	17.6	4.1	.9	55.3	15.8
	FLOAT 1.40	2.00	.86	49.3	27.3	3.54	.63	35.6	20.4	5.2	1.0	43.6	18.9
	FLOAT 1.60	2.57	1.04	34.7	33.9	4.07	.80	26.1	24.4	6.2	1.3	33.5	23.1
	CUMULATIVE	3.93	1.27	.0	.0	5.50	1.45	.0	.0	9.3	2.6	.0	.0
3/8" X 100M	FLOAT 1.30	1.15	.56	70.3	17.6	2.75	.48	49.5	15.8	3.9	.7	57.6	13.9
	FLOAT 1.40	1.72	.75	55.5	24.5	3.31	.53	39.1	18.6	4.8	.8	47.4	16.7
	FLOAT 1.60	2.21	.92	43.0	30.7	3.78	.70	30.7	22.3	5.6	1.1	38.6	20.7
	CUMULATIVE	3.87	1.32	.0	.0	5.45	1.42	.0	.0	9.1	2.5	.0	.0
14M X 0	FLOAT 1.30	1.18	.74	70.4	21.4	2.77	.59	50.0	17.1	3.9	.9	58.1	15.2
	FLOAT 1.40	1.59	.83	60.3	25.2	3.20	.58	42.3	18.6	4.6	.9	50.4	16.8
	FLOAT 1.60	2.05	.97	48.8	30.6	3.61	.73	34.9	21.8	5.3	1.2	42.7	20.4
	CUMULATIVE	4.00	1.46	.0	.0	5.54	1.48	.0	.0	9.3	2.6	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE AND RANK

STATE: MISSOURI (BITUMINOUS)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	18	3.3	1.7	15	2.9	1.3	15	2.5	.9
ASH	18	18.7	4.3	15	9.5	2.5	15	59.3	7.6
VOLATILE MATTER	18	37.4	3.3	15	40.1	3.0	14	25.4	6.0
FIXED CARBON	18	43.8	2.8	15	50.4	2.0	14	15.2	8.3
BTU/LB	18	11881	813	15	13533	425	13	5025	1235
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	9	66.4	3.7	9	74.0	2.9	9	20.2	6.5
HYDROGEN	9	4.8	.4	9	5.4	.4	9	1.7	.6
NITROGEN	9	1.1	.1	9	1.3	.1	9	.3	.1
OXYGEN	9	3.6	.8	9	5.8	1.5	2	2.4	2.0
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	18	3.98	1.43	15	2.22	.80	15	13.75	5.56
SULFATIC SULFUR	18	.11	.08	15	.08	.07	15	.12	.09
ORGANIC SULFUR	18	1.37	.52	15	1.27	.52	15	1.49	1.00
TOTAL SULFUR	18	5.46	1.40	15	3.57	.72	15	15.36	5.98
MINERAL ANALYSIS OF ASH, %									
SIO2 (SILICON OXIDE)	9	30.63	9.62	8	42.67	7.36	8	25.04	11.30
AL2O3 (ALUMINUM OXIDE)	9	12.22	4.57	8	16.74	3.43	8	11.13	4.92
FE2O3 (IRON OXIDE)	9	35.48	11.64	8	31.21	9.63	8	39.75	16.02
TIO2 (TITANIUM OXIDE)	9	1.57	.34	8	.97	.27	8	.44	.25
CAO (CALCIUM OXIDE)	9	9.95	7.05	8	2.02	.69	8	11.79	6.69
MGO (MAGNESIUM OXIDE)	9	1.03	.53	8	.81	.18	8	.44	.24
NA2O (SODIUM OXIDE)	9	.58	.20	8	.23	.17	8	.08	.09
K2O (POTASSIUM OXIDE)	9	1.40	.40	8	2.24	.36	8	1.06	.64
SO3 (SULFITES)	9	6.45	3.37	8	1.51	.81	8	7.85	5.23
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	12	1975	91	15	1933	86	13	2002	105
SOFTENING TEMPERATURE (ST)	15	2037	84	15	2025	71	13	2095	119
FLUID TEMPERATURE (FT)	12	2151	153	15	2139	128	13	2210	171
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	18	23.1	5.0	15	12.2	2.8	15	72.1	7.8
CHLORINE	9	.18	.13	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	15	55	4	15	52	4	0	--	--
FREE SWELLING (FSI)	15	6 1/2	2	15	7	2	2	1	0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE AND RANK

STATE: MISSOURI (BITUMINOUS) TOTAL MOISTURE, %: 4.2 ST.DEV: 1.7

	BTU RECOVERY	NO.OF SAMPLES	WEIGHT RECOVERY				HEATING VALUE				ASH			
			AMOUNT, %		REDUCTION, %		BTU/LB		INCREASE, %		CONTENT, %		REDUCTION, %	
SIZE	%		AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	100.0	54	100.0	.0	.0	.0	11943	459	.0	.0	18.6	2.4	.0	.0
1-1/2" X 100M	50.0	10	35.2	8.2	64.8	8.2	13827	212	15.6	8.1	7.6	1.6	58.7	13.0
	60.0	15	47.1	5.8	52.9	5.8	13781	272	15.2	8.2	7.7	1.9	58.3	14.3
	70.0	16	58.6	2.9	41.4	2.9	13643	290	14.0	8.2	8.4	2.2	54.6	15.8
	80.0	18	70.0	4.1	30.0	4.1	13562	350	13.3	8.3	9.0	2.3	51.3	16.9
	90.0	18	80.4	4.7	19.6	4.7	13353	402	11.6	8.3	10.2	2.4	44.6	18.4
	100.0	18	100.0	.0	.0	.0	11966	818	.0	.0	18.5	4.4	.0	.0
3/8" X 100M	50.0	10	37.8	4.1	62.2	4.1	14086	212	17.5	8.3	6.0	2.1	67.1	13.9
	60.0	15	48.4	3.6	51.6	3.6	14006	257	16.8	8.3	6.6	1.9	64.3	13.3
	70.0	18	58.9	3.4	41.1	3.4	13934	294	16.2	8.3	6.8	2.1	62.7	14.7
	80.0	18	68.8	4.0	31.2	4.0	13800	332	15.1	8.4	7.6	2.3	58.3	16.1
	90.0	18	79.1	4.6	20.9	4.6	13606	378	13.4	8.4	8.8	2.4	52.0	17.5
	100.0	18	100.0	.0	.0	.0	11993	824	.0	.0	18.3	4.4	.0	.0
14M X 0	50.0	11	37.8	2.9	62.2	2.9	14016	284	17.2	8.1	6.1	2.7	67.3	16.1
	60.0	16	48.7	3.4	51.3	3.4	13988	266	17.0	8.1	6.4	2.4	65.4	14.9
	70.0	18	59.1	3.4	40.9	3.4	13927	291	16.5	8.1	6.9	2.4	62.7	15.3
	80.0	18	68.6	3.9	31.4	3.9	13784	326	15.3	8.1	7.7	2.5	58.3	16.4
	90.0	18	79.3	3.7	20.7	3.7	13564	412	13.5	8.3	9.0	2.5	51.4	17.5
	100.0	18	100.0	.0	.0	.0	11954	793	.0	.0	18.6	4.2	.0	.0

	BTU RECOVERY	NO.OF SAMPLES	PYRITIC SULFUR				TOTAL SULFUR				SO2 EMISSION			
			CONTENT, %		REDUCTION, %		CONTENT, %		REDUCTION, %		LB/MM BTU		REDUCTION, %	
SIZE	%		AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	100.0	54	3.96	.77	.0	.0	5.53	.83	.0	.0	9.3	1.5	.0	.0
1-1/2" X 100M	50.0	10	1.78	.92	54.8	27.7	3.28	.74	40.3	20.6	4.8	1.1	48.5	18.7
	60.0	15	1.72	.91	56.3	27.1	3.31	.68	39.8	20.1	4.8	1.0	47.9	18.4
	70.0	16	1.83	.98	53.4	29.0	3.47	.71	37.0	21.0	5.1	1.1	44.9	19.4
	80.0	18	2.08	.99	47.2	30.4	3.62	.76	34.1	22.1	5.4	1.2	42.0	20.8
	90.0	18	2.42	1.12	38.4	34.7	3.95	1.00	28.2	26.2	6.0	1.7	35.6	25.4
	100.0	18	3.93	1.27	.0	.0	5.50	1.45	.0	.0	9.3	2.6	.0	.0
3/8" X 100M	50.0	10	1.53	.68	60.4	22.2	3.06	.53	43.7	17.6	4.4	.8	52.2	15.5
	60.0	15	1.47	.73	62.1	22.8	3.08	.52	43.4	17.6	4.4	.8	51.6	15.6
	70.0	18	1.57	.77	59.4	24.1	3.17	.55	41.7	18.2	4.6	.8	50.0	16.3
	80.0	18	1.77	.84	54.3	26.7	3.37	.62	38.2	19.7	4.9	1.0	46.4	18.0
	90.0	18	2.06	.90	46.9	29.5	3.64	.71	33.2	21.7	5.4	1.1	41.2	20.2
	100.0	18	3.87	1.32	.0	.0	5.45	1.42	.0	.0	9.1	2.5	.0	.0
14M X 0	50.0	11	1.33	.92	66.8	26.1	3.08	.66	44.4	19.0	4.4	1.0	52.7	17.1
	60.0	16	1.34	.85	66.4	24.5	3.01	.62	45.7	18.3	4.3	.9	53.7	16.5
	70.0	18	1.51	.85	62.3	25.3	3.11	.60	44.0	18.4	4.5	.9	52.0	16.8
	80.0	18	1.70	.91	57.6	27.4	3.29	.66	40.7	19.8	4.8	1.0	48.6	18.3
	90.0	18	1.97	.95	50.8	29.8	3.54	.74	36.2	21.7	5.2	1.2	43.8	20.5
	100.0	18	4.00	1.46	.0	.0	5.54	1.48	.0	.0	9.3	2.6	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE AND RANK (DRY BASIS)

STATE: OKLAHOMA (BITUMINOUS) NUMBER OF SAMPLES: 13 TOTAL MOISTURE, %: 3.4 ST.DEV: 2.0

		WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	100.0	.0	100.0	.0	13653	449	.0	.0	9.2	2.9	.0	.0
1-1/2" X 100M	FLOAT 1.30	65.4	25.6	69.3	25.3	14682	324	7.3	6.5	3.7	1.5	59.8	27.8
	FLOAT 1.40	87.3	9.6	92.0	7.6	14441	434	5.5	6.8	5.0	2.5	44.6	40.9
	FLOAT 1.60	93.8	5.6	97.9	1.7	14296	488	4.5	6.9	5.8	2.9	35.9	47.9
	CUMULATIVE	100.0	.0	100.0	.0	13687	773	.0	.0	9.1	5.0	.0	.0
3/8" X 100M	FLOAT 1.30	67.6	24.5	72.1	24.4	14753	302	7.7	6.4	3.2	1.4	64.3	25.4
	FLOAT 1.40	87.3	8.5	92.6	5.9	14555	404	6.2	6.6	4.3	2.3	51.3	37.3
	FLOAT 1.60	92.9	5.6	97.7	1.6	14420	456	5.2	6.7	5.1	2.7	42.8	44.1
	CUMULATIVE	100.0	.0	100.0	.0	13703	761	.0	.0	8.9	5.0	.0	.0
14M X 0	FLOAT 1.30	67.2	19.3	72.0	18.1	14773	308	8.3	6.6	3.1	1.5	66.2	25.1
	FLOAT 1.40	85.9	9.0	91.7	5.9	14600	387	7.0	6.8	4.1	2.2	55.6	34.5
	FLOAT 1.60	91.8	5.9	97.2	2.2	14462	431	6.0	6.9	4.9	2.6	47.1	40.4
	CUMULATIVE	100.0	.0	100.0	.0	13645	787	.0	.0	9.2	5.1	.0	.0

		PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	1.76	1.01	.0	.0	2.71	1.25	.0	.0	4.1	1.9	.0	.0
1-1/2" X 100M	FLOAT 1.30	.77	.78	56.7	61.1	1.73	1.20	36.6	67.0	2.4	1.7	41.9	62.7
	FLOAT 1.40	1.20	1.19	32.3	94.6	2.16	1.59	20.8	85.8	3.0	2.3	25.7	82.6
	FLOAT 1.60	1.41	1.42	20.6	111.8	2.36	1.78	13.2	95.1	3.4	2.6	17.4	93.1
	CUMULATIVE	1.78	1.75	.0	.0	2.72	2.17	.0	.0	4.1	3.3	.0	.0
3/8" X 100M	FLOAT 1.30	.69	.71	60.0	57.3	1.65	1.14	38.3	65.5	2.2	1.6	43.6	61.0
	FLOAT 1.40	1.05	1.08	39.0	87.2	2.00	1.46	25.0	81.2	2.8	2.1	30.1	77.4
	FLOAT 1.60	1.26	1.31	26.7	105.7	2.22	1.67	17.0	91.5	3.1	2.4	21.6	88.6
	CUMULATIVE	1.72	1.71	.0	.0	2.67	2.14	.0	.0	4.0	3.3	.0	.0
14M X 0	FLOAT 1.30	.66	.76	62.6	57.2	1.63	1.13	40.1	63.7	2.2	1.5	45.8	59.0
	FLOAT 1.40	.95	1.05	46.2	80.3	1.92	1.39	29.5	76.4	2.7	1.9	35.2	72.0
	FLOAT 1.60	1.17	1.25	34.0	97.2	2.13	1.59	21.8	86.0	3.0	2.3	27.1	82.3
	CUMULATIVE	1.77	1.79	.0	.0	2.72	2.19	.0	.0	4.1	3.4	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE AND RANK

STATE: OKLAHOMA (BITUMINOUS)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	13	2.4	1.7	9	2.3	1.1	9	2.3	1.1
ASH	13	9.3	4.9	9	5.1	2.9	9	56.3	4.2
VOLATILE MATTER	13	34.9	6.3	9	37.2	5.0	8	33.9	5.3
FIXED CARBON	13	55.8	6.2	9	57.7	4.5	8	10.0	5.7
BTU/LB	13	13611	770	9	14379	369	9	4401	1355
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	8	76.3	3.2	8	79.9	1.8	8	21.8	2.9
HYDROGEN	8	4.8	.5	8	5.1	.5	8	1.2	.3
NITROGEN	8	1.8	.3	8	1.9	.2	8	.3	.1
OXYGEN	8	6.3	2.7	8	6.4	2.7	6	13.2	7.0
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	13	1.76	1.76	9	1.35	1.25	9	9.70	6.62
SULFATIC SULFUR	13	.05	.06	9	.03	.04	9	.07	.08
ORGANIC SULFUR	13	.94	.57	9	.94	.62	9	.98	.84
TOTAL SULFUR	13	2.75	2.23	9	2.32	1.56	9	10.76	7.41
MINERAL ANALYSIS OF ASH, %									
SIO2 (SILICON OXIDE)	6	27.53	15.25	6	32.63	16.67	6	19.97	14.46
AL2O3 (ALUMINUM OXIDE)	6	13.24	6.29	6	19.20	9.04	6	6.85	4.12
FE2O3 (IRON OXIDE)	6	26.14	16.23	6	25.16	21.54	6	24.98	20.42
TIO2 (TITANIUM OXIDE)	6	1.08	.25	6	1.71	.59	6	.94	1.03
CAO (CALCIUM OXIDE)	6	18.83	8.14	6	5.46	2.46	6	37.41	18.43
MGO (MAGNESIUM OXIDE)	6	2.14	1.24	6	2.43	1.42	6	1.34	.87
NA2O (SODIUM OXIDE)	7	.87	.21	7	.72	.39	7	.22	.32
K2O (POTASSIUM OXIDE)	6	1.43	.75	6	2.25	1.31	6	.48	.33
SO3 (SULFITES)	6	8.34	5.94	6	4.97	4.79	6	4.75	4.63
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	7	2030	125	9	2088	150	6	2237	282
SOFTENING TEMPERATURE (ST)	9	2121	117	9	2160	165	6	2298	288
FLUID TEMPERATURE (FT)	7	2176	126	9	2239	192	6	2355	294
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	13	11.5	6.1	9	6.8	3.8	9	67.1	7.0
CHLORINE	8	.25	.11	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	9	62	15	6	53	5	0	--	--
FREE SWELLING (FSI)	9	7	2	9	7	2	5	0 1/2	0 1/2

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE AND RANK

STATE: OKLAHOMA (BITUMINOUS) TOTAL MOISTURE, %: 3.4 ST.DEV: 2.0

SIZE	BTU RECOVERY %	NO.OF SAMPLES	WEIGHT RECOVERY AMOUNT, % AVERAGE	WEIGHT RECOVERY AMOUNT, % ST.DEV	WEIGHT RECOVERY REDUCTION, % AVERAGE	WEIGHT RECOVERY REDUCTION, % ST.DEV	HEATING VALUE BTU/LB AVERAGE	HEATING VALUE BTU/LB ST.DEV	HEATING VALUE INCREASE, % AVERAGE	HEATING VALUE INCREASE, % ST.DEV	ASH CONTENT, % AVERAGE	ASH CONTENT, % ST.DEV	ASH REDUCTION, % AVERAGE	ASH REDUCTION, % ST.DEV
ALL X 0	100.0	39	100.0	.0	.0	.0	13653	449	.0	.0	9.2	2.9	.0	.0
1-1/2" X 100M	50.0	3	40.2	5.7	59.8	5.7	14275	430	4.3	6.7	7.2	1.2	20.4	45.9
	60.0	4	49.1	4.3	50.9	4.3	14455	663	5.6	7.7	6.6	2.6	27.3	49.5
	70.0	5	60.4	4.4	39.6	4.4	14414	604	5.3	7.4	6.5	2.9	28.7	50.4
	80.0	6	72.0	4.4	28.0	4.4	14359	561	4.9	7.2	6.4	3.1	29.5	51.5
	90.0	11	84.4	4.0	15.6	4.0	14410	518	5.3	7.2	5.4	3.1	40.8	46.9
	100.0	13	100.0	.0	.0	.0	13687	773	.0	.0	9.1	5.0	.0	.0
3/8" X 100M	50.0	3	40.2	4.8	59.8	4.8	14418	327	5.2	6.3	6.4	1.2	28.6	41.8
	60.0	3	49.0	3.5	51.0	3.5	14334	354	4.6	6.4	6.8	1.2	23.1	44.9
	70.0	3	59.9	1.4	40.1	1.4	14246	382	4.0	6.4	7.4	1.3	17.2	48.3
	80.0	6	72.0	4.5	28.0	4.5	14496	521	5.8	7.0	5.4	3.0	39.8	47.5
	90.0	11	83.8	4.1	16.2	4.1	14474	415	5.6	6.6	4.7	2.8	47.7	42.7
	100.0	13	100.0	.0	.0	.0	13703	761	.0	.0	8.9	5.0	.0	.0
14M X 0	50.0	2	42.1	1.5	57.9	1.5	14337	127	5.1	6.1	6.2	1.6	32.4	41.2
	60.0	4	50.6	2.6	49.4	2.6	14664	549	7.5	7.4	5.5	2.2	40.7	40.3
	70.0	4	59.5	3.1	40.5	3.1	14573	571	6.8	7.4	6.0	2.2	35.2	43.3
	80.0	7	71.6	3.9	28.4	3.9	14530	439	6.5	6.9	4.9	2.6	46.7	41.1
	90.0	11	83.2	3.8	16.8	3.8	14485	374	6.2	6.7	4.6	2.6	50.2	39.4
	100.0	13	100.0	.0	.0	.0	13645	787	.0	.0	9.2	5.1	.0	.0

SIZE	BTU RECOVERY %	NO.OF SAMPLES	PYRITIC SULFUR CONTENT, % AVERAGE	PYRITIC SULFUR CONTENT, % ST.DEV	PYRITIC SULFUR REDUCTION, % AVERAGE	PYRITIC SULFUR REDUCTION, % ST.DEV	TOTAL SULFUR CONTENT, % AVERAGE	TOTAL SULFUR CONTENT, % ST.DEV	TOTAL SULFUR REDUCTION, % AVERAGE	TOTAL SULFUR REDUCTION, % ST.DEV	SO2 EMISSION LB/MM BTU AVERAGE	SO2 EMISSION LB/MM BTU ST.DEV	SO2 EMISSION REDUCTION, % AVERAGE	SO2 EMISSION REDUCTION, % ST.DEV
ALL X 0	100.0	39	1.76	1.01	.0	.0	2.71	1.25	.0	.0	4.1	1.9	.0	.0
1-1/2" X 100M	50.0	3	2.23	.31	-25.3	124.5	3.22	.22	-18.3	94.4	4.5	.4	-11.1	91.6
	60.0	4	1.90	1.14	-6.8	123.1	2.77	1.36	-1.8	95.1	3.9	2.0	4.2	92.4
	70.0	5	1.97	1.10	-11.0	125.6	3.06	1.26	-12.4	100.6	4.3	1.8	-5.6	97.7
	80.0	6	1.85	1.36	-4.1	127.7	2.83	1.63	-4.0	102.0	4.0	2.4	1.7	99.4
	90.0	11	1.42	1.37	20.3	110.1	2.48	1.66	9.0	94.7	3.5	2.4	14.1	92.2
	100.0	13	1.78	1.75	.0	.0	2.72	2.17	.0	.0	4.1	3.3	.0	.0
3/8" X 100M	50.0	3	1.92	.53	-11.7	115.4	2.91	.19	-9.2	87.8	4.0	.3	-1.6	84.1
	60.0	3	2.12	.49	-23.2	126.0	3.11	.17	-16.6	93.8	4.4	.3	-9.2	90.4
	70.0	3	2.34	.44	-36.2	137.9	3.33	.17	-24.6	100.2	4.7	.3	-17.4	97.2
	80.0	6	1.61	1.16	6.3	115.2	2.64	1.33	1.2	93.7	3.7	1.9	7.6	90.0
	90.0	11	1.25	1.22	27.4	101.3	2.30	1.53	13.7	89.9	3.2	2.2	19.1	86.5
	100.0	13	1.72	1.71	.0	.0	2.67	2.14	.0	.0	4.0	3.3	.0	.0
14M X 0	50.0	2	1.53	.61	13.4	94.2	2.76	.32	-1.6	82.7	3.9	.4	5.7	79.2
	60.0	4	1.52	1.05	14.3	105.0	2.35	1.12	13.4	81.1	3.3	1.6	20.5	76.9
	70.0	4	1.68	1.10	4.9	114.6	2.52	1.19	7.4	86.5	3.5	1.7	14.4	82.6
	80.0	7	1.44	1.03	18.6	100.7	2.61	1.13	4.2	87.6	3.6	1.6	11.7	83.3
	90.0	11	1.17	1.16	34.0	93.4	2.23	1.44	18.1	84.7	3.1	2.1	24.1	80.7
	100.0	13	1.77	1.79	.0	.0	2.72	2.19	.0	.0	4.1	3.4	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE AND RANK (DRY BASIS)

STATE: TEXAS (BITUMINOUS) NUMBER OF SAMPLES: 4 TOTAL MOISTURE, %: 8.8 ST.DEV: 3.3

		WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	100.0	.0	100.0	.0	10622	1098	.0	.0	24.9	6.1	.0	.0
1-1/2" X 100M	FLOAT 1.30	32.6	24.1	38.5	23.7	13297	399	24.6	23.0	8.3	1.2	66.1	15.6
	FLOAT 1.40	59.4	25.1	69.2	22.0	12782	556	19.8	22.5	11.7	2.0	52.4	22.5
	FLOAT 1.60	80.4	12.4	91.1	5.9	12068	1202	13.1	23.5	16.1	6.0	34.4	37.9
	CUMULATIVE	100.0	.0	100.0	.0	10668	1946	.0	.0	24.6	10.8	.0	.0
3/8" X 100M	FLOAT 1.30	44.5	25.9	52.6	26.1	13374	288	24.7	23.0	8.2	1.6	66.5	16.2
	FLOAT 1.40	60.8	26.6	71.2	23.6	13031	404	21.5	22.5	10.3	.6	57.6	18.9
	FLOAT 1.60	78.4	14.8	90.2	7.7	12360	1053	15.2	23.2	14.4	5.0	40.8	33.2
	CUMULATIVE	100.0	.0	100.0	.0	10725	1961	.0	.0	24.3	10.7	.0	.0
14M X 0	FLOAT 1.30	35.1	28.6	40.8	28.8	13448	200	26.3	22.6	7.8	1.5	68.6	14.8
	FLOAT 1.40	59.6	28.4	70.1	26.7	13095	216	23.0	22.0	9.9	.8	60.4	17.5
	FLOAT 1.60	74.3	20.7	86.6	14.3	12553	640	17.9	21.9	13.3	2.6	46.7	25.4
	CUMULATIVE	100.0	.0	100.0	.0	10647	1898	.0	.0	24.9	10.8	.0	.0

		PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	1.89	.88	.0	.0	2.67	.95	.0	.0	4.9	1.7	.0	.0
1-1/2" X 100M	FLOAT 1.30	.60	.52	67.0	39.7	1.38	.52	46.1	39.3	2.1	.7	55.6	30.9
	FLOAT 1.40	.89	.79	51.4	59.3	1.64	.80	35.9	50.9	2.6	1.2	45.2	41.6
	FLOAT 1.60	1.13	.94	37.9	73.1	1.87	1.02	27.1	60.5	3.0	1.5	35.1	50.4
	CUMULATIVE	1.82	1.51	.0	.0	2.56	1.60	.0	.0	4.7	2.8	.0	.0
3/8" X 100M	FLOAT 1.30	.60	.68	69.9	42.0	1.40	.75	48.5	41.8	2.1	1.1	57.4	33.8
	FLOAT 1.40	.67	.66	66.1	43.2	1.48	.71	45.5	42.3	2.3	1.0	54.1	34.2
	FLOAT 1.60	.87	.82	56.1	54.3	1.65	.92	39.3	50.2	2.6	1.3	46.9	41.0
	CUMULATIVE	1.98	1.60	.0	.0	2.72	1.66	.0	.0	4.9	2.9	.0	.0
14M X 0	FLOAT 1.30	.52	.42	71.8	31.9	1.33	.42	50.0	34.7	2.0	.6	59.4	27.1
	FLOAT 1.40	.66	.58	64.6	42.1	1.44	.63	46.1	40.8	2.2	.9	55.0	32.9
	FLOAT 1.60	.78	.72	57.8	51.6	1.54	.80	42.3	46.7	2.4	1.2	50.3	38.2
	CUMULATIVE	1.85	1.48	.0	.0	2.67	1.65	.0	.0	4.9	2.9	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE AND RANK

STATE: TEXAS (BITUMINOUS)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	4	5.6	2.5	4	5.2	2.9	4	2.6	.8
ASH	4	25.3	10.7	4	13.1	3.0	4	59.8	3.9
VOLATILE MATTER	4	36.8	8.1	4	40.3	6.1	4	28.1	6.6
FIXED CARBON	4	37.9	5.9	4	46.6	5.1	4	12.1	6.4
BTU/LB	4	10587	1887	4	12580	696	4	4795	605
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	4	58.5	8.9	4	68.9	2.9	4	23.1	3.0
HYDROGEN	4	4.2	1.1	4	4.9	.9	4	2.1	.4
NITROGEN	4	1.3	.3	4	1.5	.2	4	.5	.1
OXYGEN	4	8.1	2.1	4	10.0	1.8	4	6.1	5.2
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	4	1.77	1.37	4	.76	.68	4	6.63	4.59
SULFATIC SULFUR	4	.07	.09	4	.01	.01	4	.15	.21
ORGANIC SULFUR	4	.76	.21	4	.75	.10	4	1.68	1.69
TOTAL SULFUR	4	2.60	1.51	4	1.52	.73	4	8.47	5.16
MINERAL ANALYSIS OF ASH, %									
SIO2 (SILICON OXIDE)	4	48.36	11.91	2	58.16	14.15	2	48.67	17.00
AL2O3 (ALUMINUM OXIDE)	4	21.84	5.72	2	24.51	.00	2	21.69	14.14
FE2O3 (IRON OXIDE)	4	14.70	8.37	2	7.01	5.46	2	14.16	16.38
TIO2 (TITANIUM OXIDE)	4	1.33	.35	2	1.72	.07	2	.72	.40
CAO (CALCIUM OXIDE)	4	5.30	5.01	2	3.45	4.24	2	5.15	5.39
MGO (MAGNESIUM OXIDE)	4	1.08	.64	2	.85	.40	2	.42	.12
NA2O (SODIUM OXIDE)	4	.62	.30	2	.83	.11	2	.82	.10
K2O (POTASSIUM OXIDE)	4	1.25	.74	2	.47	.23	2	.89	.10
SO3 (SULFITES)	4	5.49	6.18	2	2.13	2.88	2	6.59	9.12
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	2	2515	559	4	2380	401	1	1860	--
SOFTENING TEMPERATURE (ST)	4	2303	410	4	2448	373	1	1950	--
FLUID TEMPERATURE (FT)	2	2590	453	4	2520	330	1	2040	--
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	4	28.8	11.2	4	14.9	3.0	4	69.2	5.3
CHLORINE	4	.10	.09	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	4	44	15	4	37	13	0	--	--
FREE SWELLING (FSI)	4	2	2 1/2	4	2	2	0	--	--

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE AND RANK

STATE: TEXAS (BITUMINOUS) TOTAL MOISTURE, %: 8.8 ST.DEV: 3.3

	BTU RECOVERY	NO.OF SAMPLES	WEIGHT RECOVERY AMOUNT, %		WEIGHT RECOVERY REDUCTION, %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	%		AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	100.0	12	100.0	.0	.0	.0	10622	1098	.0	.0	24.9	6.1	.0	.0
1-1/2" X 100M	50.0	3	36.1	3.9	63.9	3.9	12674	798	18.8	22.9	11.4	4.4	53.6	27.0
	60.0	3	44.6	5.0	55.4	5.0	12456	927	16.8	23.0	12.8	5.0	47.9	30.5
	70.0	3	54.6	5.6	45.4	5.6	12218	1069	14.5	23.2	14.3	5.7	41.6	34.5
	80.0	4	68.1	6.2	31.9	6.2	12361	1286	15.9	24.3	14.3	6.4	41.6	36.5
	90.0	4	80.2	4.0	19.8	4.0	11954	1644	12.1	25.6	16.8	8.6	31.5	46.2
	100.0	4	100.0	.0	.0	.0	10668	1946	.0	.0	24.6	10.8	.0	.0
3/8" X 100M	50.0	2	35.6	6.2	64.4	6.2	12721	747	18.6	22.8	10.2	4.9	58.0	27.4
	60.0	2	43.4	6.7	56.6	6.7	12435	900	15.9	22.8	11.9	5.8	51.0	32.1
	70.0	2	52.8	7.1	47.2	7.1	12123	1073	13.0	23.0	13.9	6.8	42.7	37.6
	80.0	4	67.5	6.2	32.5	6.2	12611	1235	17.6	24.4	12.9	6.1	46.9	34.3
	90.0	4	79.6	3.7	20.4	3.7	12130	1746	13.1	26.3	15.8	9.1	35.2	47.3
	100.0	4	100.0	.0	.0	.0	10725	1961	.0	.0	24.3	10.7	.0	.0
14M X 0	50.0	3	35.9	4.5	64.1	4.5	12988	617	22.0	22.5	10.1	2.2	59.5	19.6
	60.0	3	44.1	4.4	55.9	4.4	12796	781	20.2	22.6	11.3	3.4	54.5	24.1
	70.0	3	54.1	4.1	45.9	4.1	12537	1059	17.8	23.2	12.9	5.3	48.1	30.9
	80.0	4	67.8	5.2	32.2	5.2	12480	1404	17.2	24.7	13.7	7.2	45.1	37.3
	90.0	4	79.7	4.0	20.3	4.0	12055	1844	13.2	26.6	16.2	10.0	34.7	49.1
	100.0	4	100.0	.0	.0	.0	10647	1898	.0	.0	24.9	10.8	.0	.0

	BTU RECOVERY	NO.OF SAMPLES	PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	%		AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	100.0	12	1.89	.88	.0	.0	2.67	.95	.0	.0	4.9	1.7	.0	.0
1-1/2" X 100M	50.0	3	.78	.75	57.2	54.5	1.53	.79	40.4	48.5	2.4	1.1	49.0	38.7
	60.0	3	.85	.81	53.3	58.9	1.58	.86	38.2	51.3	2.5	1.2	46.5	41.2
	70.0	3	.93	.86	48.9	63.7	1.65	.94	35.7	54.3	2.6	1.3	43.5	43.9
	80.0	4	.90	.80	50.6	60.1	1.63	.86	36.5	51.8	2.6	1.2	44.4	42.6
	90.0	4	1.07	.93	41.1	70.6	1.79	1.01	30.0	58.9	2.9	1.5	37.1	49.0
	100.0	4	1.82	1.51	.0	.0	2.56	1.60	.0	.0	4.7	2.8	.0	.0
3/8" X 100M	50.0	2	.23	.22	88.4	14.6	1.00	.34	63.1	25.9	1.6	.4	68.1	20.6
	60.0	2	.25	.23	87.5	15.5	1.00	.36	63.1	26.2	1.6	.5	67.4	21.1
	70.0	2	.27	.24	86.5	16.4	1.00	.38	63.2	26.5	1.6	.5	66.7	21.7
	80.0	4	.67	.68	66.3	43.6	1.45	.76	46.7	42.9	2.3	1.1	54.1	34.5
	90.0	4	.81	.79	58.9	51.8	1.58	.90	41.8	48.5	2.6	1.2	48.1	39.3
	100.0	4	1.98	1.60	.0	.0	2.72	1.66	.0	.0	4.9	2.9	.0	.0
14M X 0	50.0	3	.59	.54	68.1	38.9	1.35	.63	49.4	39.2	2.1	.9	57.8	30.7
	60.0	3	.62	.58	66.5	41.3	1.37	.69	48.8	40.8	2.1	.9	56.9	32.2
	70.0	3	.66	.62	64.6	43.8	1.39	.74	47.9	42.5	2.2	1.0	55.3	33.6
	80.0	4	.64	.54	65.5	40.3	1.38	.64	48.3	40.1	2.2	.9	55.2	31.9
	90.0	4	.75	.64	59.5	47.2	1.47	.75	44.9	44.2	2.4	1.0	50.8	35.6
	100.0	4	1.85	1.48	.0	.0	2.67	1.65	.0	.0	4.9	2.9	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE AND RANK (DRY BASIS)

STATE: ARKANSAS (ANTHRACITE) NUMBER OF SAMPLES: 5 TOTAL MOISTURE, %: 3.1 ST.DEV: 2.0

		WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	100.0	.0	100.0	.0	14118	268	.0	.0	8.7	1.6	.0	.0
1-1/2" X 100M	FLOAT 1.30	.7	.5	.8	.5	15063	224	6.5	3.8	3.4	1.5	61.0	21.2
	FLOAT 1.40	76.2	16.1	79.5	15.3	14789	157	4.5	3.6	5.0	1.1	41.8	22.7
	FLOAT 1.60	95.4	1.9	97.3	1.2	14427	446	2.0	4.6	7.1	2.6	18.0	40.0
	CUMULATIVE	100.0	.0	100.0	.0	14146	458	.0	.0	8.7	2.8	.0	.0
3/8" X 100M	FLOAT 1.30	1.6	1.2	1.8	1.4	15118	147	6.8	3.7	3.1	.8	63.3	15.8
	FLOAT 1.40	78.7	12.2	82.3	11.1	14841	152	4.8	3.7	4.7	1.1	44.2	22.9
	FLOAT 1.60	94.2	2.5	96.7	1.8	14536	419	2.7	4.5	6.4	2.4	24.2	38.6
	CUMULATIVE	100.0	.0	100.0	.0	14160	476	.0	.0	8.5	2.9	.0	.0
14M X 0	FLOAT 1.30	3.4	3.0	3.7	3.4	14978	242	6.4	4.0	3.8	1.5	56.2	21.6
	FLOAT 1.40	78.0	12.3	81.9	11.2	14818	235	5.2	3.9	4.7	1.5	45.9	24.2
	FLOAT 1.60	92.8	3.2	96.1	2.2	14575	379	3.5	4.4	6.0	2.1	31.0	32.0
	CUMULATIVE	100.0	.0	100.0	.0	14080	474	.0	.0	8.7	2.7	.0	.0

		PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	1.32	.60	.0	.0	2.07	.70	.0	.0	2.9	1.0	.0	.0
1-1/2" X 100M	FLOAT 1.30	.47	.43	64.9	43.0	1.13	.45	45.0	39.3	1.5	.6	48.4	37.1
	FLOAT 1.40	.64	.59	51.9	58.6	1.29	.64	37.2	48.5	1.8	.9	40.1	46.3
	FLOAT 1.60	.99	.91	25.3	91.2	1.66	1.04	19.3	69.6	2.3	1.4	20.8	68.3
	CUMULATIVE	1.33	1.06	.0	.0	2.06	1.22	.0	.0	2.9	1.7	.0	.0
3/8" X 100M	FLOAT 1.30	.32	.26	75.0	27.8	.99	.28	51.3	31.2	1.3	.4	54.5	29.2
	FLOAT 1.40	.56	.54	56.7	53.2	1.22	.58	40.0	44.8	1.6	.8	42.9	42.6
	FLOAT 1.60	.83	.76	36.4	76.4	1.50	.86	26.1	60.0	2.1	1.2	28.0	58.3
	CUMULATIVE	1.30	1.00	.0	.0	2.04	1.18	.0	.0	2.9	1.7	.0	.0
14M X 0	FLOAT 1.30	.30	.28	77.0	28.2	.99	.28	52.0	31.6	1.3	.4	55.0	29.5
	FLOAT 1.40	.45	.44	65.8	43.3	1.10	.40	46.9	36.9	1.5	.5	49.6	34.9
	FLOAT 1.60	.64	.64	51.2	63.1	1.33	.66	35.8	49.8	1.8	.9	37.9	47.9
	CUMULATIVE	1.30	1.05	.0	.0	2.07	1.23	.0	.0	3.0	1.7	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE AND RANK

STATE: ARKANSAS (ANTHRACITE)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	5	.8	.2	3	.8	.3	3	1.0	.3
ASH	5	8.7	2.8	3	6.6	2.4	3	41.1	2.0
VOLATILE MATTER	5	12.3	1.0	3	11.8	1.5	3	21.2	7.4
FIXED CARBON	5	79.1	2.1	3	81.6	1.3	3	37.7	6.7
BTU/LB	5	14053	501	3	14414	424	3	7612	756
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	3	82.2	4.0	3	84.8	3.0	3	40.8	8.7
HYDROGEN	3	3.6	.2	3	3.7	.1	3	1.9	.4
NITROGEN	3	1.7	.1	3	1.7	.1	3	.7	.2
OXYGEN	3	2.0	.3	3	2.0	.8	3	10.2	5.1
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	5	1.36	1.11	3	.45	.39	3	4.93	5.71
SULFATIC SULFUR	5	.09	.10	3	.02	.03	3	.06	.06
ORGANIC SULFUR	5	.61	.07	3	.60	.10	3	.44	.19
TOTAL SULFUR	5	2.06	1.23	3	1.07	.38	3	5.42	5.68
MINERAL ANALYSIS OF ASH, %									
SIO2 (SILICON OXIDE)	2	39.14	.69	2	37.08	1.80	2	37.93	9.04
AL2O3 (ALUMINUM OXIDE)	2	31.56	3.90	2	33.29	2.00	2	27.53	5.87
FE2O3 (IRON OXIDE)	2	18.37	5.75	2	14.09	1.52	2	28.17	16.78
TIO2 (TITANIUM OXIDE)	2	1.31	.03	2	1.29	.06	2	.80	.28
CAO (CALCIUM OXIDE)	2	2.94	.20	2	4.15	.86	2	1.07	.83
MGO (MAGNESIUM OXIDE)	2	2.24	.30	2	3.12	.66	2	.92	.16
NA2O (SODIUM OXIDE)	2	1.54	.08	2	1.56	.08	2	.94	.79
K2O (POTASSIUM OXIDE)	2	1.61	.12	2	1.63	.25	2	1.63	.42
SO3 (SULFITES)	2	1.70	.64	2	1.46	.63	2	.41	.06
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	3	2290	78	3	2280	89	1	2260	--
SOFTENING TEMPERATURE (ST)	3	2407	21	3	2347	85	1	2380	--
FLUID TEMPERATURE (FT)	3	2607	58	3	2517	183	1	2580	--
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	5	10.5	3.3	3	7.7	2.8	3	46.9	5.1
CHLORINE	3	.03	.04	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	3	76	9	1	74	--	0	--	--
FREE SWELLING (FSI)	3	0 1/2	1	3	0	0 1/2	2	0	0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE AND RANK

STATE: ARKANSAS (ANTHRACITE) TOTAL MOISTURE, %: 3.1 ST.DEV: 2.0

SIZE	BTU RECOVERY %	NO.OF SAMPLES	WEIGHT RECOVERY AMOUNT, % AVERAGE	WEIGHT RECOVERY AMOUNT, % ST.DEV	WEIGHT RECOVERY REDUCTION, % AVERAGE	WEIGHT RECOVERY REDUCTION, % ST.DEV	HEATING VALUE BTU/LB AVERAGE	HEATING VALUE BTU/LB ST.DEV	HEATING VALUE INCREASE, % AVERAGE	HEATING VALUE INCREASE, % ST.DEV	ASH CONTENT, % AVERAGE	ASH CONTENT, % ST.DEV	ASH REDUCTION, % AVERAGE	ASH REDUCTION, % ST.DEV
ALL X 0	100.0	15	100.0	.0	.0	.0	14118	268	.0	.0	8.7	1.6	.0	.0
1-1/2" X 100M	50.0	5	14.9	5.8	85.1	5.8	14906	204	5.4	3.7	4.3	1.4	50.5	22.8
	60.0	5	29.9	17.5	70.1	17.5	14869	201	5.1	3.7	4.5	1.4	47.9	23.3
	70.0	5	45.2	19.6	54.8	19.6	14818	204	4.7	3.7	4.8	1.5	44.3	24.5
	80.0	5	62.7	17.6	37.3	17.6	14715	264	4.0	3.9	5.4	1.7	37.4	27.8
	90.0	5	81.5	7.5	18.5	7.5	14568	389	3.0	4.3	6.3	2.3	27.5	35.1
	100.0	5	100.0	.0	.0	.0	14146	458	.0	.0	8.7	2.8	.0	.0
3/8" X 100M	50.0	5	16.3	5.6	83.7	5.6	14955	159	5.6	3.7	4.0	1.1	52.4	20.4
	60.0	5	27.1	8.7	72.9	8.7	14917	165	5.4	3.7	4.3	1.1	49.7	21.6
	70.0	5	45.7	15.7	54.3	15.7	14878	173	5.1	3.7	4.5	1.2	46.8	22.9
	80.0	5	64.2	14.3	35.8	14.3	14791	241	4.5	3.9	5.0	1.5	41.1	26.7
	90.0	5	82.5	6.0	17.5	6.0	14652	380	3.5	4.4	5.8	2.2	31.9	34.9
	100.0	5	100.0	.0	.0	.0	14160	476	.0	.0	8.5	2.9	.0	.0
14M X 0	50.0	5	20.2	8.9	79.8	8.9	14881	234	5.7	3.9	4.3	1.5	50.1	23.0
	60.0	5	30.8	11.3	69.2	11.3	14858	235	5.5	3.9	4.5	1.5	48.7	23.4
	70.0	5	47.1	14.7	52.9	14.7	14826	246	5.3	4.0	4.7	1.5	46.7	24.1
	80.0	5	64.0	12.3	36.0	12.3	14757	296	4.8	4.1	5.0	1.7	42.4	26.4
	90.0	5	83.9	3.1	16.1	3.1	14663	384	4.1	4.4	5.5	2.1	36.5	31.0
	100.0	5	100.0	.0	.0	.0	14080	474	.0	.0	8.7	2.7	.0	.0

SIZE	BTU RECOVERY %	NO.OF SAMPLES	PYRITIC SULFUR CONTENT, % AVERAGE	PYRITIC SULFUR CONTENT, % ST.DEV	PYRITIC SULFUR REDUCTION, % AVERAGE	PYRITIC SULFUR REDUCTION, % ST.DEV	TOTAL SULFUR CONTENT, % AVERAGE	TOTAL SULFUR CONTENT, % ST.DEV	TOTAL SULFUR REDUCTION, % AVERAGE	TOTAL SULFUR REDUCTION, % ST.DEV	SO2 EMISSION LB/MM BTU AVERAGE	SO2 EMISSION LB/MM BTU ST.DEV	SO2 EMISSION REDUCTION, % AVERAGE	SO2 EMISSION REDUCTION, % ST.DEV
ALL X 0	100.0	15	1.32	.60	.0	.0	2.07	.70	.0	.0	2.9	1.0	.0	.0
1-1/2" X 100M	50.0	5	.58	.55	56.0	54.3	1.25	.59	39.2	46.2	1.7	.8	42.3	44.0
	60.0	5	.61	.58	53.7	57.3	1.28	.63	37.8	48.1	1.7	.9	40.8	45.9
	70.0	5	.68	.66	49.0	64.6	1.34	.74	34.7	52.8	1.8	1.0	37.6	50.6
	80.0	5	.77	.75	42.2	73.2	1.44	.84	30.0	58.5	2.0	1.2	32.6	56.5
	90.0	5	.87	.86	34.0	83.3	1.55	.97	24.7	65.1	2.1	1.4	26.7	63.5
	100.0	5	1.33	1.06	.0	.0	2.06	1.22	.0	.0	2.9	1.7	.0	.0
3/8" X 100M	50.0	5	.47	.43	64.1	42.9	1.14	.46	44.1	39.6	1.5	.6	47.1	37.4
	60.0	5	.50	.47	61.2	47.1	1.17	.51	42.3	41.8	1.6	.7	45.3	39.6
	70.0	5	.55	.52	57.9	51.7	1.21	.57	40.5	44.2	1.6	.8	43.5	42.0
	80.0	5	.63	.60	51.5	59.6	1.30	.66	36.2	49.2	1.8	.9	38.9	47.1
	90.0	5	.74	.70	43.2	69.5	1.41	.79	30.6	55.8	1.9	1.1	32.8	53.9
	100.0	5	1.30	1.00	.0	.0	2.04	1.18	.0	.0	2.9	1.7	.0	.0
14M X 0	50.0	5	.38	.37	70.7	37.2	1.06	.35	48.8	34.9	1.4	.5	51.6	32.9
	60.0	5	.40	.40	69.0	39.4	1.08	.37	48.0	35.7	1.5	.5	50.8	33.7
	70.0	5	.43	.42	67.0	41.8	1.10	.39	47.0	36.6	1.5	.5	49.7	34.7
	80.0	5	.49	.48	62.5	47.8	1.17	.46	43.7	40.2	1.6	.6	46.3	38.3
	90.0	5	.57	.58	56.0	56.9	1.26	.59	39.1	46.0	1.7	.8	41.4	44.1
	100.0	5	1.30	1.05	.0	.0	2.07	1.23	.0	.0	3.0	1.7	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE AND RANK (DRY BASIS)

STATE: ARKANSAS (LIGNITE) NUMBER OF SAMPLES: 4 TOTAL MOISTURE, %: 36.4 ST.DEV: .8

		WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	100.0	.0	100.0	.0	9649	1268	.0	.0	21.3	7.8	.0	.0
1-1/2" X 100M	FLOAT 1.30	78.1	23.9	85.0	17.2	10728	1083	9.9	26.7	13.2	4.2	35.5	45.4
	FLOAT 1.40	85.4	19.7	91.9	12.0	10530	1249	7.9	27.1	14.6	5.6	28.6	52.5
	FLOAT 1.60	92.4	9.7	97.3	4.0	10222	1706	4.7	29.0	17.0	9.3	16.9	69.3
	CUMULATIVE	100.0	.0	100.0	.0	9763	2158	.0	.0	20.5	12.8	.0	.0
3/8" X 100M	FLOAT 1.30	71.6	24.5	79.2	17.7	10922	901	12.4	26.9	12.1	3.7	41.9	42.2
	FLOAT 1.40	83.0	21.8	90.4	13.4	10642	1091	9.5	27.0	14.0	5.3	32.5	51.1
	FLOAT 1.60	90.5	12.6	96.6	5.2	10309	1541	6.1	28.6	16.5	8.8	20.7	67.2
	CUMULATIVE	100.0	.0	100.0	.0	9719	2183	.0	.0	20.8	13.7	.0	.0
14M X 0	FLOAT 1.30	68.3	28.3	76.0	22.9	11035	829	14.8	28.9	11.6	3.4	46.7	39.3
	FLOAT 1.40	80.2	25.3	88.4	17.1	10714	1066	11.4	28.9	13.6	5.2	37.1	48.9
	FLOAT 1.60	89.7	12.8	96.4	5.5	10253	1699	6.6	31.1	17.1	10.1	21.2	70.8
	CUMULATIVE	100.0	.0	100.0	.0	9616	2308	.0	.0	21.7	14.7	.0	.0

		PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	.35	.19	.0	.0	1.06	.22	.0	.0	2.3	.6	.0	.0
1-1/2" X 100M	FLOAT 1.30	.22	.17	42.5	69.0	1.04	.41	4.4	53.6	2.0	1.0	14.6	59.5
	FLOAT 1.40	.24	.18	37.3	74.5	1.04	.39	4.0	52.0	2.1	1.0	12.4	59.7
	FLOAT 1.60	.26	.21	32.0	82.1	1.02	.33	6.2	48.0	2.1	1.0	10.7	59.5
	CUMULATIVE	.38	.35	.0	.0	1.08	.43	.0	.0	2.3	1.1	.0	.0
3/8" X 100M	FLOAT 1.30	.12	.06	64.4	39.7	.97	.39	7.2	49.8	1.8	.9	19.3	53.5
	FLOAT 1.40	.14	.08	57.6	49.2	.99	.38	5.3	50.0	1.9	1.0	14.7	57.1
	FLOAT 1.60	.18	.14	44.7	69.2	.97	.30	7.2	43.8	2.0	.9	12.9	55.0
	CUMULATIVE	.33	.33	.0	.0	1.05	.37	.0	.0	2.3	1.0	.0	.0
14M X 0	FLOAT 1.30	.09	.05	72.5	31.5	.97	.37	9.4	46.5	1.8	.8	22.8	47.0
	FLOAT 1.40	.10	.06	68.7	36.8	.97	.34	9.4	44.8	1.9	.9	19.8	49.1
	FLOAT 1.60	.14	.10	58.0	51.6	.95	.27	11.2	39.8	1.9	.9	16.2	50.8
	CUMULATIVE	.33	.33	.0	.0	1.07	.37	.0	.0	2.3	.9	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE AND RANK

STATE: ARKANSAS (LIGNITE)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	4	32.1	2.2	4	16.2	8.2	4	3.3	.7
ASH	4	21.4	13.4	4	17.2	10.1	4	73.9	5.5
VOLATILE MATTER	4	46.1	7.5	4	48.0	6.4	4	18.5	3.1
FIXED CARBON	4	32.5	6.1	4	34.8	4.1	4	7.6	3.3
BTU/LB	4	9631	2181	4	10239	1705	4	2220	752
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	4	55.1	11.3	4	58.3	9.2	4	11.9	2.5
HYDROGEN	4	4.7	.9	4	4.9	.8	4	1.5	.4
NITROGEN	4	.9	.2	4	1.0	.2	4	.3	.1
OXYGEN	4	16.8	1.0	4	17.7	.4	4	7.1	3.8
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	4	.34	.34	4	.14	.09	4	4.71	5.16
SULFATIC SULFUR	4	.03	.02	4	.02	.02	4	.04	.03
ORGANIC SULFUR	4	.70	.21	4	.79	.24	4	.50	.67
TOTAL SULFUR	4	1.07	.46	4	.95	.28	4	5.25	4.79
MINERAL ANALYSIS OF ASH, %									
SIO2 (SILICON OXIDE)	4	50.82	5.28	4	46.45	6.91	4	62.11	9.45
AL2O3 (ALUMINUM OXIDE)	4	25.83	2.40	4	30.36	5.97	4	16.41	11.59
FE2O3 (IRON OXIDE)	4	8.33	5.70	4	5.51	1.87	4	15.80	18.71
TIO2 (TITANIUM OXIDE)	4	1.42	.63	4	1.67	.72	4	.58	.32
CAO (CALCIUM OXIDE)	4	5.95	4.66	4	7.63	5.57	4	.63	.35
MGO (MAGNESIUM OXIDE)	4	1.06	.42	4	1.29	.42	4	.35	.25
NA2O (SODIUM OXIDE)	4	.18	.08	0	--	--	0	--	--
K2O (POTASSIUM OXIDE)	4	.53	.47	4	.53	.47	4	.64	.52
SO3 (SULFITES)	4	4.60	3.23	4	5.74	3.61	4	.32	.25
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	4	2493	285	4	2530	277	1	2300	--
SOFTENING TEMPERATURE (ST)	4	2543	249	4	2585	249	1	2380	--
FLUID TEMPERATURE (FT)	4	2598	212	4	2670	244	1	2470	--
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	4	23.7	14.5	4	19.1	11.0	4	82.7	5.1
CHLORINE	4	.01	.01	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	4	72	8	3	57	3	1	60	--
FREE SWELLING (FSI)	4	0	0	4	0	0	1	0	--

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE AND RANK

STATE: ARKANSAS (LIGNITE)

TOTAL MOISTURE, %: 36.4 ST.DEV: .8

SIZE	BTU RECOVERY %	NO.OF SAMPLES	WEIGHT RECOVERY AMOUNT, % AVERAGE	WEIGHT RECOVERY AMOUNT, % ST.DEV	WEIGHT RECOVERY REDUCTION, % AVERAGE	WEIGHT RECOVERY REDUCTION, % ST.DEV	HEATING VALUE BTU/LB AVERAGE	HEATING VALUE BTU/LB ST.DEV	HEATING VALUE INCREASE, % AVERAGE	HEATING VALUE INCREASE, % ST.DEV	ASH CONTENT, % AVERAGE	ASH CONTENT, % ST.DEV	ASH REDUCTION, % AVERAGE	ASH REDUCTION, % ST.DEV
ALL X 0	100.0	12	100.0	.0	.0	.0	9649	1268	.0	.0	21.3	7.8	.0	.0
1-1/2" X 100M	50.0	0	--	--	--	--	--	--	--	--	--	--	--	--
	60.0	1	43.2	--	56.8	--	9124	--	-6.5	--	19.3	--	5.6	--
	70.0	1	51.9	--	48.1	--	8829	--	-9.6	--	21.6	--	-5.6	--
	80.0	1	62.7	--	37.3	--	8378	--	-14.2	--	25.1	--	-22.8	--
	90.0	1	75.9	--	24.1	--	7795	--	-20.2	--	30.0	--	-46.5	--
	100.0	4	100.0	.0	.0	.0	9763	2158	.0	.0	20.5	12.8	.0	.0
3/8" X 100M	50.0	0	--	--	--	--	--	--	--	--	--	--	--	--
	60.0	1	41.1	--	58.9	--	9407	--	-3.2	--	18.7	--	9.9	--
	70.0	1	50.1	--	49.9	--	9064	--	-6.7	--	21.4	--	-2.9	--
	80.0	1	60.6	--	39.4	--	8539	--	-12.1	--	25.3	--	-21.9	--
	90.0	3	81.4	6.1	18.6	6.1	10054	1884	3.4	30.3	18.0	10.8	13.2	77.2
	100.0	4	100.0	.0	.0	.0	9719	2183	.0	.0	20.8	13.7	.0	.0
14M X 0	50.0	1	31.8	--	68.2	--	9588	--	-.3	--	17.8	--	17.9	--
	60.0	1	39.9	--	60.1	--	9257	--	-3.7	--	20.3	--	6.5	--
	70.0	1	49.0	--	51.0	--	8786	--	-8.6	--	23.7	--	-9.2	--
	80.0	1	59.9	--	40.1	--	8232	--	-14.4	--	27.9	--	-28.6	--
	90.0	3	80.9	5.7	19.1	5.7	9987	2137	3.9	33.4	18.7	12.8	13.6	83.0
	100.0	4	100.0	.0	.0	.0	9616	2308	.0	.0	21.7	14.7	.0	.0

SIZE	BTU RECOVERY %	NO.OF SAMPLES	PYRITIC SULFUR CONTENT, % AVERAGE	PYRITIC SULFUR CONTENT, % ST.DEV	PYRITIC SULFUR REDUCTION, % AVERAGE	PYRITIC SULFUR REDUCTION, % ST.DEV	TOTAL SULFUR CONTENT, % AVERAGE	TOTAL SULFUR CONTENT, % ST.DEV	TOTAL SULFUR REDUCTION, % AVERAGE	TOTAL SULFUR REDUCTION, % ST.DEV	SO2 EMISSION LB/MM BTU AVERAGE	SO2 EMISSION LB/MM BTU ST.DEV	SO2 EMISSION REDUCTION, % AVERAGE	SO2 EMISSION REDUCTION, % ST.DEV
ALL X 0	100.0	12	.35	.19	.0	.0	1.06	.22	.0	.0	2.3	.6	.0	.0
1-1/2" X 100M	50.0	0	--	--	--	--	--	--	--	--	--	--	--	--
	60.0	1	.19	--	50.4	--	1.58	--	-45.7	--	3.5	--	-47.6	--
	70.0	1	.18	--	52.2	--	1.52	--	-40.6	--	3.4	--	-47.2	--
	80.0	1	.17	--	54.8	--	1.43	--	-32.2	--	3.4	--	-46.4	--
	90.0	1	.16	--	57.8	--	1.32	--	-22.3	--	3.4	--	-45.2	--
	100.0	4	.38	.35	.0	.0	1.08	.43	.0	.0	2.3	1.1	.0	.0
3/8" X 100M	50.0	0	--	--	--	--	--	--	--	--	--	--	--	--
	60.0	1	.12	--	63.6	--	1.52	--	-45.5	--	3.2	--	-42.8	--
	70.0	1	.12	--	63.6	--	1.52	--	-45.5	--	3.4	--	-48.0	--
	80.0	1	.13	--	62.1	--	1.40	--	-33.5	--	3.3	--	-44.8	--
	90.0	3	.13	.08	62.1	45.6	.98	.29	6.3	43.7	2.1	1.0	8.5	60.2
	100.0	4	.33	.33	.0	.0	1.04	.37	.0	.0	2.3	1.0	.0	.0
14M X 0	50.0	1	.09	--	72.5	--	1.45	--	-36.3	--	3.0	--	-30.6	--
	60.0	1	.09	--	72.5	--	1.44	--	-34.5	--	3.1	--	-33.3	--
	70.0	1	.10	--	70.9	--	1.37	--	-28.6	--	3.1	--	-35.1	--
	80.0	1	.10	--	68.5	--	1.30	--	-21.6	--	3.2	--	-36.4	--
	90.0	3	.09	.06	71.8	34.6	.97	.26	9.4	39.8	2.1	1.0	10.8	56.0
	100.0	4	.33	.33	.0	.0	1.07	.37	.0	.0	2.3	.9	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY STATE AND RANK (DRY BASIS)

STATE: TEXAS (LIGNITE) NUMBER OF SAMPLES: 9 TOTAL MOISTURE, %: 34.4 ST.DEV: 1.5

		WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	100.0	.0	100.0	.0	10525	374	.0	.0	15.0	3.1	.0	.0
1-1/2" X 100M	FLOAT 1.30	80.6	13.4	84.6	10.9	11110	236	5.5	6.9	10.8	1.9	28.1	28.4
	FLOAT 1.40	92.1	7.1	95.6	4.4	10941	339	3.9	7.2	12.0	2.9	19.5	34.1
	FLOAT 1.60	96.5	3.0	98.9	1.0	10792	483	2.4	7.9	13.1	4.0	12.3	40.7
	CUMULATIVE	100.0	.0	100.0	.0	10534	657	.0	.0	15.0	5.3	.0	.0
3/8" X 100M	FLOAT 1.30	70.0	14.7	74.7	13.0	11306	191	7.3	6.6	9.5	1.7	35.1	26.8
	FLOAT 1.40	88.5	7.7	93.0	4.9	11082	298	5.2	6.9	11.0	2.8	24.5	34.0
	FLOAT 1.60	95.4	3.1	98.4	.9	10866	467	3.1	7.6	12.5	4.1	14.3	42.4
	CUMULATIVE	100.0	.0	100.0	.0	10535	628	.0	.0	14.6	5.4	.0	.0
14M X 0	FLOAT 1.30	59.8	19.7	64.3	19.7	11441	289	8.0	7.3	9.4	2.3	37.2	27.1
	FLOAT 1.40	87.1	8.0	92.0	5.2	11205	297	5.7	7.2	10.8	2.6	27.7	31.2
	FLOAT 1.60	95.1	3.9	98.5	1.4	10973	423	3.5	7.6	12.3	3.6	17.4	38.0
	CUMULATIVE	100.0	.0	100.0	.0	10598	661	.0	.0	14.9	5.3	.0	.0

		PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	.16	.06	.0	.0	1.06	.12	.0	.0	2.0	.2	.0	.0
1-1/2" X 100M	FLOAT 1.30	.06	.03	62.4	29.1	.96	.25	9.8	30.7	1.7	.4	14.7	29.0
	FLOAT 1.40	.07	.03	57.4	32.6	1.00	.24	6.1	30.3	1.8	.4	9.9	28.8
	FLOAT 1.60	.07	.04	52.5	37.2	1.00	.24	6.2	30.4	1.8	.4	8.7	29.0
	CUMULATIVE	.16	.09	.0	.0	1.06	.23	.0	.0	2.0	.4	.0	.0
3/8" X 100M	FLOAT 1.30	.04	.02	73.4	20.8	.99	.20	6.8	26.2	1.8	.4	13.5	24.5
	FLOAT 1.40	.06	.03	59.4	33.0	1.00	.20	5.9	26.2	1.8	.4	10.9	24.9
	FLOAT 1.60	.07	.04	55.9	35.4	.99	.20	6.9	26.0	1.8	.4	10.1	25.1
	CUMULATIVE	.16	.10	.0	.0	1.06	.20	.0	.0	2.0	.4	.0	.0
14M X 0	FLOAT 1.30	.05	.03	69.3	29.0	.98	.19	5.7	26.6	1.7	.3	12.8	25.1
	FLOAT 1.40	.06	.03	66.7	31.4	.98	.20	6.0	27.2	1.7	.4	11.3	26.0
	FLOAT 1.60	.07	.06	56.0	51.5	.97	.20	6.8	26.8	1.8	.4	10.3	26.1
	CUMULATIVE	.17	.13	.0	.0	1.04	.21	.0	.0	2.0	.4	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY STATE AND RANK

STATE: TEXAS (LIGNITE)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	9	29.3	2.8	9	17.0	4.8	9	3.8	1.8
ASH	9	15.4	5.3	9	12.6	3.6	9	68.4	8.5
VOLATILE MATTER	9	45.1	2.4	9	46.4	2.2	9	21.7	6.1
FIXED CARBON	9	39.5	5.1	9	41.0	4.6	9	9.9	4.1
BTU/LB	9	10496	601	9	10943	435	9	2821	997
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	9	61.1	4.3	9	63.5	3.0	9	15.4	3.6
HYDROGEN	9	4.4	.3	9	4.5	.3	9	1.8	.6
NITROGEN	9	1.0	.1	9	1.1	.1	9	.5	.5
OXYGEN	9	16.9	.8	9	17.3	.7	9	9.9	6.4
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	9	.16	.10	9	.07	.06	9	3.34	4.18
SULFATIC SULFUR	9	.02	.01	9	.01	.01	9	.04	.03
ORGANIC SULFUR	9	.87	.20	9	.91	.22	9	.62	.49
TOTAL SULFUR	9	1.05	.22	9	.99	.20	9	4.00	4.64
MINERAL ANALYSIS OF ASH, %									
SIO2 (SILICON OXIDE)	9	41.33	9.99	9	42.46	11.93	9	52.75	12.18
AL2O3 (ALUMINUM OXIDE)	9	18.81	4.59	9	18.66	4.36	9	22.21	6.09
FE2O3 (IRON OXIDE)	9	5.04	1.86	9	4.65	1.94	9	10.54	12.47
TIO2 (TITANIUM OXIDE)	9	1.47	.43	9	1.77	.54	9	.99	.85
CAO (CALCIUM OXIDE)	9	12.68	7.18	9	14.50	7.02	9	6.40	5.73
MGO (MAGNESIUM OXIDE)	9	4.88	3.47	9	4.19	2.86	9	1.12	.88
NA2O (SODIUM OXIDE)	9	1.28	.89	2	.10	.09	2	.18	.21
K2O (POTASSIUM OXIDE)	9	.48	.28	9	.50	.35	9	.83	.53
SO3 (SULFITES)	9	11.50	5.82	9	10.81	5.63	9	2.59	2.71
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	9	2186	107	8	2138	117	2	2520	297
SOFTENING TEMPERATURE (ST)	9	2239	117	8	2199	117	2	2600	283
FLUID TEMPERATURE (FT)	9	2296	133	8	2268	133	2	2670	184
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	9	17.3	5.6	9	14.1	3.9	9	77.6	9.0
CHLORINE	9	.01	.02	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	9	56	5	9	48	4	0	--	--
FREE SWELLING (FSI)	6	0	0	6	0	0	0	--	--

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY STATE AND RANK

STATE: TEXAS (LIGNITE)

TOTAL MOISTURE, %: 34.4 ST.DEV: 1.5

SIZE	BTU RECOVERY %	NO.OF SAMPLES	WEIGHT RECOVERY AMOUNT, % AVERAGE	WEIGHT RECOVERY AMOUNT, % ST.DEV	WEIGHT RECOVERY REDUCTION, % AVERAGE	WEIGHT RECOVERY REDUCTION, % ST.DEV	HEATING VALUE BTU/LB AVERAGE	HEATING VALUE BTU/LB ST.DEV	HEATING VALUE INCREASE, % AVERAGE	HEATING VALUE INCREASE, % ST.DEV	ASH CONTENT, % AVERAGE	ASH CONTENT, % ST.DEV	ASH REDUCTION, % AVERAGE	ASH REDUCTION, % ST.DEV
ALL X 0	100.0	27	100.0	.0	.0	.0	10525	374	.0	.0	15.0	3.1	.0	.0
1-1/2" X 100M	50.0	0	--	--	--	--	--	--	--	--	--	--	--	--
	60.0	0	--	--	--	--	--	--	--	--	--	--	--	--
	70.0	1	60.6	--	39.4	--	10613	--	.7	--	14.4	--	3.7	--
	80.0	2	72.6	2.7	27.4	2.7	10769	473	2.2	7.8	14.1	2.5	5.8	37.2
	90.0	6	85.1	2.6	14.9	2.6	10855	434	3.0	7.6	13.1	3.0	12.6	36.6
	100.0	9	100.0	.0	.0	.0	10534	657	.0	.0	15.0	5.3	.0	.0
3/8" X 100M	50.0	0	--	--	--	--	--	--	--	--	--	--	--	--
	60.0	1	50.5	--	49.5	--	10928	--	3.7	--	12.4	--	15.2	--
	70.0	4	63.0	3.0	37.0	3.0	11235	348	6.6	7.2	10.2	2.7	30.3	31.7
	80.0	6	73.2	2.2	26.8	2.2	11109	345	5.4	7.1	11.2	2.6	23.1	33.8
	90.0	8	85.2	2.7	14.8	2.7	11059	426	5.0	7.4	11.2	3.7	23.4	38.0
	100.0	9	100.0	.0	.0	.0	10535	628	.0	.0	14.6	5.4	.0	.0
14M X 0	50.0	1	38.0	--	62.0	--	11846	--	11.8	--	7.6	--	49.1	--
	60.0	2	48.6	2.7	51.4	2.7	11408	550	7.6	8.5	10.9	4.4	27.0	39.4
	70.0	6	61.5	2.9	38.5	2.9	11343	337	7.0	7.4	10.6	2.4	28.9	30.0
	80.0	7	72.7	3.1	27.3	3.1	11273	331	6.4	7.3	10.6	2.9	29.3	31.8
	90.0	8	84.9	3.0	15.1	3.0	11187	394	5.6	7.6	11.0	3.4	26.6	34.5
	100.0	9	100.0	.0	.0	.0	10598	661	.0	.0	14.9	5.3	.0	.0

SIZE	BTU RECOVERY %	NO.OF SAMPLES	PYRITIC SULFUR CONTENT, % AVERAGE	PYRITIC SULFUR CONTENT, % ST.DEV	PYRITIC SULFUR REDUCTION, % AVERAGE	PYRITIC SULFUR REDUCTION, % ST.DEV	TOTAL SULFUR CONTENT, % AVERAGE	TOTAL SULFUR CONTENT, % ST.DEV	TOTAL SULFUR REDUCTION, % AVERAGE	TOTAL SULFUR REDUCTION, % ST.DEV	SO2 EMISSION LB/MM BTU AVERAGE	SO2 EMISSION LB/MM BTU ST.DEV	SO2 EMISSION REDUCTION, % AVERAGE	SO2 EMISSION REDUCTION, % ST.DEV
ALL X 0	100.0	27	.16	.06	.0	.0	1.06	.12	.0	.0	2.0	.2	.0	.0
1-1/2" X 100M	50.0	0	--	--	--	--	--	--	--	--	--	--	--	--
	60.0	0	--	--	--	--	--	--	--	--	--	--	--	--
	70.0	1	.06	--	64.2	--	.81	--	24.1	--	1.5	--	24.8	--
	80.0	2	.05	.00	67.5	18.7	.84	.05	20.8	17.9	1.6	.0	22.8	17.0
	90.0	6	.06	.03	63.0	30.2	.92	.23	13.5	28.6	1.7	.4	16.3	27.3
	100.0	9	.16	.09	.0	.0	1.06	.23	.0	.0	2.0	.4	.0	.0
3/8" X 100M	50.0	0	--	--	--	--	--	--	--	--	--	--	--	--
	60.0	1	.04	--	75.2	--	.84	--	20.8	--	1.5	--	23.9	--
	70.0	4	.05	.03	69.7	25.9	1.03	.21	3.5	26.9	1.8	.3	9.9	24.8
	80.0	6	.05	.04	65.5	32.1	.97	.19	8.9	25.0	1.7	.3	13.9	23.6
	90.0	8	.06	.03	61.4	32.4	.96	.18	9.6	24.3	1.7	.3	14.2	23.1
	100.0	9	.16	.10	.0	.0	1.06	.20	.0	.0	2.0	.4	.0	.0
14M X 0	50.0	1	.03	--	84.7	--	.97	--	6.3	--	1.6	--	16.3	--
	60.0	2	.04	.03	74.8	25.3	.91	.10	12.9	19.9	1.6	.1	19.4	17.3
	70.0	6	.05	.03	70.1	31.0	.95	.19	8.8	25.6	1.7	.3	15.1	23.6
	80.0	7	.05	.03	68.4	31.2	.96	.18	7.9	25.0	1.7	.3	13.8	23.4
	90.0	8	.05	.03	68.0	30.8	.94	.18	10.0	24.8	1.7	.3	15.0	23.5
	100.0	9	.17	.13	.0	.0	1.04	.21	.0	.0	2.0	.4	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY SECTION AND RANK (DRY BASIS)

EASTERN SECTION (BITUMINOUS) NUMBER OF SAMPLES: 98 TOTAL MOISTURE, %: 7.3 ST.DEV: 3.3

		WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	100.0	.0	100.0	.0	12141	832	.0	.0	14.1	4.8	.0	.0
1-1/2" X 100M	FLOAT 1.30	48.8	16.5	54.7	17.1	13712	276	12.8	8.1	4.5	1.2	67.9	13.9
	FLOAT 1.40	80.7	8.3	88.4	5.2	13341	300	9.8	8.0	6.8	1.4	51.7	19.7
	FLOAT 1.60	89.3	6.7	96.3	2.0	13117	359	7.9	8.0	8.1	1.8	42.0	24.0
	CUMULATIVE	100.0	.0	100.0	.0	12152	840	.0	.0	14.0	4.9	.0	.0
3/8" X 100M	FLOAT 1.30	48.6	14.4	54.8	14.4	13822	244	13.5	7.9	3.8	.9	72.3	11.6
	FLOAT 1.40	78.9	8.0	87.2	5.0	13482	270	10.7	7.8	5.9	1.3	57.3	17.2
	FLOAT 1.60	88.5	6.5	96.0	1.9	13229	336	8.6	7.8	7.5	1.7	46.2	22.0
	CUMULATIVE	100.0	.0	100.0	.0	12177	817	.0	.0	13.9	4.7	.0	.0
14M X 0	FLOAT 1.30	37.5	16.6	42.6	17.4	13933	229	14.8	8.2	3.2	.8	77.5	9.6
	FLOAT 1.40	73.5	9.5	82.1	6.6	13591	257	12.0	8.1	5.3	1.1	62.8	15.2
	FLOAT 1.60	87.2	6.8	95.2	2.6	13256	323	9.3	8.1	7.3	1.6	48.4	21.0
	CUMULATIVE	100.0	.0	100.0	.0	12133	844	.0	.0	14.1	4.9	.0	.0

		PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	2.29	.96	.0	.0	3.90	1.21	.0	.0	6.5	2.2	.0	.0
1-1/2" X 100M	FLOAT 1.30	.61	.25	73.3	15.6	2.33	.69	40.2	25.6	3.4	1.0	47.4	23.7
	FLOAT 1.40	.93	.34	59.4	22.6	2.63	.73	32.4	28.1	4.0	1.1	39.0	26.6
	FLOAT 1.60	1.18	.45	48.2	29.3	2.88	.82	26.1	31.2	4.4	1.3	32.1	30.2
	CUMULATIVE	2.29	.95	.0	.0	3.89	1.21	.0	.0	6.5	2.2	.0	.0
3/8" X 100M	FLOAT 1.30	.54	.21	76.4	13.3	2.27	.69	41.4	25.4	3.3	1.0	48.7	23.3
	FLOAT 1.40	.80	.30	64.6	19.6	2.52	.72	35.0	27.4	3.7	1.1	41.7	25.7
	FLOAT 1.60	1.03	.39	54.5	25.5	2.73	.80	29.6	29.9	4.1	1.2	35.6	28.7
	CUMULATIVE	2.27	.94	.0	.0	3.88	1.20	.0	.0	6.4	2.1	.0	.0
14M X 0	FLOAT 1.30	.45	.17	80.6	11.1	2.18	.69	44.3	25.1	3.1	1.0	51.9	22.7
	FLOAT 1.40	.67	.24	71.0	16.2	2.40	.70	38.7	26.5	3.5	1.0	45.7	24.7
	FLOAT 1.60	.93	.33	59.8	22.6	2.61	.75	33.2	28.7	3.9	1.2	39.3	27.5
	CUMULATIVE	2.30	.99	.0	.0	3.91	1.25	.0	.0	6.5	2.2	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY SECTION AND RANK

EASTERN SECTION (BITUMINOUS)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	98	4.7	2.5	71	4.0	1.8	71	3.0	1.1
ASH	98	14.1	4.9	71	7.2	1.4	71	54.6	8.8
VOLATILE MATTER	98	38.8	3.1	71	42.1	2.0	29	19.9	7.4
FIXED CARBON	98	47.1	3.3	71	50.8	2.2	29	27.0	6.7
BTU/LB	98	12292	784	71	13287	281	29	5677	1065
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	5	72.0	2.5	5	75.4	1.5	5	25.9	4.0
HYDROGEN	5	4.9	.3	5	5.1	.1	5	1.7	.4
NITROGEN	5	1.5	.2	5	1.6	.2	5	.5	.2
OXYGEN	5	8.9	.9	5	9.1	.8	3	7.3	1.4
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	98	2.30	.96	71	.92	.34	71	13.08	4.95
SULFATIC SULFUR	98	.08	.07	71	.05	.06	71	.08	.07
ORGANIC SULFUR	98	1.46	.56	71	1.70	.55	71	.95	.88
TOTAL SULFUR	98	3.85	1.22	71	2.67	.74	71	14.11	4.94
MINERAL ANALYSIS OF ASH, %									
SIO2 (SILICON OXIDE)	0	--	--	0	--	--	0	--	--
AL2O3 (ALUMINUM OXIDE)	0	--	--	0	--	--	0	--	--
FE2O3 (IRON OXIDE)	0	--	--	0	--	--	0	--	--
TIO2 (TITANIUM OXIDE)	0	--	--	0	--	--	0	--	--
CAO (CALCIUM OXIDE)	0	--	--	0	--	--	0	--	--
MGO (MAGNESIUM OXIDE)	0	--	--	0	--	--	0	--	--
NA2O (SODIUM OXIDE)	49	.67	.37	0	--	--	0	--	--
K2O (POTASSIUM OXIDE)	0	--	--	0	--	--	0	--	--
SO3 (SULFITES)	0	--	--	0	--	--	0	--	--
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	59	2061	138	59	2152	175	14	2045	72
SOFTENING TEMPERATURE (ST)	59	2118	139	59	2230	185	15	2096	76
FLUID TEMPERATURE (FT)	59	2224	167	58	2346	169	15	2163	110
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	98	17.4	5.4	71	9.2	1.6	71	66.5	9.5
CHLORINE	5	.03	.04	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	39	54	3	35	54	4	0	--	--
FREE SWELLING (FSI)	70	4	1	70	4	1	10	1	1 1/2

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY SECTION AND RANK

EASTERN SECTION (BITUMINOUS) TOTAL MOISTURE, %: 7.3 ST.DEV: 3.3

SIZE	BTU RECOVERY %	NO.OF SAMPLES	WEIGHT RECOVERY AMOUNT, % AVERAGE	WEIGHT RECOVERY AMOUNT, % ST.DEV	WEIGHT RECOVERY REDUCTION, % AVERAGE	WEIGHT RECOVERY REDUCTION, % ST.DEV	HEATING VALUE BTU/LB AVERAGE	HEATING VALUE BTU/LB ST.DEV	HEATING VALUE INCREASE, % AVERAGE	HEATING VALUE INCREASE, % ST.DEV	ASH CONTENT, % AVERAGE	ASH CONTENT, % ST.DEV	ASH REDUCTION, % AVERAGE	ASH REDUCTION, % ST.DEV
ALL X 0	100.0	294	100.0	.0	.0	.0	12141	832	.0	.0	14.1	4.8	.0	.0
1-1/2" X 100M	50.0	42	40.8	4.6	59.1	4.6	13624	244	11.9	7.9	5.0	.9	64.3	14.1
	60.0	59	49.8	4.4	50.1	4.4	13566	270	11.4	7.9	5.3	1.1	61.6	15.6
	70.0	76	60.0	4.5	39.9	4.6	13473	276	10.7	7.9	5.9	1.2	57.8	17.1
	80.0	92	71.1	4.6	28.8	4.7	13414	315	10.2	8.0	6.3	1.5	54.8	19.2
	90.0	98	82.2	4.8	17.7	5.0	13271	362	9.0	8.0	7.2	1.8	48.4	22.5
	100.0	98	99.8	1.7	.0	.0	12174	831	.0	.0	13.9	4.9	.0	.0
3/8" X 100M	50.0	35	40.7	3.8	59.1	4.0	13712	285	12.0	7.7	4.4	1.1	67.6	13.8
	60.0	66	50.3	3.9	49.5	4.2	13681	258	11.8	7.7	4.6	1.0	66.1	14.0
	70.0	79	59.8	4.0	39.9	4.4	13594	252	11.0	7.6	5.0	1.1	62.6	15.5
	80.0	95	70.8	4.4	28.8	4.9	13538	279	10.6	7.6	5.5	1.3	59.2	17.4
	90.0	98	81.7	4.6	17.9	5.2	13386	344	9.3	7.7	6.5	1.7	52.0	21.1
	100.0	98	99.5	2.9	.0	.0	12242	807	.0	.0	13.5	4.7	.0	.0
14M X 0	50.0	65	38.5	4.5	61.5	4.5	13799	243	13.7	8.2	3.8	.9	73.2	11.2
	60.0	80	48.2	4.5	51.8	4.5	13735	244	13.2	8.1	4.2	.9	70.4	12.1
	70.0	88	58.8	4.1	41.2	4.1	13667	258	12.6	8.1	4.6	1.1	67.2	13.7
	80.0	97	70.3	4.1	29.7	4.1	13581	289	11.9	8.1	5.3	1.3	62.8	15.9
	90.0	98	81.4	4.4	18.6	4.4	13380	350	10.3	8.2	6.5	1.7	54.1	20.1
	100.0	98	100.0	.0	.0	.0	12133	844	.0	.0	14.1	4.9	.0	.0

SIZE	BTU RECOVERY %	NO.OF SAMPLES	PYRITIC SULFUR CONTENT, % AVERAGE	PYRITIC SULFUR CONTENT, % ST.DEV	PYRITIC SULFUR REDUCTION, % AVERAGE	PYRITIC SULFUR REDUCTION, % ST.DEV	TOTAL SULFUR CONTENT, % AVERAGE	TOTAL SULFUR CONTENT, % ST.DEV	TOTAL SULFUR REDUCTION, % AVERAGE	TOTAL SULFUR REDUCTION, % ST.DEV	SO2 EMISSION LB/MM BTU AVERAGE	SO2 EMISSION LB/MM BTU ST.DEV	SO2 EMISSION REDUCTION, % AVERAGE	SO2 EMISSION REDUCTION, % ST.DEV
ALL X 0	100.0	294	2.29	.96	.0	.0	3.90	1.21	.0	.0	6.5	2.2	.0	.0
1-1/2" X 100M	50.0	42	.66	.20	71.0	14.9	2.43	.52	37.7	23.6	3.6	.8	44.8	22.2
	60.0	59	.70	.24	69.2	16.8	2.45	.63	37.0	25.4	3.6	.9	44.0	24.0
	70.0	76	.80	.31	64.8	20.1	2.58	.67	33.8	26.9	3.8	1.0	40.7	25.4
	80.0	92	.86	.35	62.4	21.9	2.60	.72	33.2	27.8	3.9	1.1	39.9	26.4
	90.0	98	1.00	.42	56.2	26.1	2.71	.78	30.4	29.6	4.1	1.2	36.7	28.5
	100.0	98	2.28	.96	.0	.0	3.89	1.21	.0	.0	6.5	2.2	.0	.0
3/8" X 100M	50.0	35	.61	.21	73.1	14.9	2.39	.58	38.1	24.6	3.5	.9	45.3	23.2
	60.0	66	.63	.23	72.1	15.7	2.43	.66	37.1	26.1	3.6	1.0	44.3	24.5
	70.0	79	.69	.26	69.3	17.4	2.48	.65	35.9	26.3	3.7	1.0	42.9	24.9
	80.0	95	.74	.30	66.9	19.2	2.48	.72	35.9	27.5	3.7	1.1	42.6	26.0
	90.0	98	.88	.37	60.8	23.2	2.60	.77	32.8	29.0	3.9	1.2	39.0	27.9
	100.0	98	2.25	.95	.0	.0	3.87	1.22	.0	.0	6.4	2.2	.0	.0
14M X 0	50.0	65	.51	.20	78.0	12.7	2.20	.71	43.7	25.6	3.2	1.1	50.8	23.5
	60.0	80	.55	.21	76.2	13.6	2.29	.69	41.4	25.8	3.3	1.0	48.6	23.7
	70.0	88	.60	.23	73.8	14.9	2.32	.71	40.6	26.2	3.4	1.1	47.6	24.3
	80.0	97	.67	.26	70.9	16.7	2.40	.71	38.7	26.6	3.5	1.1	45.6	24.9
	90.0	98	.82	.33	64.5	20.9	2.52	.74	35.4	28.0	3.8	1.1	41.8	26.6
	100.0	98	2.30	.99	.0	.0	3.91	1.25	.0	.0	6.5	2.2	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY SECTION AND RANK (DRY BASIS)

WESTERN SECTION (BITUMINOUS) NUMBER OF SAMPLES: 68 TOTAL MOISTURE, %: 6.0 ST.DEV: 4.9

		WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	100.0	.0	100.0	.0	12295	1434	.0	.0	15.8	7.3	.0	.0
1-1/2" X 100M	FLOAT 1.30	44.6	24.4	49.8	24.8	14108	716	14.5	14.6	5.4	1.9	65.4	20.1
	FLOAT 1.40	74.0	15.2	81.9	12.4	13724	768	11.3	14.5	7.7	2.7	51.1	28.6
	FLOAT 1.60	86.8	8.6	94.4	4.0	13396	941	8.7	14.8	9.6	3.9	39.1	37.9
	CUMULATIVE	100.0	.0	100.0	.0	12325	1443	.0	.0	15.7	7.3	.0	.0
3/8" X 100M	FLOAT 1.30	46.5	22.3	52.7	22.5	14252	610	15.4	14.2	4.6	1.7	70.4	17.5
	FLOAT 1.40	73.9	15.1	82.7	11.9	13920	680	12.7	14.1	6.5	2.4	57.8	25.0
	FLOAT 1.60	85.4	9.1	94.1	4.1	13605	863	10.2	14.5	8.3	3.6	46.2	34.1
	CUMULATIVE	100.0	.0	100.0	.0	12349	1427	.0	.0	15.5	7.2	.0	.0
14M X 0	FLOAT 1.30	40.3	22.8	45.6	23.3	14311	571	16.4	14.4	4.3	2.0	72.8	17.7
	FLOAT 1.40	71.2	15.9	80.2	12.9	13991	631	13.8	14.2	6.1	2.4	61.4	23.4
	FLOAT 1.60	83.7	10.2	93.0	5.4	13670	792	11.2	14.5	8.0	3.3	49.7	31.1
	CUMULATIVE	100.0	.0	100.0	.0	12292	1433	.0	.0	15.8	7.3	.0	.0

		PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	3.24	2.06	.0	.0	4.64	2.55	.0	.0	7.9	4.8	.0	.0
1-1/2" X 100M	FLOAT 1.30	1.11	.71	65.3	31.1	2.58	1.34	44.0	42.6	3.7	2.1	52.5	39.3
	FLOAT 1.40	1.60	.97	50.0	43.8	3.06	1.47	33.7	48.6	4.5	2.3	42.2	46.1
	FLOAT 1.60	2.01	1.21	37.4	54.7	3.43	1.66	25.5	54.8	5.2	2.7	33.2	53.7
	CUMULATIVE	3.21	2.03	.0	.0	4.61	2.55	.0	.0	7.8	4.8	.0	.0
3/8" X 100M	FLOAT 1.30	.96	.59	69.9	26.6	2.45	1.25	46.5	40.1	3.5	1.8	55.1	36.4
	FLOAT 1.40	1.37	.83	56.8	37.9	2.85	1.35	37.8	45.2	4.1	2.0	46.5	42.0
	FLOAT 1.60	1.73	1.05	45.5	48.0	3.19	1.54	30.3	50.9	4.8	2.4	38.4	48.9
	CUMULATIVE	3.18	2.03	.0	.0	4.58	2.52	.0	.0	7.7	4.7	.0	.0
14M X 0	FLOAT 1.30	.87	.63	73.4	25.8	2.38	1.19	49.0	38.0	3.4	1.7	57.7	34.0
	FLOAT 1.40	1.23	.80	62.5	34.2	2.72	1.28	41.6	42.3	3.9	1.9	50.4	38.8
	FLOAT 1.60	1.60	1.01	51.2	44.0	3.05	1.46	34.5	47.8	4.5	2.3	42.8	45.3
	CUMULATIVE	3.27	2.10	.0	.0	4.66	2.56	.0	.0	7.9	4.9	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY SECTION AND RANK

WESTERN SECTION (BITUMINOUS)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	68	4.1	3.9	55	3.3	2.2	55	2.3	1.2
ASH	68	16.0	7.3	55	8.2	3.3	55	56.2	6.4
VOLATILE MATTER	68	35.9	7.6	55	38.2	8.3	47	28.4	7.0
FIXED CARBON	68	48.2	10.9	55	53.6	9.8	47	15.3	7.7
BTU/LB	68	12237	1422	55	13654	801	47	5104	1333
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	42	69.2	8.5	42	75.9	5.8	42	23.9	5.3
HYDROGEN	42	4.6	.5	42	5.1	.5	42	1.6	.5
NITROGEN	42	1.4	.4	42	1.5	.3	42	.4	.1
OXYGEN	42	5.2	2.4	42	6.4	2.7	31	7.4	6.7
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	68	3.23	2.05	55	1.63	.99	55	12.10	6.65
SULFATIC SULFUR	68	.09	.07	55	.06	.07	55	.11	.10
ORGANIC SULFUR	68	1.31	.79	55	1.37	.91	55	1.25	.90
TOTAL SULFUR	68	4.63	2.53	55	3.06	1.49	55	13.45	7.04
MINERAL ANALYSIS OF ASH, %									
SIO2 (SILICON OXIDE)	26	33.05	12.67	23	38.56	13.68	23	28.40	14.73
AL2O3 (ALUMINUM OXIDE)	26	15.00	5.84	23	18.73	5.83	23	12.40	7.24
FE2O3 (IRON OXIDE)	26	28.83	13.77	23	25.68	14.22	23	30.41	17.88
TIO2 (TITANIUM OXIDE)	26	1.22	.44	23	1.18	.56	23	.63	.58
CAO (CALCIUM OXIDE)	26	10.52	7.60	23	4.51	3.15	23	16.96	16.30
MGO (MAGNESIUM OXIDE)	26	1.85	1.30	23	2.14	1.81	23	1.09	.96
NA2O (SODIUM OXIDE)	32	.69	.33	29	.65	.61	29	.25	.26
K2O (POTASSIUM OXIDE)	26	1.47	.55	23	1.95	.90	23	1.14	.80
SO3 (SULFITES)	26	6.84	4.17	23	3.93	4.10	23	6.31	5.01
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	48	2030	165	55	2041	200	35	2061	191
SOFTENING TEMPERATURE (ST)	55	2091	151	55	2112	195	35	2134	187
FLUID TEMPERATURE (FT)	48	2174	165	55	2198	208	35	2216	197
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	68	19.7	8.6	55	10.5	4.0	55	67.9	7.6
CHLORINE	42	.14	.13	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	49	62	21	41	53	15	0	--	--
FREE SWELLING (FSI)	55	6	3	55	6	2 1/2	17	0 1/2	0 1/2

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY SECTION AND RANK

WESTERN SECTION (BITUMINOUS) TOTAL MOISTURE, %: 6.0 ST.DEV: 4.9

SIZE	BTU RECOVERY %	NO.OF SAMPLES	WEIGHT RECOVERY AMOUNT, % AVERAGE	WEIGHT RECOVERY AMOUNT, % ST.DEV	WEIGHT RECOVERY REDUCTION, % AVERAGE	WEIGHT RECOVERY REDUCTION, % ST.DEV	HEATING VALUE BTU/LB AVERAGE	HEATING VALUE BTU/LB ST.DEV	HEATING VALUE INCREASE, % AVERAGE	HEATING VALUE INCREASE, % ST.DEV	ASH CONTENT, % AVERAGE	ASH CONTENT, % ST.DEV	ASH REDUCTION, % AVERAGE	ASH REDUCTION, % ST.DEV
ALL X 0	100.0	204	100.0	.0	.0	.0	12295	1434	.0	.0	15.8	7.3	.0	.0
1-1/2" X 100M	50.0	31	36.5	6.2	63.5	6.2	13784	758	11.8	14.5	7.7	2.6	50.8	28.4
	60.0	44	47.3	5.4	52.7	5.4	13720	799	11.3	14.6	7.7	2.9	50.8	29.4
	70.0	53	58.7	4.6	41.3	4.6	13661	847	10.8	14.7	8.0	3.2	49.1	31.3
	80.0	59	69.9	4.7	30.1	4.7	13533	879	9.8	14.7	8.7	3.5	44.7	34.0
	90.0	65	81.7	4.9	18.3	4.9	13402	1023	8.7	15.2	9.4	4.4	39.8	39.7
	100.0	68	100.0	.0	.0	.0	12325	1443	.0	.0	15.7	7.3	.0	.0
3/8" X 100M	50.0	33	38.5	4.1	61.5	4.1	13921	622	12.7	14.0	6.2	2.2	59.9	23.6
	60.0	44	48.4	4.1	51.6	4.1	13841	637	12.1	13.9	6.5	2.4	57.9	24.9
	70.0	50	58.5	4.0	41.5	4.0	13785	704	11.6	14.1	6.9	2.8	55.3	27.4
	80.0	59	69.2	4.5	30.8	4.5	13749	814	11.3	14.5	7.4	3.3	52.3	30.9
	90.0	66	80.9	4.9	19.1	4.9	13612	998	10.2	15.1	8.2	4.4	47.0	37.5
	100.0	68	100.0	.0	.0	.0	12349	1427	.0	.0	15.5	7.2	.0	.0
14M X 0	50.0	40	37.2	5.1	62.8	5.1	13947	567	13.5	14.0	5.6	2.4	64.5	22.3
	60.0	50	47.4	5.1	52.6	5.1	13909	610	13.2	14.1	6.1	2.5	61.3	23.9
	70.0	55	57.7	4.6	42.3	4.6	13851	701	12.7	14.3	6.6	2.9	58.2	26.5
	80.0	62	68.9	4.7	31.1	4.7	13793	829	12.2	14.7	7.1	3.6	54.9	30.6
	90.0	66	80.6	4.4	19.4	4.4	13600	1012	10.6	15.3	8.3	4.6	47.8	37.8
	100.0	68	100.0	.0	.0	.0	12292	1433	.0	.0	15.8	7.3	.0	.0

SIZE	BTU RECOVERY %	NO.OF SAMPLES	PYRITIC SULFUR CONTENT, % AVERAGE	PYRITIC SULFUR CONTENT, % ST.DEV	PYRITIC SULFUR REDUCTION, % AVERAGE	PYRITIC SULFUR REDUCTION, % ST.DEV	TOTAL SULFUR CONTENT, % AVERAGE	TOTAL SULFUR CONTENT, % ST.DEV	TOTAL SULFUR REDUCTION, % AVERAGE	TOTAL SULFUR REDUCTION, % ST.DEV	SO2 EMISSION LB/MM BTU AVERAGE	SO2 EMISSION LB/MM BTU ST.DEV	SO2 EMISSION REDUCTION, % AVERAGE	SO2 EMISSION REDUCTION, % ST.DEV
ALL X 0	100.0	204	3.24	2.06	.0	.0	4.64	2.55	.0	.0	7.9	4.8	.0	.0
1-1/2" X 100M	50.0	31	1.72	.84	46.4	42.9	3.10	1.17	32.7	45.1	4.6	1.9	41.9	43.1
	60.0	44	1.68	.88	47.6	43.0	3.20	1.23	30.6	46.8	4.7	2.0	39.6	45.0
	70.0	53	1.70	.95	47.0	44.7	3.33	1.36	27.8	49.7	4.9	2.2	36.8	47.8
	80.0	59	1.83	1.04	42.8	48.6	3.37	1.45	26.9	51.3	5.1	2.3	35.4	49.9
	90.0	65	2.02	1.32	37.2	57.2	3.50	1.75	24.1	56.7	5.4	3.0	31.6	56.8
	100.0	68	3.21	2.03	.0	.0	4.61	2.55	.0	.0	7.8	4.8	.0	.0
3/8" X 100M	50.0	33	1.43	.66	55.0	35.4	2.98	1.08	34.8	42.9	4.3	1.7	44.3	40.3
	60.0	44	1.44	.67	54.6	35.8	3.13	1.15	31.6	45.2	4.6	1.8	41.3	42.5
	70.0	50	1.53	.74	52.0	38.5	3.21	1.16	29.9	46.1	4.7	1.8	39.4	43.8
	80.0	59	1.56	.88	51.1	41.8	3.12	1.34	31.9	47.5	4.6	2.1	40.7	45.3
	90.0	66	1.72	1.16	45.9	50.1	3.21	1.64	29.7	52.7	4.8	2.7	37.5	52.1
	100.0	68	3.18	2.03	.0	.0	4.58	2.52	.0	.0	7.7	4.7	.0	.0
14M X 0	50.0	40	1.11	.66	66.2	29.6	2.87	1.18	38.4	42.3	4.1	1.8	47.8	38.9
	60.0	50	1.22	.70	62.5	32.2	2.92	1.14	37.3	42.3	4.2	1.7	46.7	39.2
	70.0	55	1.32	.77	59.7	35.1	2.93	1.21	37.1	43.3	4.3	1.8	46.1	40.4
	80.0	62	1.41	.86	56.8	38.1	2.96	1.29	36.3	44.7	4.4	2.0	45.1	42.2
	90.0	66	1.64	1.12	49.9	46.9	3.14	1.60	32.7	50.5	4.7	2.7	40.3	49.9
	100.0	68	3.27	2.10	.0	.0	4.66	2.56	.0	.0	7.9	4.9	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY SECTION AND RANK (DRY BASIS)

WESTERN SECTION (LIGNITE) NUMBER OF SAMPLES: 13 TOTAL MOISTURE, %: 35.0 ST.DEV: 1.6

		WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	100.0	.0	100.0	.0	10255	1289	.0	.0	17.0	8.6	.0	.0
1-1/2" X 100M	FLOAT 1.30	79.8	16.2	84.7	12.4	10993	604	6.8	14.3	11.5	2.9	30.9	38.0
	FLOAT 1.40	90.0	11.9	94.5	7.2	10815	711	5.0	14.6	12.8	3.8	23.0	44.2
	FLOAT 1.60	95.2	5.8	98.4	2.3	10617	979	3.1	15.8	14.3	6.0	14.0	55.4
	CUMULATIVE	100.0	.0	100.0	.0	10297	1261	.0	.0	16.7	8.2	.0	.0
3/8" X 100M	FLOAT 1.30	70.5	17.2	76.1	14.0	11188	511	8.8	14.3	10.3	2.6	37.7	36.4
	FLOAT 1.40	86.8	12.9	92.2	7.9	10947	633	6.4	14.5	11.9	3.8	27.6	44.4
	FLOAT 1.60	93.9	7.2	97.9	2.9	10694	900	4.0	15.5	13.7	5.9	16.8	56.3
	CUMULATIVE	100.0	.0	100.0	.0	10284	1268	.0	.0	16.5	8.7	.0	.0
14M X 0	FLOAT 1.30	62.4	21.8	67.9	20.5	11316	515	9.9	15.3	10.0	2.7	41.0	35.4
	FLOAT 1.40	84.9	14.6	90.8	9.7	11054	631	7.4	15.4	11.7	3.6	31.4	42.6
	FLOAT 1.60	93.4	7.6	97.8	3.1	10752	980	4.4	16.7	13.8	6.3	18.9	56.9
	CUMULATIVE	100.0	.0	100.0	.0	10295	1358	.0	.0	17.0	9.1	.0	.0

		PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	.22	.21	.0	.0	1.06	.26	.0	.0	2.1	.6	.0	.0
1-1/2" X 100M	FLOAT 1.30	.11	.12	52.0	69.8	.98	.29	8.1	36.8	1.8	.6	14.7	40.8
	FLOAT 1.40	.12	.13	46.9	75.9	1.01	.27	5.4	36.0	1.9	.6	10.7	40.9
	FLOAT 1.60	.13	.14	41.8	83.6	1.00	.26	6.2	34.7	1.9	.6	9.4	41.0
	CUMULATIVE	.23	.22	.0	.0	1.07	.28	.0	.0	2.1	.7	.0	.0
3/8" X 100M	FLOAT 1.30	.07	.05	69.1	37.4	.99	.26	6.9	32.7	1.8	.5	15.4	35.4
	FLOAT 1.40	.09	.06	58.5	49.0	1.00	.25	5.7	32.7	1.8	.6	12.2	37.2
	FLOAT 1.60	.10	.09	50.5	64.1	.98	.22	7.0	30.4	1.9	.5	11.0	36.3
	CUMULATIVE	.21	.20	.0	.0	1.06	.25	.0	.0	2.1	.6	.0	.0
14M X 0	FLOAT 1.30	.06	.04	70.8	33.5	.98	.24	6.8	32.2	1.7	.5	16.3	34.0
	FLOAT 1.40	.07	.04	67.6	37.9	.97	.24	7.0	31.9	1.8	.5	14.3	35.4
	FLOAT 1.60	.09	.08	56.9	55.3	.96	.21	8.2	29.9	1.8	.5	12.3	36.2
	CUMULATIVE	.22	.21	.0	.0	1.05	.25	.0	.0	2.1	.6	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY SECTION AND RANK

WESTERN SECTION (LIGNITE)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	13	30.2	2.9	13	16.8	5.7	13	3.7	1.5
ASH	13	17.3	8.5	13	14.0	6.3	13	70.1	8.0
VOLATILE MATTER	13	45.4	4.3	13	46.9	3.8	13	20.7	5.5
FIXED CARBON	13	37.3	6.2	13	39.1	5.2	13	9.2	3.9
BTU/LB	13	10230	1266	13	10726	984	13	2636	942
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	13	59.3	7.3	13	61.9	5.8	13	14.3	3.6
HYDROGEN	13	4.5	.5	13	4.7	.5	13	1.7	.6
NITROGEN	13	1.0	.2	13	1.0	.1	13	.4	.4
OXYGEN	13	16.9	.9	13	17.4	.6	13	9.0	5.7
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	13	.22	.21	13	.09	.07	13	3.76	4.33
SULFATIC SULFUR	13	.02	.01	13	.01	.01	13	.04	.03
ORGANIC SULFUR	13	.82	.21	13	.87	.22	13	.58	.53
TOTAL SULFUR	13	1.05	.29	13	.98	.22	13	4.38	4.52
MINERAL ANALYSIS OF ASH, %									
SIO2 (SILICON OXIDE)	13	44.25	9.71	13	43.69	10.51	13	55.63	11.90
AL2O3 (ALUMINUM OXIDE)	13	20.97	5.18	13	22.26	7.29	13	20.42	8.13
FE2O3 (IRON OXIDE)	13	6.05	3.60	13	4.92	1.88	13	12.16	14.05
TIO2 (TITANIUM OXIDE)	13	1.45	.47	13	1.74	.57	13	.86	.74
CAO (CALCIUM OXIDE)	13	10.61	7.09	13	12.38	7.18	13	4.62	5.44
MGO (MAGNESIUM OXIDE)	13	3.71	3.38	13	3.30	2.73	13	.88	.82
NA2O (SODIUM OXIDE)	13	.95	.90	2	.10	.09	2	.18	.21
K2O (POTASSIUM OXIDE)	13	.49	.33	13	.51	.37	13	.77	.52
SO3 (SULFITES)	13	9.37	6.02	13	9.25	5.51	13	1.89	2.47
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	13	2280	223	12	2268	259	3	2447	245
SOFTENING TEMPERATURE (ST)	13	2332	214	12	2328	249	3	2527	237
FLUID TEMPERATURE (FT)	13	2388	210	12	2402	258	3	2603	174
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	13	19.3	9.1	13	15.7	6.8	13	79.1	8.2
CHLORINE	13	.01	.01	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	13	61	9	12	51	6	1	60	--
FREE SWELLING (FSI)	10	0	0	10	0	0	1	0	--

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY SECTION AND RANK

WESTERN SECTION (LIGNITE)

TOTAL MOISTURE, %: 35.0 ST.DEV: 1.6

SIZE	BTU RECOVERY %	NO.OF SAMPLES	WEIGHT RECOVERY AMOUNT, % AVERAGE	WEIGHT RECOVERY AMOUNT, % ST.DEV	WEIGHT RECOVERY REDUCTION, % AVERAGE	WEIGHT RECOVERY REDUCTION, % ST.DEV	HEATING VALUE BTU/LB AVERAGE	HEATING VALUE BTU/LB ST.DEV	HEATING VALUE INCREASE, % AVERAGE	HEATING VALUE INCREASE, % ST.DEV	ASH CONTENT, % AVERAGE	ASH CONTENT, % ST.DEV	ASH REDUCTION, % AVERAGE	ASH REDUCTION, % ST.DEV
ALL X 0	100.0	39	100.0	.0	.0	.0	10255	1289	.0	.0	17.0	8.6	.0	.0
1-1/2"	50.0	0	--	--	--	--	--	--	--	--	--	--	--	--
X 100M	60.0	1	43.2	--	56.8	--	9124	--	-11.4	--	19.3	--	-16.0	--
	70.0	2	56.2	6.1	43.8	--	9721	1261	-5.6	16.8	18.0	5.1	-8.1	61.2
	80.0	3	69.3	6.1	30.7	--	9972	1420	-3.2	18.2	17.8	6.6	-6.7	65.6
	90.0	7	83.8	4.2	16.2	--	10418	1222	1.2	17.2	15.5	6.9	7.0	61.7
	100.0	13	100.0	--	.0	.0	10297	1261	.0	.0	16.7	8.2	.0	.0
3/8"	50.0	0	--	--	--	--	--	--	--	--	--	--	--	--
X 100M	60.0	2	45.8	6.6	54.2	6.6	10167	1075	-1.1	16.1	15.5	4.5	5.7	56.5
	70.0	5	60.4	6.3	39.6	6.3	10801	1017	5.0	16.3	12.4	5.5	24.7	51.8
	80.0	7	71.4	5.1	28.6	5.1	10742	1021	4.5	16.3	13.2	5.9	19.7	55.1
	90.0	11	84.1	4.0	15.9	4.0	10785	1028	4.9	16.3	13.0	6.6	20.9	57.5
	100.0	13	100.0	.0	.0	.0	10284	1268	.0	.0	16.5	8.7	.0	.0
14M X 0	50.0	2	34.9	4.4	65.1	--	10717	1597	4.1	20.7	12.7	7.2	25.4	58.2
	60.0	3	45.7	5.4	54.3	--	10691	1301	3.8	18.6	14.0	6.2	17.6	57.5
	70.0	7	59.7	5.4	40.3	--	10978	1014	6.6	17.2	12.5	5.4	26.6	50.5
	80.0	8	71.1	5.4	28.9	--	10893	1118	5.8	17.7	12.7	6.7	25.2	56.1
	90.0	11	83.8	4.0	16.2	--	10860	1156	5.5	17.9	13.1	7.3	23.1	59.6
	100.0	13	100.0	--	.0	.0	10295	1358	.0	.0	17.0	9.1	.0	.0

SIZE	BTU RECOVERY %	NO.OF SAMPLES	PYRITIC SULFUR CONTENT, % AVERAGE	PYRITIC SULFUR CONTENT, % ST.DEV	PYRITIC SULFUR REDUCTION, % AVERAGE	PYRITIC SULFUR REDUCTION, % ST.DEV	TOTAL SULFUR CONTENT, % AVERAGE	TOTAL SULFUR CONTENT, % ST.DEV	TOTAL SULFUR REDUCTION, % AVERAGE	TOTAL SULFUR REDUCTION, % ST.DEV	SO2 EMISSION LB/MM BTU AVERAGE	SO2 EMISSION LB/MM BTU ST.DEV	SO2 EMISSION REDUCTION, % AVERAGE	SO2 EMISSION REDUCTION, % ST.DEV
ALL X 0	100.0	39	.22	.21	.0	.0	1.06	.26	.0	.0	2.1	.6	.0	.0
1-1/2"	50.0	0	--	--	--	--	--	--	--	--	--	--	--	--
X 100M	60.0	1	.19	--	16.1	--	1.58	--	-47.6	--	3.5	--	-63.0	--
	70.0	2	.12	.09	47.2	64.4	1.16	.51	-8.9	55.5	2.5	1.4	-17.2	74.3
	80.0	3	.09	.07	59.5	49.8	1.04	.34	2.9	41.2	2.2	1.1	-3.0	60.5
	90.0	7	.07	.05	67.8	38.0	.98	.26	8.6	34.3	1.9	.7	8.7	45.6
	100.0	13	.23	.22	.0	.0	1.07	.28	.0	.0	2.1	.7	.0	.0
3/8"	50.0	0	--	--	--	--	--	--	--	--	--	--	--	--
X 100M	60.0	2	.08	.06	62.3	45.0	1.18	.48	-11.6	52.4	2.4	1.2	-13.7	65.7
	70.0	5	.06	.04	70.4	34.1	1.13	.28	-6.4	36.8	2.1	.7	-1.5	45.9
	80.0	7	.06	.04	69.4	35.9	1.03	.24	2.6	32.2	2.0	.7	6.5	41.1
	90.0	11	.08	.06	62.8	44.2	.97	.20	8.7	28.8	1.8	.6	12.9	36.3
	100.0	13	.21	.20	.0	.0	1.06	.25	.0	.0	2.1	.6	.0	.0
14M X 0	50.0	2	.06	.05	73.3	33.7	1.21	.34	-15.9	42.8	2.3	1.0	-12.7	57.3
	60.0	3	.06	.03	73.2	30.5	1.08	.31	-3.3	38.9	2.1	.9	-.6	51.1
	70.0	7	.06	.03	74.0	30.2	1.01	.23	3.8	32.1	1.9	.6	9.5	39.6
	80.0	8	.06	.03	72.7	30.9	1.00	.20	4.6	30.0	1.9	.6	9.5	38.4
	90.0	11	.06	.04	70.4	34.9	.94	.19	9.9	28.1	1.8	.6	14.2	36.2
	100.0	13	.22	.21	.0	.0	1.05	.25	.0	.0	2.1	.6	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA BY REGION AND RANK (DRY BASIS)

CENTRAL REGION (BITUMINOUS) NUMBER OF SAMPLES: 166 TOTAL MOISTURE, %: 6.8 ST.DEV: 4.1

		WEIGHT RECOVERY %		BTU RECOVERY %		HEATING VALUE BTU/LB		HEATING VALUE INCREASE, %		ASH CONTENT, %		ASH REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	100.0	.0	100.0	.0	12204	1117	.0	.0	14.8	6.0	.0	.0
1-1/2" X 100M	FLOAT 1.30	47.1	20.1	52.7	20.7	13874	540	13.5	11.3	4.9	1.6	66.8	17.3
	FLOAT 1.40	77.9	12.1	85.7	9.4	13498	573	10.4	11.2	7.1	2.1	51.5	24.5
	FLOAT 1.60	88.3	7.6	95.6	3.1	13232	674	8.3	11.4	8.7	3.0	40.7	31.5
	CUMULATIVE	100.0	.0	100.0	.0	12223	1126	.0	.0	14.7	6.0	.0	.0
3/8" X 100M	FLOAT 1.30	47.8	18.1	53.9	18.1	13998	481	14.3	11.1	4.2	1.3	71.5	14.8
	FLOAT 1.40	76.8	11.6	85.3	8.8	13661	527	11.5	11.0	6.2	1.8	57.6	21.4
	FLOAT 1.60	87.2	7.8	95.2	3.2	13383	635	9.3	11.2	7.8	2.7	46.2	28.6
	CUMULATIVE	100.0	.0	100.0	.0	12247	1107	.0	.0	14.5	5.9	.0	.0
14M X 0	FLOAT 1.30	38.6	19.4	43.9	20.0	14088	445	15.5	11.2	3.6	1.5	75.5	14.2
	FLOAT 1.40	72.5	12.5	81.3	9.7	13755	489	12.8	11.1	5.6	1.8	62.2	19.7
	FLOAT 1.60	85.8	8.5	94.3	4.1	13426	598	10.1	11.3	7.6	2.4	49.0	26.5
	CUMULATIVE	100.0	.0	100.0	.0	12198	1122	.0	.0	14.8	6.0	.0	.0

		PYRITIC SULFUR CONTENT, %		PYRITIC SULFUR REDUCTION, %		TOTAL SULFUR CONTENT, %		TOTAL SULFUR REDUCTION, %		SO2 EMISSION LB/MM BTU		SO2 EMISSION REDUCTION, %	
SIZE	PRODUCT	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV	AVERAGE	ST.DEV
ALL X 0	RAW	2.68	1.58	.0	.0	4.20	1.91	.0	.0	7.1	3.6	.0	.0
1-1/2" X 100M	FLOAT 1.30	.82	.55	69.3	27.3	2.43	1.01	41.9	35.8	3.5	1.5	49.7	33.5
	FLOAT 1.40	1.20	.75	54.8	38.6	2.81	1.11	33.0	40.4	4.2	1.7	40.4	38.8
	FLOAT 1.60	1.52	.94	42.9	48.5	3.10	1.26	25.9	45.3	4.7	2.0	32.6	44.7
	CUMULATIVE	2.66	1.56	.0	.0	4.19	1.90	.0	.0	7.0	3.6	.0	.0
3/8" X 100M	FLOAT 1.30	.71	.46	73.2	23.3	2.35	.96	43.7	34.3	3.4	1.4	51.6	31.6
	FLOAT 1.40	1.04	.64	60.8	33.4	2.65	1.03	36.2	38.0	3.9	1.6	43.9	35.9
	FLOAT 1.60	1.32	.81	50.1	42.4	2.92	1.17	29.9	42.4	4.4	1.8	36.9	41.2
	CUMULATIVE	2.64	1.54	.0	.0	4.16	1.88	.0	.0	7.0	3.5	.0	.0
14M X 0	FLOAT 1.30	.62	.47	77.1	22.2	2.26	.93	46.4	33.0	3.2	1.4	54.5	30.1
	FLOAT 1.40	.90	.61	66.8	29.9	2.53	.99	40.0	36.1	3.7	1.5	47.9	33.8
	FLOAT 1.60	1.20	.77	55.5	38.9	2.79	1.12	33.8	40.2	4.2	1.7	40.9	38.7
	CUMULATIVE	2.70	1.61	.0	.0	4.21	1.93	.0	.0	7.1	3.6	.0	.0

STATISTICAL EVALUATION OF THE COMPOSITED DATA FOR SELECTED CHEMICAL AND PHYSICAL PROPERTIES BY REGION AND RANK

CENTRAL REGION (BITUMINOUS)

	RAW SAMPLE			FLOAT 1.60 FRACTION			SINK 1.60 FRACTION		
	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV	SAMPLES	AVERAGE	ST.DEV
PROXIMATE ANALYSIS, % AND BTU ANALYSIS (DRY BASIS, EXCEPT MOISTURE)									
MOISTURE	166	4.4	3.2	126	3.7	2.0	126	2.7	1.2
ASH	166	14.9	6.0	126	7.6	2.5	126	55.3	7.9
VOLATILE MATTER	166	37.6	5.6	126	40.4	6.0	76	25.2	8.2
FIXED CARBON	166	47.5	7.4	126	52.0	6.8	76	19.7	9.3
BTU/LB	166	12269	1088	126	13447	596	76	5323	1261
ULTIMATE ANALYSIS, % (DRY BASIS)									
TOTAL CARBON	47	69.5	8.1	47	75.9	5.5	47	24.1	5.1
HYDROGEN	47	4.6	.5	47	5.1	.4	47	1.6	.5
NITROGEN	47	1.4	.3	47	1.5	.3	47	.4	.1
OXYGEN	47	5.6	2.5	47	6.7	2.7	34	7.4	6.4
SULFUR FORMS ANALYSIS, % (DRY BASIS)									
PYRITIC SULFUR	166	2.68	1.57	126	1.23	.78	126	12.65	5.75
SULFATIC SULFUR	166	.08	.07	126	.05	.07	126	.09	.08
ORGANIC SULFUR	166	1.40	.67	126	1.55	.74	126	1.08	.90
TOTAL SULFUR	166	4.17	1.90	126	2.84	1.14	126	13.82	5.93
MINERAL ANALYSIS OF ASH, %									
SIO2 (SILICON OXIDE)	26	33.05	12.67	23	38.56	13.68	23	28.40	14.73
AL2O3 (ALUMINUM OXIDE)	26	15.00	5.84	23	18.73	5.83	23	12.40	7.24
FE2O3 (IRON OXIDE)	26	28.83	13.77	23	25.68	14.22	23	30.41	17.88
TIO2 (TITANIUM OXIDE)	26	1.22	.44	23	1.18	.56	23	.63	.58
CAO (CALCIUM OXIDE)	26	10.52	7.60	23	4.51	3.15	23	16.96	16.30
MGO (MAGNESIUM OXIDE)	26	1.85	1.30	23	2.14	1.81	23	1.09	.96
NA2O (SODIUM OXIDE)	81	.67	.35	29	.65	.61	29	.25	.26
K2O (POTASSIUM OXIDE)	26	1.47	.55	23	1.95	.90	23	1.14	.80
SO3 (SULFITES)	26	6.84	4.17	23	3.93	4.10	23	6.31	5.01
FUSIBILITY OF ASH, DEGREES F									
INITIAL DEFORMATION (ID)	107	2047	151	114	2099	195	49	2056	166
SOFTENING TEMPERATURE (ST)	114	2105	145	114	2173	198	50	2123	162
FLUID TEMPERATURE (FT)	107	2202	167	113	2274	202	50	2200	176
MISCELLANEOUS DATA, %									
MINERAL MATTER (PARR)	166	18.3	7.0	126	9.8	3.0	126	67.1	8.7
CHLORINE	47	.13	.13	0	--	--	0	--	--
PHYSICAL PARAMETERS, INDEX									
HARDGROVE GRINDABILITY (HGI)	88	58	16	76	54	11	0	--	--
FREE SWELLING (FSI)	125	4 1/2	2 1/2	125	5	2	27	0 1/2	1

STATISTICAL EVALUATION OF THE COMPOSITED WASHABILITY DATA INTERPOLATED AT VARIOUS LEVELS OF BTU RECOVERY BY REGION AND RANK

CENTRAL REGION (BITUMINOUS) TOTAL MOISTURE, %: 6.8 ST.DEV: 4.1

SIZE	BTU RECOVERY %	NO.OF SAMPLES	WEIGHT RECOVERY AMOUNT, % AVERAGE	WEIGHT RECOVERY AMOUNT, % ST.DEV	WEIGHT RECOVERY REDUCTION, % AVERAGE	WEIGHT RECOVERY REDUCTION, % ST.DEV	HEATING VALUE BTU/LB AVERAGE	HEATING VALUE BTU/LB ST.DEV	HEATING VALUE INCREASE, % AVERAGE	HEATING VALUE INCREASE, % ST.DEV	ASH CONTENT, % AVERAGE	ASH CONTENT, % ST.DEV	ASH REDUCTION, % AVERAGE	ASH REDUCTION, % ST.DEV
ALL X 0	100.0	498	100.0	.0	.0	.0	12204	1117	.0	.0	14.8	6.0	.0	.0
1-1/2" X 100M	50.0	73	39.0	5.7	60.9	5.8	13692	529	11.9	11.1	6.1	2.3	58.1	23.3
	60.0	103	48.8	4.9	51.2	5.0	13632	562	11.4	11.2	6.4	2.4	56.6	24.1
	70.0	129	59.4	4.6	40.5	4.6	13550	587	10.7	11.2	6.7	2.5	53.9	25.5
	80.0	151	70.6	4.7	29.3	4.8	13461	602	10.0	11.2	7.2	2.7	50.6	27.6
	90.0	163	82.0	4.8	17.9	4.9	13323	705	8.9	11.5	8.1	3.3	44.8	32.1
	100.0	166	99.9	1.3	.0	.0	12236	1121	.0	.0	14.6	6.0	.0	.0
3/8" X 100M	50.0	68	39.6	4.0	60.3	4.2	13814	487	12.4	10.8	5.3	2.0	63.2	20.5
	60.0	110	49.5	4.1	50.3	4.2	13745	454	11.9	10.7	5.4	1.9	62.6	20.6
	70.0	129	59.3	4.0	40.5	4.3	13668	487	11.3	10.7	5.8	2.1	59.6	22.4
	80.0	154	70.2	4.5	29.6	4.8	13619	556	10.9	10.9	6.2	2.5	56.5	25.0
	90.0	164	81.4	4.7	18.4	5.1	13477	693	9.7	11.3	7.2	3.2	49.9	30.5
	100.0	166	99.7	2.3	.0	.0	12285	1101	.0	.0	14.3	5.9	.0	.0
14M X 0	50.0	105	38.0	4.8	62.0	4.8	13856	403	13.6	11.0	4.5	1.9	69.8	17.6
	60.0	130	47.9	4.7	52.1	4.7	13802	431	13.2	11.0	4.9	2.0	66.8	18.9
	70.0	143	58.4	4.3	41.6	4.3	13737	485	12.6	11.1	5.4	2.2	63.6	21.0
	80.0	159	69.8	4.4	30.2	4.4	13663	572	12.0	11.3	6.0	2.6	59.6	24.1
	90.0	164	81.1	4.4	18.9	4.4	13468	702	10.4	11.7	7.2	3.3	51.5	29.9
	100.0	166	100.0	.0	.0	.0	12198	1122	.0	.0	14.8	6.0	.0	.0

SIZE	BTU RECOVERY %	NO.OF SAMPLES	PYRITIC SULFUR CONTENT, % AVERAGE	PYRITIC SULFUR CONTENT, % ST.DEV	PYRITIC SULFUR REDUCTION, % AVERAGE	PYRITIC SULFUR REDUCTION, % ST.DEV	TOTAL SULFUR CONTENT, % AVERAGE	TOTAL SULFUR CONTENT, % ST.DEV	TOTAL SULFUR REDUCTION, % AVERAGE	TOTAL SULFUR REDUCTION, % ST.DEV	SO2 EMISSION LB/MM BTU AVERAGE	SO2 EMISSION LB/MM BTU ST.DEV	SO2 EMISSION REDUCTION, % AVERAGE	SO2 EMISSION REDUCTION, % ST.DEV
ALL X 0	100.0	498	2.68	1.58	.0	.0	4.20	1.91	.0	.0	7.1	3.6	.0	.0
1-1/2" X 100M	50.0	73	1.11	.77	58.3	37.8	2.71	.92	35.2	36.8	4.0	1.4	43.3	35.3
	60.0	103	1.12	.77	57.9	38.0	2.77	1.00	33.8	38.5	4.1	1.6	41.7	37.1
	70.0	129	1.17	.78	56.0	39.1	2.89	1.07	31.0	40.5	4.3	1.7	38.9	39.2
	80.0	151	1.24	.85	53.4	41.9	2.90	1.13	30.7	41.5	4.3	1.8	38.2	40.4
	90.0	163	1.41	1.02	47.2	49.2	3.02	1.32	27.8	45.5	4.6	2.2	34.5	45.5
	100.0	166	2.66	1.56	.0	.0	4.18	1.91	.0	.0	7.0	3.6	.0	.0
3/8" X 100M	50.0	68	1.01	.63	61.8	33.0	2.68	.90	35.5	36.5	3.9	1.4	43.9	34.6
	60.0	110	.95	.61	63.7	31.5	2.71	.95	34.8	37.4	4.0	1.4	43.1	35.4
	70.0	129	1.02	.65	61.4	33.5	2.76	.95	33.6	37.8	4.1	1.4	41.6	36.2
	80.0	154	1.06	.71	59.9	35.9	2.72	1.05	34.5	39.0	4.0	1.6	42.1	37.4
	90.0	164	1.22	.89	53.7	43.3	2.85	1.23	31.5	43.0	4.3	2.0	38.4	42.6
	100.0	166	2.63	1.55	.0	.0	4.16	1.89	.0	.0	6.9	3.5	.0	.0
14M X 0	50.0	105	.74	.52	72.8	25.2	2.46	.97	41.7	35.2	3.6	1.4	49.8	32.6
	60.0	130	.81	.57	70.1	27.6	2.53	.94	39.9	35.4	3.7	1.4	48.0	33.0
	70.0	143	.88	.62	67.5	30.0	2.56	.97	39.3	36.1	3.7	1.5	47.2	34.0
	80.0	159	.96	.67	64.5	32.7	2.62	1.01	37.9	37.2	3.9	1.6	45.6	35.4
	90.0	164	1.15	.85	57.4	40.5	2.77	1.20	34.3	41.4	4.2	2.0	41.2	40.8
	100.0	166	2.70	1.61	.0	.0	4.21	1.93	.0	.0	7.1	3.6	.0	.0

APPENDIX E

COALBED CODES AND NAMES FOR THE CENTRAL REGION COALS

APPENDIX E

COALBED CODES AND NAMES FOR THE CENTRAL REGION COALS

Page

Coalbed Codes and Names for the Eastern Section, Central Region (Table 4)..... 518

Coalbed Codes and Names for the Western Section, Central Region (Table 5)..... 520

TABLE 4. COALBED CODES AND NAMES[1/] FOR THE EASTERN SECTION, CENTRAL REGION

State Code	Illinois Coalbed Name	Indiana Coalbed Name	Kentucky (West) Coalbed Name
480	No. 7 Danville Danville (No. 7) Cutler Sparland La Salle "First Vein" Equality (No. 7) Streator (No. 7)	No. VII Danville Millersburg Upper Millersburg	No. 14 Green River
483	Jamestown	No. VI Hymera Lower Millersburg Dugger	No. 12
484	No. 6	Herrin	No. 11
489	No. 5 Springfield Harrisburg Harrisburg (No. 5) Blair Mount Sterling Rushville	No. V Springfield Petersburg Alum Cave V	No. 9 Springfield Main Mulford
493	Shawneetown No. 2-A	No. IV Survant Linton	No. 8 Lower Well
496	No. 2 Colchester La Salle La Salle "Third Vein" Exeter Morris (No. 2) Delhi Wilmington	No. III-A Colchester Velpen	Schultztown
502	Seelyville	No. III Seelyville Staunton	

[1/]The first name given for each bed is the DOE/EIA assigned principal name.

TABLE 4. COALBED CODES AND NAMES[1/] FOR THE EASTERN SECTION, CENTRAL REGION
(Continued)

State Code	Illinois Coalbed Name	Indiana Coalbed Name	Kentucky (West) Coalbed Name
505	Dekoven Greenbush		No. 7 Dekoven Beaver Beaver Dam Three Foot Little Vein Sam Waltham
506	Davis Wiley Medora		No. 6 Davis Belton Four Foot Hartford John Waltham
902			No. 6 and 9

TABLE 5. COALBED CODES AND NAMES[1/] FOR THE WESTERN SECTION, CENTRAL REGION

State Code	Arkansas Coalbed Name	Iowa Coalbed Name	Kansas Coalbed Name	Missouri Coalbed Name	Oklahoma Coalbed Name	Texas Coalbed Name
410						Lower Colvert Bluff
482				Mulberry		
490			Mulky		Mulky	
492			Bevier	Bevier		
496			Croweburg	Croweburg	Croweburg	
499			Fleming	Fleming		
504			Mineral			
509				Tebo		
510						Olmos
513				Weir-Pittsburg		
517		Lucas County No. 5				
527					Secor	
528						Thurber
530		Lower-Ford				
536						Bull Creek
537				Drywood		
538						Sand Pedro
539		Clifford				
540			Knifeton	Knifeton		
545			Rowe	Rowe		

1/ The first name given for each bed is the DOE/EIA assigned principal name.

TABLE 5. COALBED CODES AND NAMES[1/] FOR THE WESTERN SECTION, CENTRAL REGION (continued)

State Code	Arkansas Coalbed Name	Iowa Coalbed Name	Kansas Coalbed Name	Missouri Coalbed Name	Oklahoma Coalbed Name	Texas Coalbed Name
550		Hastie				
552					Cavanal	
554	Charleston					
556					Stigler	
558					Lower McAlester	
562	Upper Hartshorne					
563	Lower Hartshorne					
799	Uncorrelated					Uncorrelated
880					Upper & Lower Hartshorne	
900	Wilcox					Wilcox

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