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GULF CANADA RESOURCES INC.

MOUNT KLAPPAN COAL PROJECT

1982

MINE ASSESSMENT

VOLUME 3

MINING

Coal Licence Number 7118 to 7177

7381 to 7392

and

7416 to 7432 inclusive

Cassiar Land District

NTS Map Number 104 H

Latitude Between $57^{\circ}11'$ and $57^{\circ}22'N$
Longitude Between $128^{\circ}39'$ and $129^{\circ}05'W$

BY

PHILLIPS BARRATT KAISER
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Vancouver, B.C. Canada

DECEMBER 1982

00110 (9)

PBK Project No. 82054

MOUNT KLAPPAN COAL PROJECT LOCATION MAP



MOUNT KLAPPAN COAL PROJECT**MINE ASSESSMENT****VOLUME 1 SUMMARY****VOLUME 2 GEOLOGY****▷ VOLUME 3 MINING****VOLUME 4 COAL PREPARATION FACILITIES****VOLUME 5 INFRASTRUCTURE**

VOLUME 3

MINING

MOUNT KLAPPAN COAL PROJECT

VOLUME 3

MINING

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INTRODUCTION

PART 1 - INTRODUCTION

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1.0 INTRODUCTION

The Mount Klappan Coal Project differs from most North American ventures in that this coal has the rank of anthracite. Preliminary exploration indicates the resource to be extensive and amenable to an open pit approach to mining. Although the project site is in a truly greenfield area in northwest British Columbia, the rank, quality and washability of the coal and the potential for economical rail transportation of the coal to the new ocean terminal at Ridley Island show promise for the technological and economic feasibility of the project.

Phillips Barratt Kaiser has, as part of the agreed upon scope of this assessment, investigated the open pit mining of the anthracite for two production alternatives for a twenty year life:

- one million tonnes per year of run-of-mine coal as product shipped (1 Mtpy Case),
- five million tonnes per year of washed (to 20% ash) coal as product shipped (5 Mtpy Case).

For this study a fly-in operation has been assumed for the 1 Mtpy Case. In the 5 Mtpy Case personnel have been assumed to reside in a new townsite constructed nearby.

Volume 3 - Mining - presents the findings of PBK's assessment of the mining requirements and covers the:

- material movement,
- production schedule,
- *mine design criteria,*
- mine design,
- equipment and labour requirements, and
- minesite infrastructure.

The assessment has been carried out in accordance with present day engineering standards utilizing a variety of available information sources. The results are judged to represent realistic mining estimates based on geological data and interpretations provided by Gulf.

PART 2
GEOLOGICAL SETTING

PART 2 - GEOLOGICAL SETTING

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Hobbit-Broatch Resource Area

2.1 INTRODUCTION

This section presents a brief description of the mine area geology and a description of the method used to determine the material quantities for production scheduling and mine planning.

2.2 GEOLOGY OF MINING AREA

The Hobbit-Broatch Resource Area is the portion of the property which is evaluated in this assessment. Thirty-four trenches have been excavated in coal outcrops and five diamond drill holes have been completed in the area, however, only four of these holes influence the mining areas selected. These are DDH-82001, -82002, -82003 and -82004.

Coal seams A to K exist in the Hobbit-Broatch Resource Area, however, only seams E to K are included in this assessment because seams A to D were below the depth of the four diamond drill holes in the mining area selected.

The mean seam thicknesses in the mine area are:

<u>Seam</u>	<u>Mean Seam Thickness (m)</u>
K	2.85
J	1.63
I	4.49
H	4.11
G	2.79
F	1.61
E	1.91

The composite raw coal quality analysis calculated for the mining area is:

	<u>Unit</u>	<u>Air Dried Basis</u>
Moisture	%	1.50
Ash	%	29.85
Volatile Matter	%	6.82
Fixed Carbon	%	61.83
Sulphur	%	0.74
Thermal Value	MJ/kg	22.26

Geological cross-sections of the Hobbit-Broach Resource Area are included in Appendix A.

2.3 IN SITU QUANTITIES

231 INFORMATION BASE

All measurements were made from the 1:10 000 scale cross sections dated September 1982 which were supplied by Gulf Canada Resources Inc. These geological cross sections are included in Appendix A. The mineable thicknesses of coal seams per drill hole are listed in Table 2.1.

232 METHODOLOGY

.1 Block Model

To accommodate the mine planning requirements for the location of quantities and qualities of coal, the block model approach was adopted. In this method the area of interest is divided into blocks by a grid, the dimensions of which are sized to provide sufficient sensitivity to the study requirements.

.2 Block Grid

The grid system used for the Gulf geological cross sections was adopted as the base for the block model.

The dimensions selected were

- vertical - 50 m
- width (along the cross section axis) - 200 m
- length (normal to cross section) - 500 m.

Figure 2.1 illustrates this grid.

The 500 m dimension is centred on the cross section axes thus setting the lateral range of influence at 250 m.

The vertical dimensions are indexed to the cross section elevations. The widths are indexed to the 1 500 SE base line.

.3 Quantities

The volume of coal per seam in each block was estimated by using the following calculation.

$$T \times W \times L = m^3$$

where

T = seam thickness

W = measured width of coal from cross sections

L = 500 m

The coal contained in a block is the sum of the volumes of the seams, and the waste contained within a block is the block volume less the volume of coal (as the sum of the seams).

Corrections were applied in the calculation of waste quantities where only a partial block existed because of the transection by a topographic surface or base of E seam. "W" was the only dimension which needed to be measured. The measurements were made on the cross sections. Use of an overlay grid indexed to the baseline provided continuity of block grids.

.4 Mean Thickness of Seams

For this assessment a polygonal approach was used to provide a mean thickness for each seam.

For seams H, I, J, & K, with only two recorded thicknesses in the four drill holes, an arithmetic average was taken.

For seams E, F and G, seam polygons were established. By applying the preliminary pit bottom mine boundaries to the polygons, areas of influence were established; thus weighted average seam thicknesses were calculated.

Figure 2.2 presents the polygons and Table 2.2 presents the mean seam thicknesses.

.5 In Situ Stripping Ratios - Mining Area

Figure 2.3 presents the in situ stripping ratios for the area of interest of the Hobbit Broatch Resource Area. The ratios are composites from the topographic surface to the base of seam E for each 200 x 500 m areal block.

TABLE 2.1
MINEABLE TRUE THICKNESS OF COAL (m)

Seam	DDH-82-001	DDH-82-002	DDH-82-003	DDH-82-004
K	3.45	-	2.24	-
J	0.93	-	2.33	-
I	5.05	-	3.92	-
H	1.54	-	2.57	-
G	1.68	2.99	3.94	2.88
F	-	0.36	2.17	0.04
E	-	3.16	2.14	0.75

Data supplied by Gulf Canada Resources Inc.

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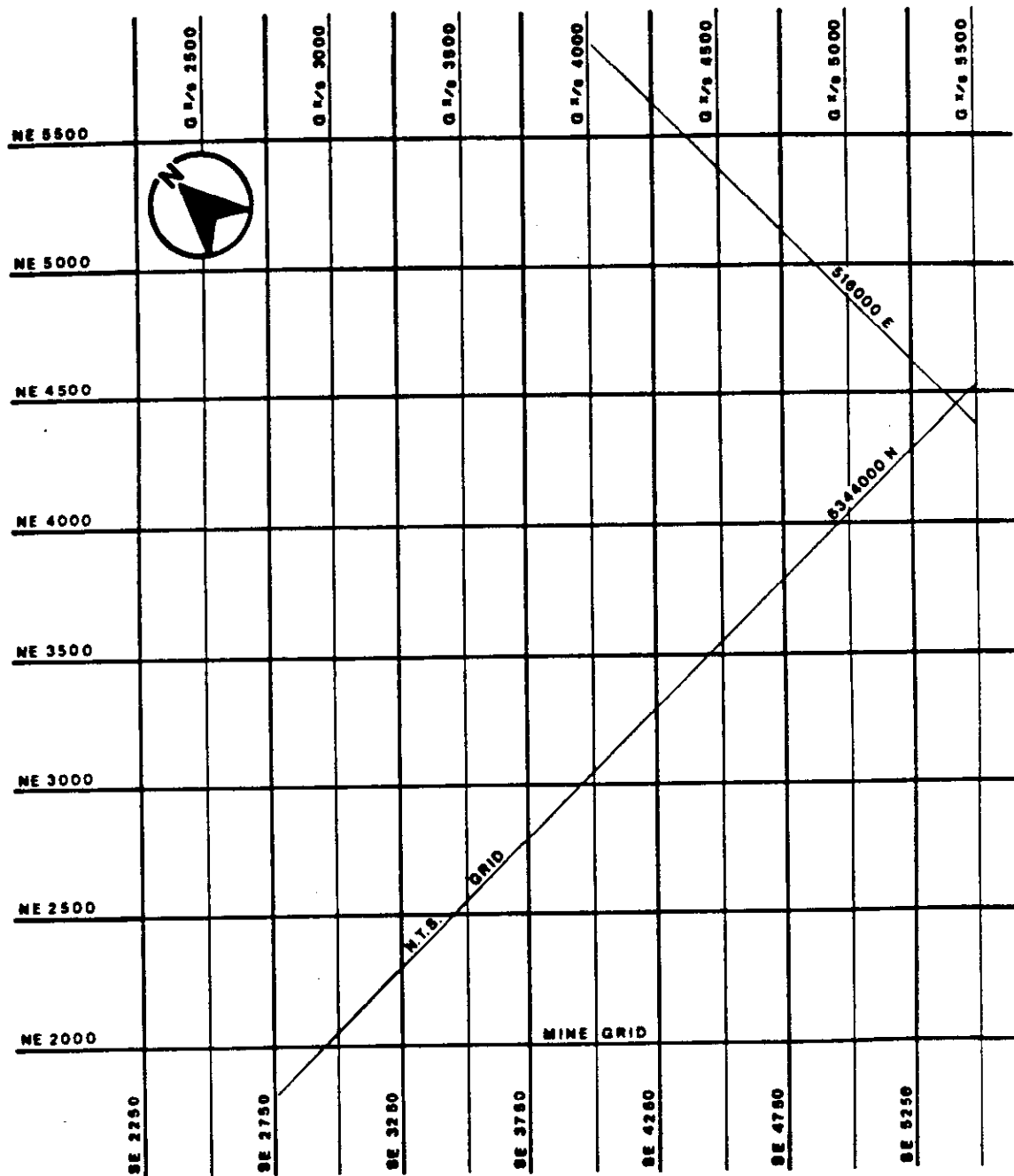
TABLE 2.2
MEAN MINEABLE SEAM THICKNESSES

Seam	DDH-82-001		DDH-82-002		DDH-82-003		DDH-82-004		Mean Seam Thickness m
	Thickness m	Area of Influence %	Thickness m	Area of Influence %	Thickness m	Area of Influence %	Thickness m	Area of Influence %	
K	3.45	50	-	-	2.24	50	-	-	2.85
J	0.93	50	-	-	2.33	50	-	-	1.63
I	5.05	50	-	-	3.92	50	-	-	4.49
H	1.54	50	-	-	2.57	50	-	-	4.11
G	1.68	49	2.99	4	3.94	47	2.88	0	2.79
F	-	-	0.36	6	2.17	73	0.04	21	1.61
E	-	-	3.16	6	2.14	73	0.75	21	1.91

Thicknesses from Table 2.1

Areas of Influence from Figure 2.2

FIGURE 2.1
Block Model Grid/Mine Grid



G x/s
N.T.S.

Geology Cross Section
National Topographical Survey

FIGURE 2.2
SEAM POLYGONS

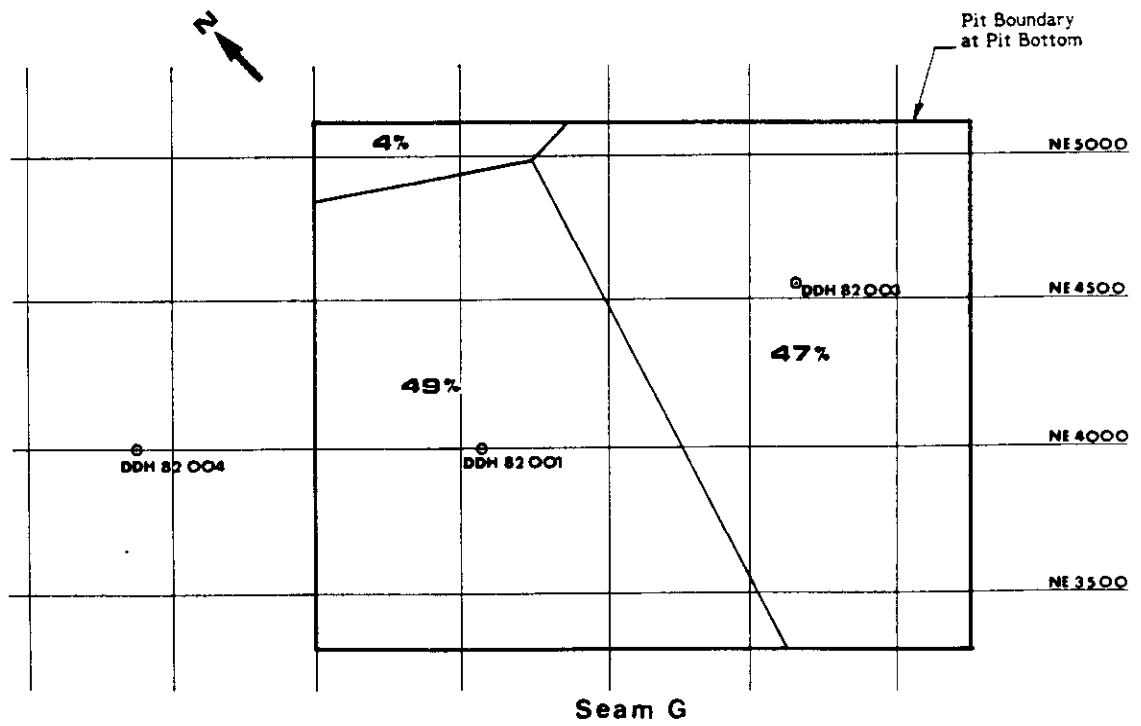
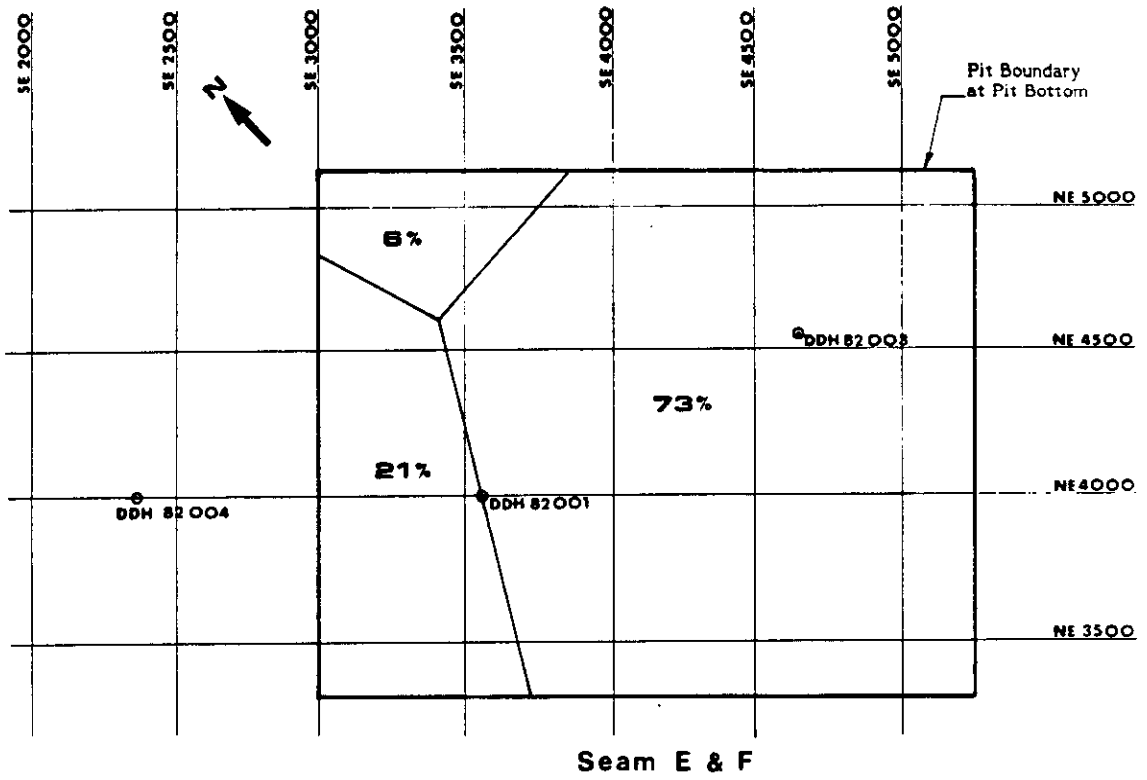


FIGURE 2.3

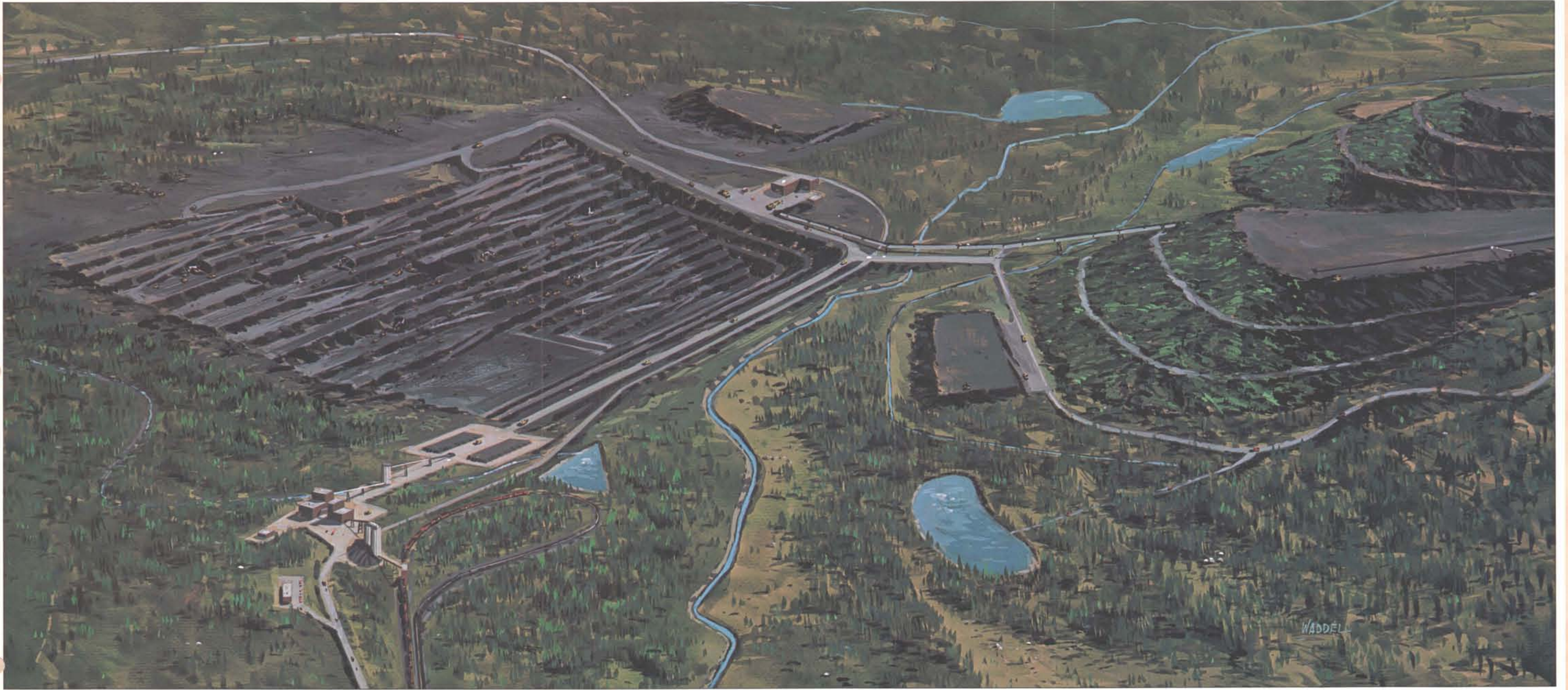
COMPOSITE STRIPPING RATIOS TO BASE OF SEAM E

HOBBIT-BROATCH RESOURCE AREA

	SE 2250	G x/s 2500	SE 2750	G x/s 3000	SE 3250	G x/s 3500	SE 3750	G x/s 4000	SE 4250	G x/s 4500	SE 4750	G x/s 5000	SE 5250	G x/s 5500	SE 5750
NE 6000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8.8	5.4	5.2	4.8	7.0	7.0	5.9	5.3	5.5	6.5	8.8	8.8	8.2	8.2	5.3
	7.0	5.2	5.9	5.9	7.0	7.6	7.6	7.6	6.5	6.5	5.9	5.3	5.3	7.0	7.0
	5.5	6.5	8.8	8.8	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
NE 5000	6.5	6.5	5.9	7.6	5.9	5.9	7.6	5.9	5.9	5.9	5.3	5.3	7.0	7.0	
	5.6	6.5	7.0	8.8	7.0	5.5	6.5	5.5	7.0	7.0	5.5	6.5	6.5	6.5	
	7.0	7.6	7.6	7.6	7.6	7.0	5.6	5.2	7.6	7.6	5.6	5.2	5.2	5.2	
	7.6	7.6	7.6	7.6	7.6	8.2	5.8	4.7	5.9	7.6	5.8	4.7	5.5	5.5	
	5.9	7.0	5.1	6.5	5.4	5.9	5.5	5.5	6.5	5.4	5.9	5.5	5.5	5.5	
NE 4000	6.5	5.3	5.2	4.9	4.9	5.2	7.0	7.0	5.2	5.2	5.8	7.0	7.0		
	-	5.5	4.9	7.0	7.6	4.7	6.5	6.5	-	5.5	4.9	4.7	6.5		
	-	7.6	5.5	8.8	7.0	4.6	5.1	5.1	-	7.6	5.5	4.6	5.1		
	5.4	5.6	5.8	6.5	6.5	5.9	6.5	6.5	5.4	5.6	5.8	6.5	6.5		
	6.5	5.7	7.0	6.5	6.5	5.2	8.2	8.2	6.5	5.7	7.0	6.5	8.2		
NE 3000	6.5	8.8	8.2	5.8	6.5	5.9	6.5	6.5	6.5	6.5	5.9	5.9	6.5		
	6.5	8.8	8.2	5.8	6.5	5.9	6.5	6.5	6.5	6.5	5.9	5.9	6.5		
	6.5	8.8	8.2	5.8	6.5	5.9	6.5	6.5	6.5	6.5	5.9	5.9	6.5		
	6.5	8.8	8.2	5.8	6.5	5.9	6.5	6.5	6.5	6.5	5.9	5.9	6.5		

G x/s Geology Cross Section

PART 3
MINING SYSTEMS



PART 3 - MINING SYSTEMS

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- 3.2 Hobbit-Broatch Resource Area Mine General Arrangement - 5 Mtpy Case

3.1 INTRODUCTION

Part 3 - Mining Systems presents the conceptual mining approaches developed by Phillips Barratt Kaiser for the mining of anthracite at the Mount Klappan site. These concepts also provide a basis for examining coal washing requirements and for developing cost estimates for the total project.

The mine plans and resultant schedules, although site-specific, are preliminary.

3.2 MINING APPROACHES

321 OVERVIEW

The mining operation is a truck/shovel benching operation. Benches run east-west and mining progresses from south to north. Coal is transported from the mine to the coal processing/handling facilities by truck. Waste from the boxcut is truck-hauled out of the pit to a hopper and conveyed to a waste dump for spreader discharge.

Backfill operations could commence following completion of the boxcut.

322 TOP SOIL

Top soil removal represents a low utilization of a traditional scraper fleet, since it would be a daylight operation in non-winter months. Therefore, with few other requirements for scrapers, total reclamation services will be provided on a contract basis.

323 WASTE REMOVAL/DISPOSAL

In this assessment, it is projected that 95% of all waste will be drilled and blasted. Therefore, we have allowed for drilling by the operator, using both electric 300 mm and 250 mm diesel rigs. Blasting, also by the operator, would be supported by a "mixed and delivered to the hole" explosives contract.

90% of the waste is loaded by 24.5 m³ rock shovels onto 154 t end-dump trucks. A hydraulic shovel with a 14 m³ bucket completes the loading fleet.

Adequate dozer support is allowed for clean-up around shovels and in-pit ramp/road construction.

Waste is dumped in the conveyor hopper and/or on the surrounding pad to be dozed to a grizzly. Oversize will be scalped off and crushed prior to conveyor loading.

The conveyor elevates the waste to a mountainside waste dump located south of the Spatsizi River.

A mountainside waste dump site was chosen for its proximity to the mine and the convenience it offers of merging a man-made structure into the topography. There are no indications of near-surface coal seams in this disposal area, but confirmation of that apparent circumstance will be necessary.

The waste will be dumped by a slewing 50 m boom spreader running along a lateral conveyor. Initial construction of the waste dump will be from the spreader/lateral conveyor by regular lineal extension. Radial shifting of this conveyor will then be required.

This construction concept of preliminary lineal extension and then radial slewing is illustrated in Figure 3.8.

The conveyor shifting requirements will mean two dump wings will be necessary to provide for continuity of disposal.

324 COAL

90% of the coal is mined and loaded by a 21 m³ hydraulic shovel. The action and power of the shovel is assumed to be adequate to dig the coal without any blasting. A 15 m³ front end loader completes the coal loading fleet.

Dozer support by both tracked and rubber tired types is allowed for.

Coal is loaded into 154 t rear-dump trucks, equipped with coal boxes (larger volume). This type of haulage unit has been adopted for this assessment for standardization with the major waste truck fleet.

The trucks deliver the coal to a run-of-mine hopper close to the coal preparation/handling facility.

3.3 ONE MILLION TONNE CASE

331 INTRODUCTION

This subsection presents the findings for an open pit mine to produce one million tonnes per year (for twenty years) of run-of-mine anthracite to be shipped as product.

332 PIT BOUNDARIES

Plate 3.1 shows the mine boundaries as well as other features. As no coal preparation is called for in this case, the pit must be sited in an area having the highest quality coal. The geological findings by Gulf indicate the northwest portion of the Hobbit-Broatch Resource Area in the DDH82-003 area of interest to have the cleaner coal.

Figure 3.1 presents the boundaries of the mining area selected.

To produce a mining operation of acceptable dimensions no allowance has been made for mining to the bottom of E seam. Rather, the pit bottom was set at the 1 200 m elevation. Elimination of the requirement to haul waste and coal out of a deeper pit will result in lower haulage costs. The selection of the 1 200 m floor was not influenced by coal quality considerations.

Figure 3.2 illustrates the mine progression in a longitudinal section. Profiles of the topographic surface and pit bottom along the western (NE 3200) and eastern (NE 4600) sides are included to illustrate the easterly plunge. The pit boundaries are outlined on the geological cross sections in Appendix A.

333 MATERIAL MOVEMENT

Using the block model discussed in Part 2 of this volume, the boundaries of the pit established to assess the cost of mining coal give rise to the material quantities shown in Table 3.1.

335 MINE EQUIPMENT

Tables 3.2 and 3.3 summarize the mine equipment requirements over the life of the operation.

These schedules directly reflect the preliminary mine planning and scheduling, and as such some variations in equipment needs

between years will occur. For example, in the year 3, two 154 t end dump trucks are in excess of calculated requirements for that year. However, in year 4 only one truck is spare. Future planning will, with optimization smooth out such variances.

Details of the waste conveyor are given in Part 532.25.

336 MINE LABOUR

Table 3.4 summarizes the mine labour requirements over the life of the operation. Figure 3.3 presents a organization chart for mine and mine maintenance. The variations in annual labour requirements reflect the conceptual level of mine planning. Future planning will, with optimization, smooth out large annual variances.

3.4 FIVE MILLION TONNE CASE

341 INTRODUCTION

This subsection presents the findings for an open pit mine to feed sufficient coal to a preparation facility to yield five million tonnes of product anthracite annually. Plate 3.2 fully illustrates the minesite.

342 PIT BOUNDARIES

An evaluation of the in situ stripping ratios derived from the model described in Part 2.3 and shown in Figure 2.3. The western boundary was set to the to the west side of the resource area, with consideration given to the geological fault. The southern boundary was set a nominal 500 m north of the Spatsizi River. Subsequent estimation of coal contained within these boundaries for seams E to K inclusive led to setting of the northern and eastern pit limits.

Figure 3.4 shows this selected pit bottom boundary (defined as the bottom of E seam). Plate 3.2 shows the topographic location. Figures 3.9, 3.10, 3.11 and 3.12 record the mine progression at the end of the years 5, 10, 15 and 20 respectively.

The boxcut is started at the 5250 SE line and mining progression is northwards.

The boundaries are outlined on the geological cross sections in Appendix A.

Figure 3.5 records the annual mining progression on a longitudinal section. Profiles of both topographic surface and pit bottom along the western (NE 3300) and eastern (NE 4800) sides are recorded to illustrate the easterly plunge.

343 MATERIAL MOVEMENT

Table 3.6 presents the production schedule developed to supply five million tonnes of product anthracite annually. In addition, the schedule presents:

- top soil stripping and replacement requirements;
- ditching and road construction schedules;
- waste disposal schedule to the waste dump and/or backfill;
- annual R.O.M stripping ratio; and,
- coarse reject quantities from the preparation plant.

344 MINE PLAN DETAILS

.1 Overview

The mine operations reflect the general approach presented in Part 3.2. above.

.2 Top Soil

For the quantities of soil to be handled both stripping contemporary with placement, as well as top soil dump operations would be necessary. To avoid purchasing low annual use equipment and to overcome the need for seasonal labour requirements, this work will be an outside contract.

.3 Waste

The boxcut requires 9 years to complete. At this point backfilling operations could commence. However, due to the pit floor rising to the north, additional offsite waste disposal is necessary. For the years 10 - 15 a nominal one-third of all waste will be sent to the off-site disposal area.

The remaining waste will be placed as backfill in the pit. By hauling the lower pit waste via sidewall berms and the upper pit waste via a crest road, the overall truck productivity can be improved. With the resulting reduction in truck hours (below that for disposal entirely to the conveyors) backfill disposal costs are reduced to below that of waste dump disposal.

At year 15 the conveyor operation will be shut down. By that time sufficient waste will have been sent to the waste dump that the waste remaining to be mined will fit into the mined out area.

Figure 3.6 illustrates the annual pit storage capacity created. Overlaid is the planned backfill progression.

No rehandle of the waste dump material is planned to fill the final wedge.

The waste conveyor operation is shut down in year 15.

For this assessment the potential of seams A, B, C and D lying beneath seam E is not considered and backfilling is proposed as a cheaper method of waste disposal. Both the economics and regulatory requirements of such a proposal will require further examination.

.4 Coal

Coal is trucked to the run-of-mine hopper.

.5 Preparation Plant Coarse Rejects

Handled by the coal trucks returning to the mine and dumped either at the conveyor dump or as backfill.

345 MINE EQUIPMENT

Tables 3.7 and 3.8 present the mine equipment requirements for the life of the operation.

346 MINE LABOUR

Table 3.9 summarizes the mine labour requirements for the life of the operation. Figure 3.7 presents an organization chart for mine operations and maintenance.

1 Mtpy CASE

TABLE 3.1

MATERIAL MOVEMENT SCHEDULE - 1 Mtpy Case

	Units x 10 ³ *	YEARS													Total
		-4	-3	-2	-1	1	2	3	4	5	6-10	11-15	16-20	21-23	
Product															
Shipped		-	-	-	-	502	1 000	1 000	1 000	1 000	5 000	5 000	5 000	508	20 010
Mine															
Waste Mine	m ³	-	-	-	-	7 533	10 555	8 421	8 176	7 871	37 228	33 512	32 046	3 405	148 747
Coal ROM	t	-	-	-	-	502	1 000	1 000	1 000	1 000	5 000	5 000	5 000	508	20 010
Statistics Strip Ratio (ROM)	m ³ /t	-	-	-	-	15	10.6	8.4	8.2	7.9	7.4	6.7	6.4	6.7	7.4
Mine Construction															
Roads	m ³	-	-	10	224	9	9	6	6	6	32	6.0	-	-	331
Ditches	m ³	-	-	-	89	-	-	-	-	-	-	-	-	-	89
Pond Topsoil	m ³	-	-	-	143	-	-	-	-	-	-	-	-	-	143.5
Reclamation															
Topsoil Excavated Mine Area	m ³	-	-	-	454	82	82	42	42	42	126	-	-	-	871
Waste Dump Area	m ³	-	-	-	51	50	49	48	47	46	179	150	120	-	740
Topsoil Rehandled	m ³	-	-	-	-	-	-	-	-	-	76	15	45	265	401
Topsoil Spread	m ³	-	-	-	-	-	-	-	-	-	255	165	165	265	850

All volumes in bank equivalents

Decimal places in the above table have been rounded out for clarity of presentation.

* Does not apply to the stripping ratio.

TABLE 3.3

MINE AUXILIARY EQUIPMENT SCHEDULE - 1 Mtpy Case

Description/Year of Operation		1	2	3	4	5	6-10	11-15	16-20	21	TOTAL
Lube Truck	Buy	1	-	-	-	-	1	1	1	-	4
	Operate	1	1	1	1	1	1	1	1	1	-
	Replace	-	-	-	-	-	1	1	1	-	3
Fuel Truck	Buy	1	-	-	-	-	1	1	1	-	4
	Operate	1	1	1	1	1	1	1	1	1	-
	Replace	-	-	-	-	-	1	1	1	-	3
Water Truck	Buy	2	-	-	-	-	-	-	-	-	2
	Operate	2	2	2	2	2	2	2	2	2	-
Grader -16G	Buy	2	-	-	-	-	2	2	2	-	8
	Operate	2	2	2	2	2	2	2	2	2	-
	Replace	-	-	-	-	-	2	2	2	-	6
Light Tower	Buy	6	-	-	-	-	6	6	6	-	24
	Operate	6	6	6	6	6	6	6	6	6	-
	Replace	-	-	-	-	-	6	6	6	-	18
Pump-Dewatering	Buy	6	-	-	-	-	6	6	6	-	24
	Operate	6	6	6	6	6	6	6	6	6	-
	Replace	-	-	-	-	-	6	6	6	-	18
Truck-50 t	Buy	2	-	-	-	-	2	-	-	-	4
	Operate	2	2	2	2	2	2	2	2	2	-
	Replace	-	-	-	-	-	2	-	-	-	2
Crane-110 t	Buy	1	-	-	-	-	1	-	-	-	2
	Operate	1	1	1	1	1	1	1	1	1	-
	Replace	-	-	-	-	-	1	-	-	-	1
Crane-15 t	Buy	1	-	-	-	-	1	-	-	-	2
	Operate	1	1	1	1	1	1	1	1	1	-
	Replace	-	-	-	-	-	1	-	-	-	1
Tire Truck	Buy	1	-	-	-	-	1	1	1	-	4
	Operate	1	1	1	1	1	1	1	1	1	-
	Replace	-	-	-	-	-	1	1	1	-	3
Tire Changer	Buy	1	-	-	-	-	-	-	-	-	1
	Operate	1	1	1	1	1	1	1	1	1	-
Back Hoe- $\frac{1}{2}$ cu. m.	Buy	1	-	-	-	-	1	1	1	-	4
	Operate	1	1	1	1	1	1	1	1	1	-
	Replace	-	-	-	-	-	1	1	1	-	3
Personnel Bus	Buy	2	-	-	-	-	2	2	2	-	8
	Operate	2	2	2	2	2	2	2	2	2	-
	Replace	-	-	-	-	-	2	2	2	-	6
Fire Truck	Buy	1	-	-	-	-	-	-	-	-	1
	Operate	1	1	1	1	1	1	1	1	1	-
Ambulance	Buy	1	-	-	-	-	-	-	-	-	1
	Operate	1	1	1	1	1	1	1	1	1	-
Truck-1 $\frac{1}{2}$ - 5 t	Buy	2	-	-	-	-	2	2	2	-	8
	Operate	2	2	2	2	2	2	2	2	2	-
	Replace	-	-	-	-	-	2	2	2	-	6
Truck-3/4 t	Buy	18	2	2	20	2	46	28	44	-	162
	Operate	18	20	22	24	24	24	24	24	12	-
	Replace	-	-	-	18	2	46	28	56	-	150
Communication System	Buy	1	-	-	-	-	1	-	-	-	2
	Operate	1	1	1	1	1	1	1	1	1	-
	Replace	-	-	-	-	-	1	-	-	-	1
Lowboy	Buy	1	-	-	-	-	1	-	-	-	2
	Operate	1	1	1	1	1	1	1	1	1	-
	Replace	-	-	-	-	-	1	-	-	-	1

C

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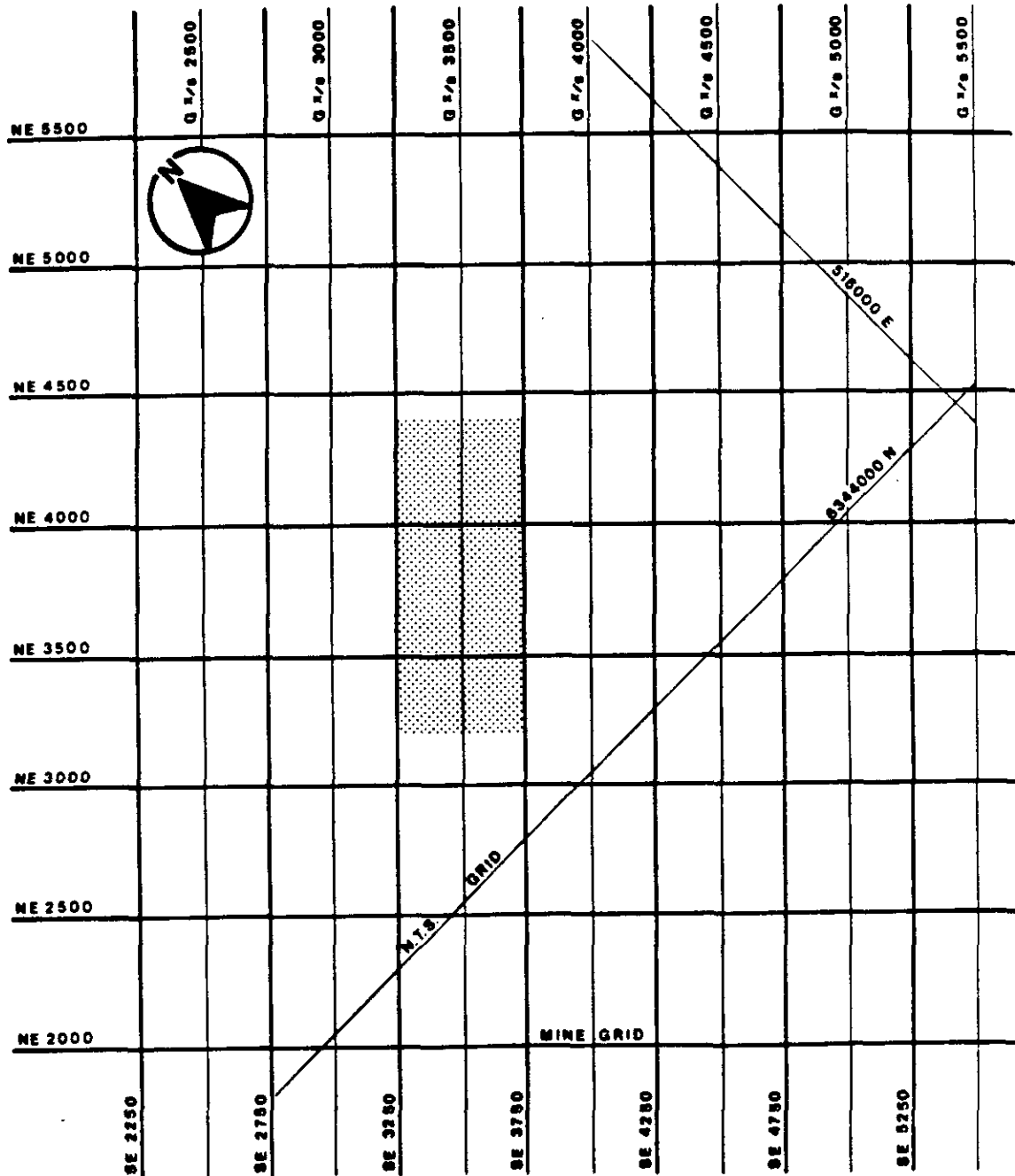
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TABLE 3.4
MINE LABOUR REQUIREMENTS - 1 Mtpy Case

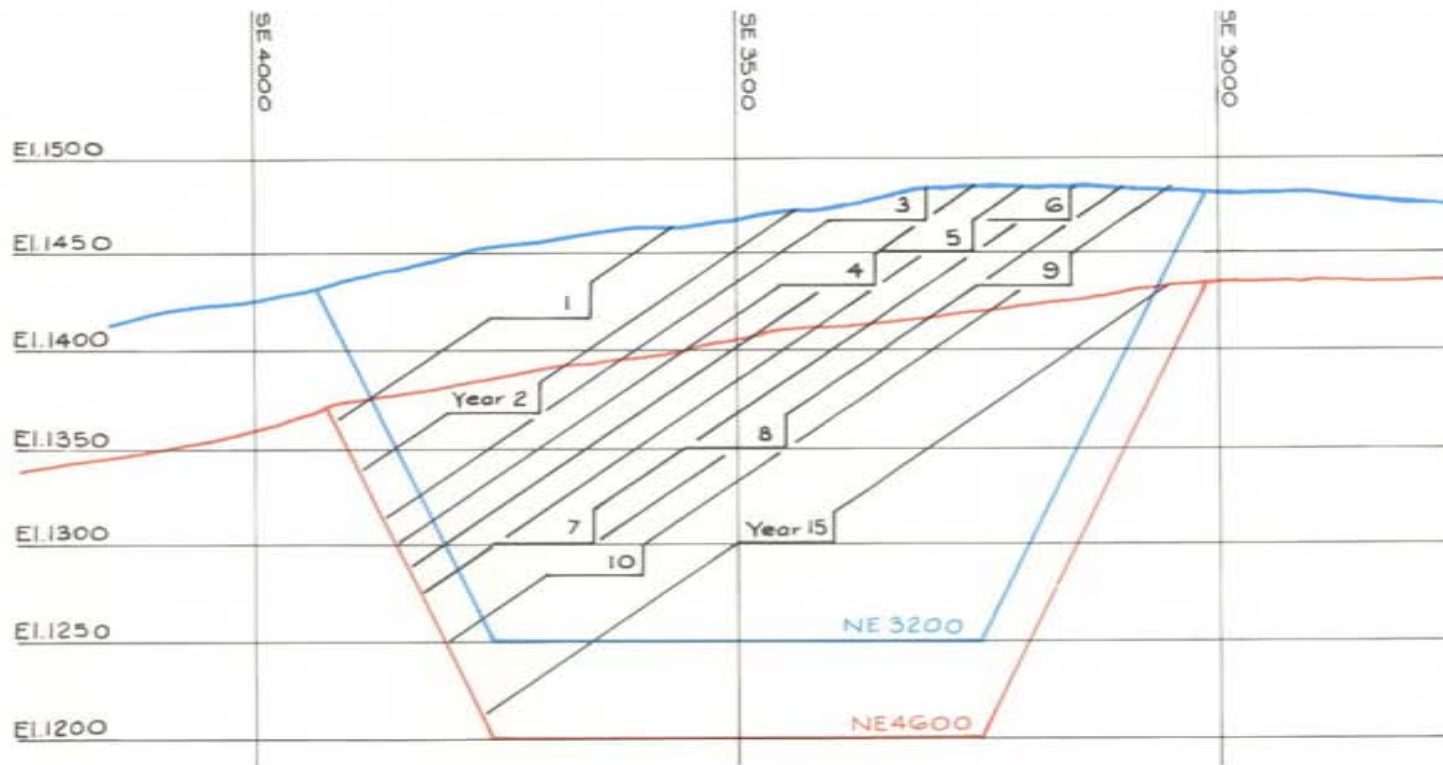
	Year								
	1	2	3	4	5	6-10	11-15	16-20	21
Mine Supervision and Engineering	22	22	22	22	22	22	22	22	17
Mine Operating Labour	106	132	119	120	120	119	117	119	94
Maintenance Supervision	13	13	13	13	13	13	13	13	13
Maintenance Labour	80	102	91	93	91	92	91	93	72
TOTAL	221	269	245	248	246	246	243	247	196

FIGURE 3.1

BOUNDARY OF AREAL EXTENT OF
MINING AREA AT PIT BOTTOM - 1 Mtpy CASE



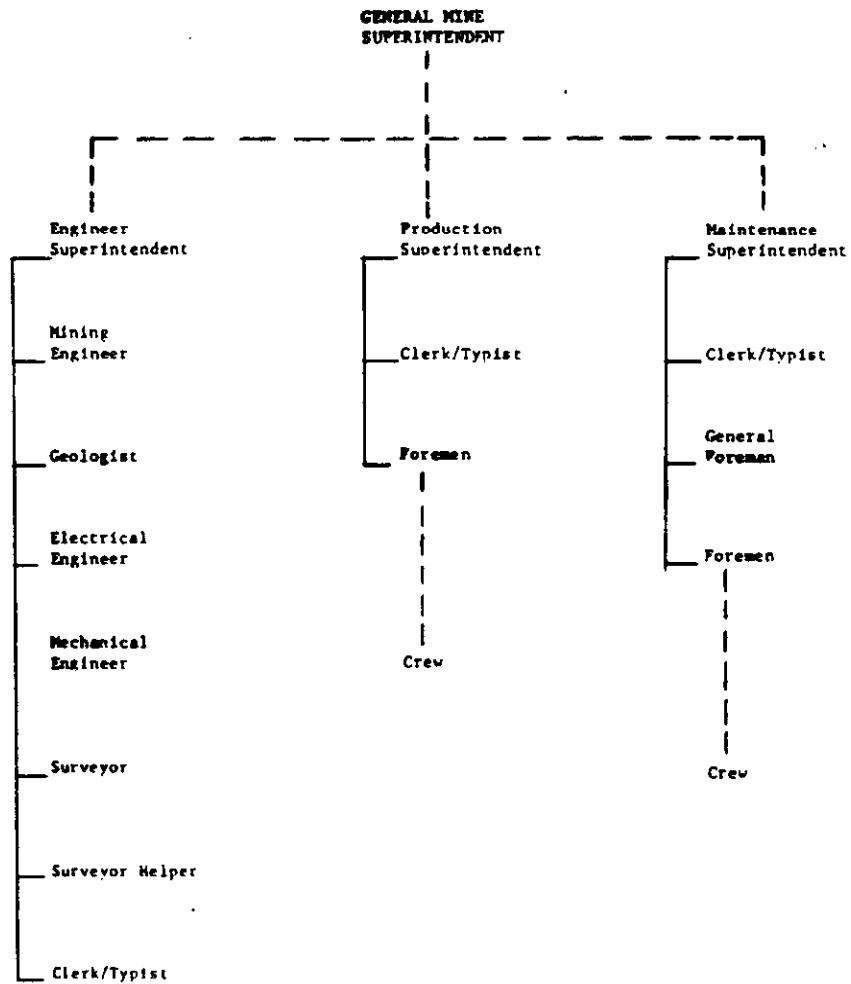
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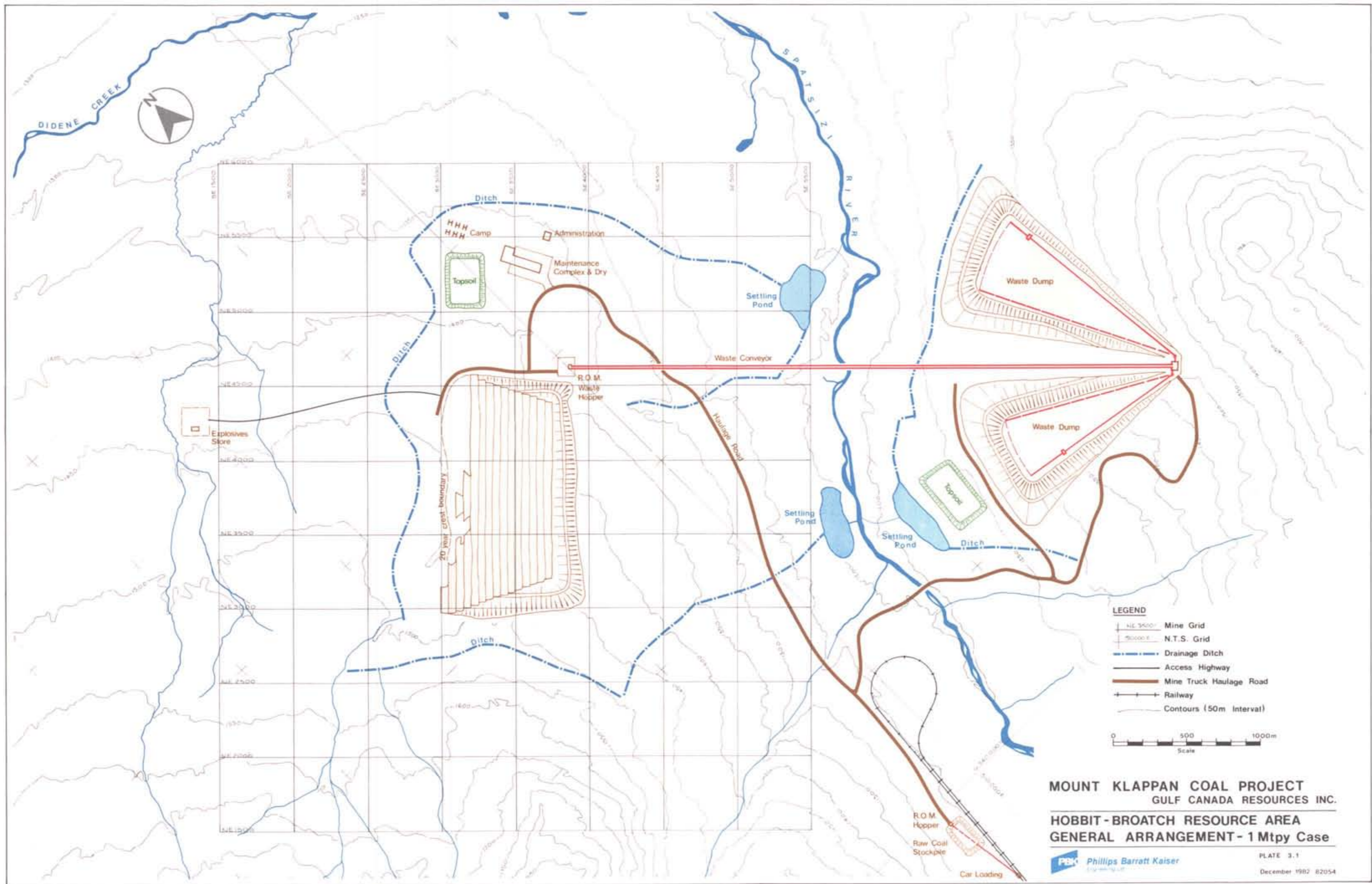


1 Mtpy LONGITUDINAL SECTION OF MINE
SHOWING YEARLY PROGRESSION

Figure 3.2

FIGURE 3.3
ORGANIZATION CHART 1 Mtpy Case
MINING





LEGEND

- Mine Grid
- N.T.S. Grid
- - - Drainage Ditch
- Access Highway
- Mine Truck Haulage Road
- Railway
- Contours (50m Interval)

0 500 1000m
Scale

MOUNT KLAPPAN COAL PROJECT
GULF CANADA RESOURCES INC.
HOBBIT-BROATCH RESOURCE AREA
GENERAL ARRANGEMENT - 1 Mtpy Case

5 Mtpy CASE

TABLE 3.6
MATERIAL MOVEMENT SCHEDULE - 5 Mtpy Case

	Units* x 10 ³	YEARS												21-23	Total
		-4	-3	-2	-1	1	2	3	4	5	6-10	11-15	16-20		
Product															
Shipped	t	-	-	-	500	3 000	5000	5 000	5 000	5 000	25 000	25 000	25 000	7 379	105 879
Mine															
Waste Mine	m ³	-	-	-	3 030	20 382	39 471	38 508	38 270	40 806	237 423	229 630	215 675	66 575	929 770
Coal ROM	t	-	-	-	692	4 152	6 921	6 921	6 921	6 921	34 603	34 603	34 603	10 213	146 550
Statistics Strip Ratio (ROM)	m ³ /t	-	-	-	4.4	4.9	5.7	5.6	5.5	5.9	6.9	6.6	6.2	6.5	6.3
Mine Construction															
Roads	m ³	-	160	139	11	11	11	11	11	11	102	114	114	-	698
Ditches	m ³	-	-	115	-	-	-	-	-	-	-	-	-	-	115
Pond Topsoil	m ³	-	-	294	-	-	-	-	-	-	-	-	-	-	294
Waste Disposition															
Waste from Prep Pit	m ³	-	-	-	67	402	671	671	671	671	3 356	3 356	3 356	989	14 211
Waste to Dump	m ³	-	-	-	3 097	20 784	40 142	39 179	38 941	41 477	240 779	113 903	-	-	538 303
Waste to Pit	m ³	-	-	-	-	-	-	-	-	-	-	119 083	219 031	67 564	405 678
Reclamation															
Topsoil Excavated Mine Area	m ³	-	-	352	352	352	352	352	352	352	503	503	403	-	3 878
Waste Dump Area	m ³	-	-	302	302	302	302	302	176	176	880	528	-	-	3 270
Topsoil Rehandled	m ³	-	-	-	-	-	-	-	362	362	1 813	935	478	529	4 481
Topsoil Spread	m ³	-	-	-	-	-	-	-	538	538	2 693	1 967	882	529	7 148

All volumes in bank equivalents

Decimal places in the above table have been rounded out for clarity of presentation.

* Does not apply to the stripping ratio.

TABLE 3.7

MINE MAJOR EQUIPMENT SCHEDULE - 5 Mtpy Case

Description/Year of Operation	-1	1	2	3	4	5	6-10	11-15	16-20	21	22	TOTAL
Shovel-24.5 cu. m.	Buy	1	2	2	-	-	1	-	-	-	-	6
	Operate	1	3	5	5	5	6	6	6	6	3	-
	Spare	-	-	-	-	-	-	-	-	-	3	-
Shovel-Hyd.	Buy	1	-	2	-	-	1	2	-	-	-	6
	Operate	1	1	3	2	2	3	3	2	2	1	-
	Spare	-	-	-	1	1	-	-	-	1	2	-
	Replace	-	-	-	-	-	1	2	-	-	-	3
Truck-154 t	Buy	3	18	18	-	-	6	27	2	-	-	74
	Operate	3	21	39	35	39	45	72	74	67	74	44
	Spare	-	-	-	4	-	-	-	-	7	-	30
Conveyor System	Buy	1	-	-	-	-	-	-	-	-	-	1
	Operate	1	1	1	1	1	1	1	-	-	-	-
	Spare	-	-	-	-	-	-	1	-	-	-	-
OB Drill BE-55R	Buy	1	1	2	-	-	-	-	-	-	-	4
	Operate	1	2	4	4	4	4	4	4	4	4	2
	Spare	-	-	-	-	-	-	-	-	-	2	-
OB Drill BE-2450	Buy	1	-	1	-	-	-	-	-	-	-	2
	Operate	1	1	2	2	2	2	2	2	2	1	-
	Spare	-	-	-	-	-	-	-	-	-	1	-
FE Loader L-300	Buy	-	1	-	-	-	1	1	1	-	-	4
	Operate	-	1	1	1	1	1	1	1	1	1	-
	Replace	-	-	-	-	-	1	1	1	-	-	3
Dozer D-8L	Buy	5	4	4	5	4	4	24	24	18	-	92
	Operate	5	9	13	13	13	13	14	14	12	12	6
	Spare	-	-	-	-	-	-	-	-	-	6	-
	Replace	-	-	-	5	4	4	23	24	20	-	-
Dozer 834	Buy	1	-	-	-	-	1	1	1	-	-	5
	Operate	1	1	1	1	1	1	1	1	1	1	-
	Replace	-	-	-	-	-	1	1	1	-	-	4

TABLE 3.8

MINE AUXILIARY EQUIPMENT SCHEDULE - 5 Mtpy Case

Description/Year of Operation		-1	1	2	3	4	5	6-10	11-15	16-20	21	22	TOTAL
Lube Truck	Buy	1	1	-	-	-	-	2	2	2	-	-	8
	Operate	1	2	2	2	2	2	2	2	2	2	1	-
	Spare	-	-	-	-	-	-	-	-	-	-	1	-
	Replace	-	-	-	-	-	-	2	2	2	-	-	6
Fuel Truck	Buy	1	1	-	-	-	-	2	2	2	-	-	8
	Operate	1	2	2	2	2	2	2	2	2	2	1	-
	Spare	-	-	-	-	-	-	-	-	-	-	1	-
	Replace	-	-	-	-	-	-	-	2	2	2	-	6
Water Truck	Buy	1	1	-	-	-	-	-	-	-	-	-	2
	Operate	1	2	2	2	2	2	2	2	2	2	1	-
	Spare	-	-	-	-	-	-	-	-	-	-	1	-
Grader -16G	Buy	1	2	-	-	-	-	3	3	3	-	-	12
	Operate	1	3	3	3	3	3	3	3	3	3	2	-
	Spare	-	-	-	-	-	-	-	-	-	-	1	-
	Replace	-	-	-	-	-	-	3	3	3	-	-	9
Light Tower	Buy	6	3	9	-	-	-	21	21	12	-	-	72
	Operate	6	9	18	18	18	18	21	21	21	21	12	-
	Spare	-	-	-	-	-	-	-	-	-	-	9	-
	Replace	-	-	-	-	-	-	18	21	12	-	-	51
Pump-Dewatering	Buy	6	-	-	-	-	-	6	6	6	-	-	24
	Operate	6	6	6	6	6	6	6	6	6	6	6	-
	Replace	-	-	-	-	-	-	6	6	6	-	-	18
Truck-50 t	Buy	1	2	-	-	-	-	1	2	-	-	-	6
	Operate	1	3	3	3	3	3	3	3	3	3	2	-
	Spare	-	-	-	-	-	-	-	-	-	-	1	-
	Replace	-	-	-	-	-	-	1	2	-	-	-	3
Crane-110 t	Buy	1	-	-	-	-	-	1	-	-	-	-	2
	Operate	1	1	1	1	1	1	1	1	1	1	1	-
	Replace	-	-	-	-	-	-	1	-	-	-	-	1
Crane-15 t	Buy	1	-	-	-	-	-	1	-	-	-	-	2
	Operate	1	1	1	1	1	1	1	1	1	1	1	-
	Replace	-	-	-	-	-	-	1	-	-	-	-	1
Tire Truck	Buy	1	-	-	-	-	-	1	1	1	-	-	4
	Operate	1	1	1	1	1	1	1	1	1	1	1	-
	Replace	-	-	-	-	-	-	1	1	1	-	-	3
Tire Changer	Buy	1	-	-	-	-	-	-	-	-	-	-	1
	Operate	1	1	1	1	1	1	1	1	1	1	1	-
Back Hoe- $\frac{1}{2}$ cu. m.	Buy	1	-	-	-	-	-	1	1	1	-	-	4
	Operate	1	1	1	1	1	1	1	1	1	1	1	-
	Replace	-	-	-	-	-	-	1	1	1	-	-	3
Personnel Bus	Buy	2	1	-	-	-	-	3	3	3	-	-	12
	Operate	2	3	3	3	3	3	3	3	3	3	2	-
	Spare	-	-	-	-	-	-	-	-	-	-	1	-
	Replace	-	-	-	-	-	-	3	3	3	-	-	9
Fire Truck	Buy	1	-	-	-	-	-	-	-	-	-	-	1
	Operate	1	1	1	1	1	1	1	1	1	1	1	-
Ambulance	Buy	1	-	-	-	-	-	-	-	-	-	-	1
	Operate	1	1	1	1	1	1	1	1	1	1	1	-
Truck-1 $\frac{1}{2}$ - 5 t	Buy	3	1	-	-	-	-	4	4	4	-	-	16
	Operate	3	4	4	4	4	4	4	4	4	4	4	-
	Replace	-	-	-	-	-	-	4	4	4	-	-	12
Truck-3/4 t	Buy	10	10	2	12	14	2	54	42	44	-	-	190
	Operate	10	20	22	24	28	28	28	28	28	28	16	-
	Spare	-	-	-	-	-	-	-	-	-	-	12	-
	Replace	-	-	-	10	10	2	54	42	44	-	-	162
Communication System	Buy	1	-	-	-	-	-	1	-	-	-	-	2
	Operate	1	1	1	1	1	1	1	1	1	1	1	-
	Replace	-	-	-	-	-	-	1	-	-	-	-	1
Lowboy	Buy	1	-	-	-	-	-	1	-	-	-	-	2
	Operate	1	1	1	1	1	1	1	1	1	1	1	-
	Replace	-	-	-	-	-	-	1	-	-	-	-	1

C

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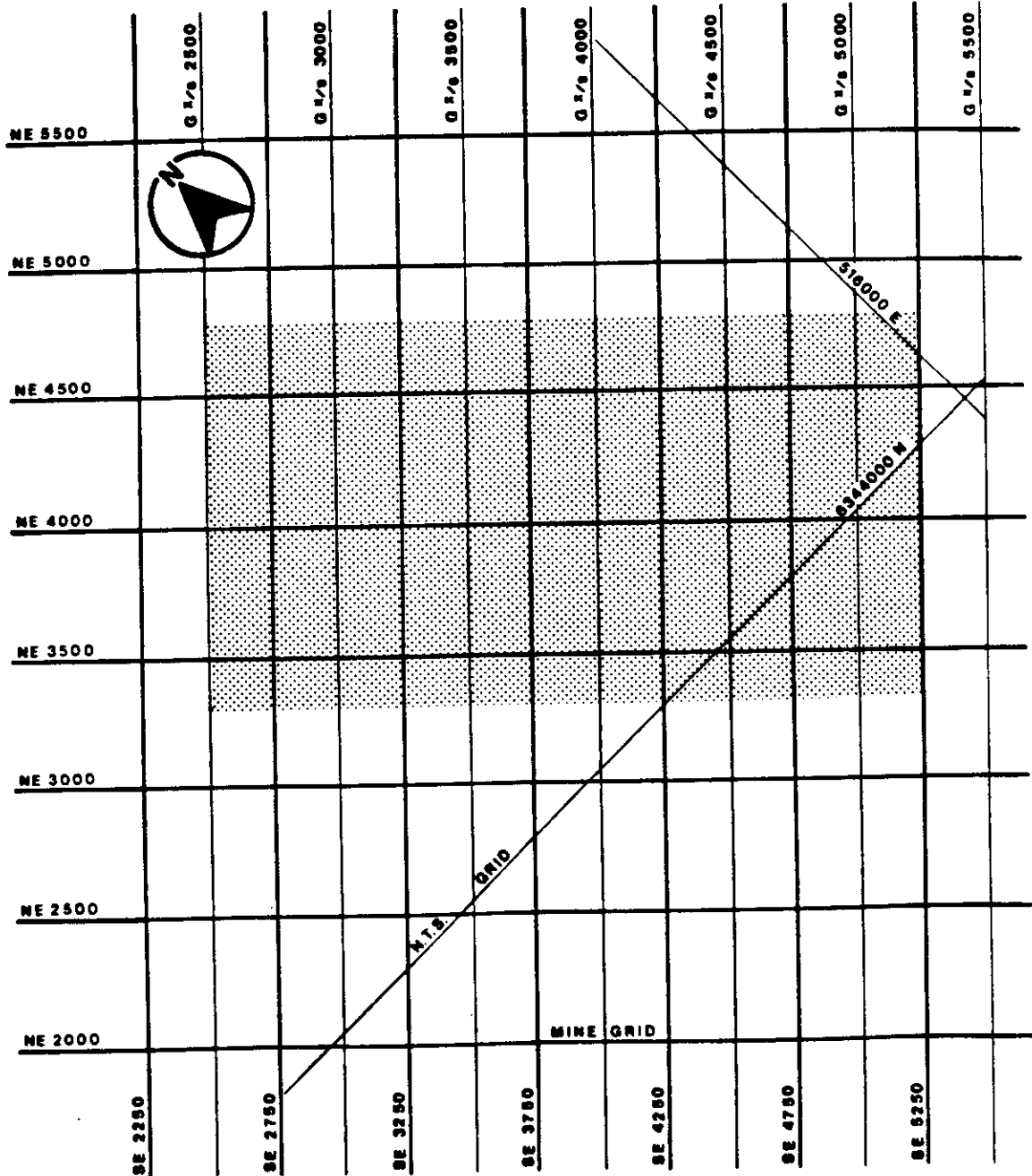
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TABLE 3.9
MINE LABOUR REQUIREMENTS - 5 Mtpy Case

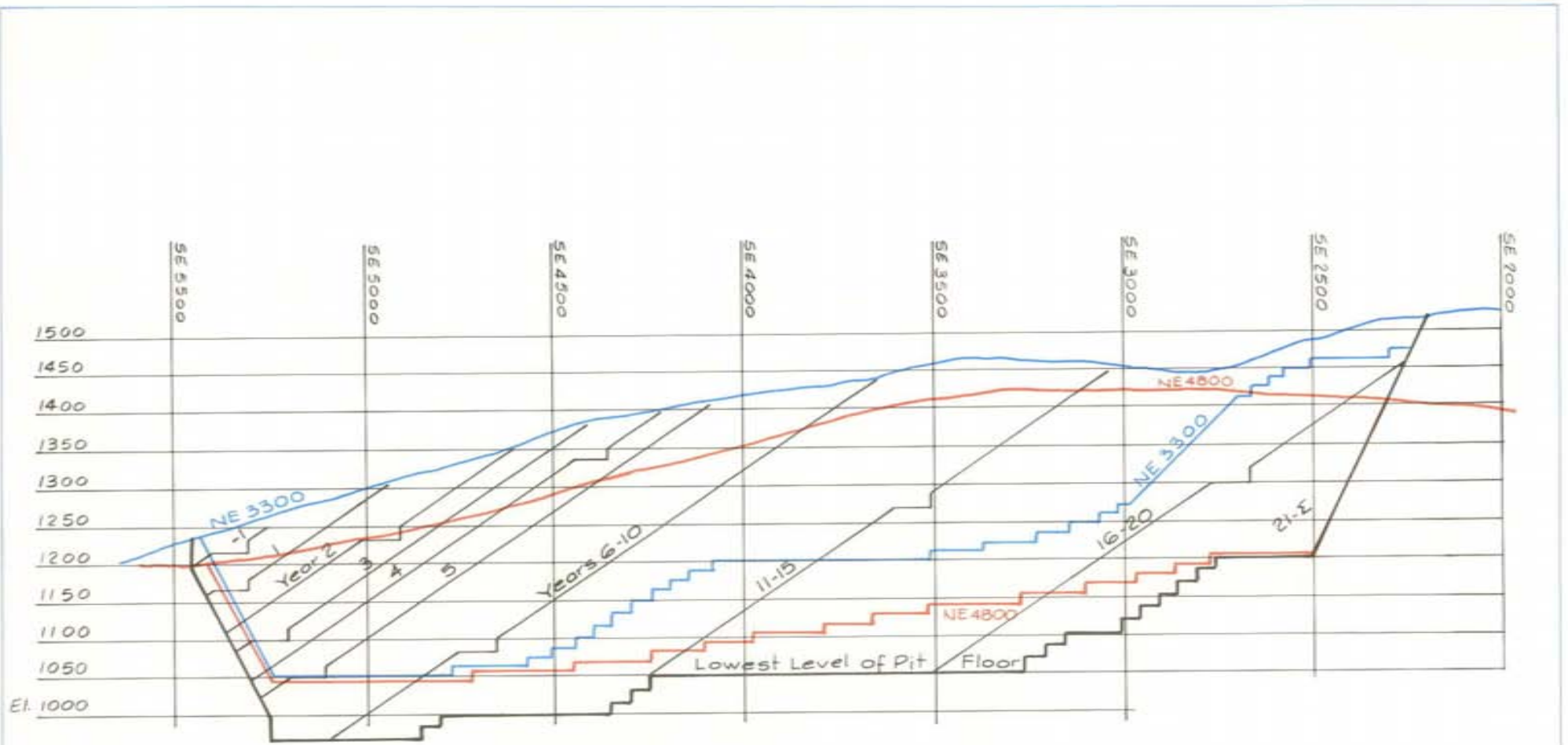
	Years										
	-1	1	2	3	4	5	6-10	11-15	16-20	21	22
Mine Supervision and Engineering	54	54	54	54	54	54	54	54	54	54	30
Mine Operating Labour	78	204	312	297	310	234	437	439	411	439	269
Maintenance Supervision	38	38	38	38	38	38	38	38	38	38	28
Maintenance Labour	61	149	237	224	236	255	346	348	325	349	216
TOTAL	231	445	641	613	638	581	875	879	828	880	543

FIGURE 3.4

BOUNDARY OF AREAL EXTENT OF
MINING AREA AT PIT BOTTOM - 5 Mtpy CASE

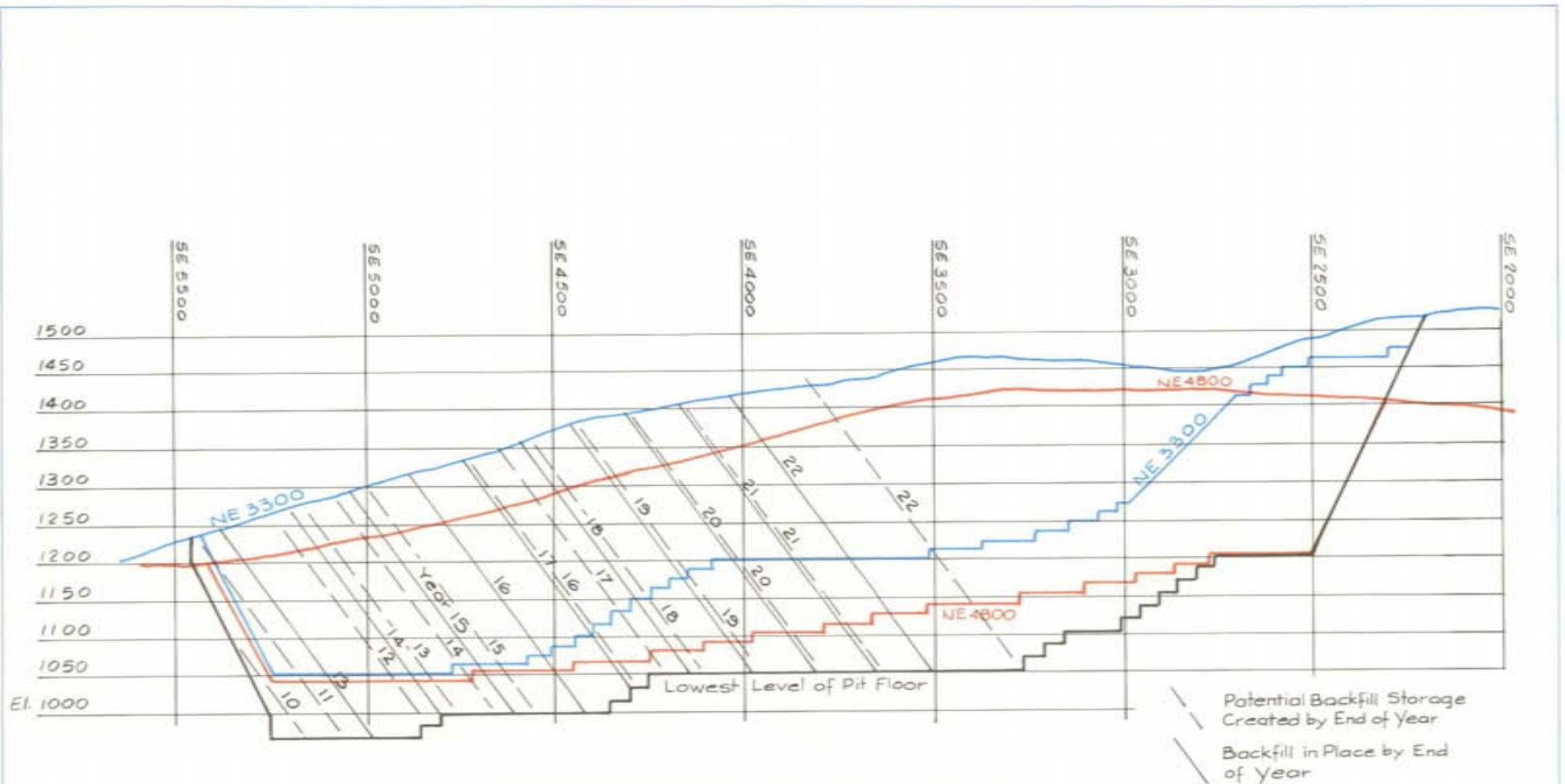


G x/s Geology Cross Section
N.T.S. National Topographical Survey



5 Mtpy LONGITUDINAL SECTION OF MINE
SHOWING YEARLY PROGRESSION

Figure 3.5



5 Mtpy LONGITUDINAL SECTION OF MINE
SHOWING BACKFILL PROGRESSION

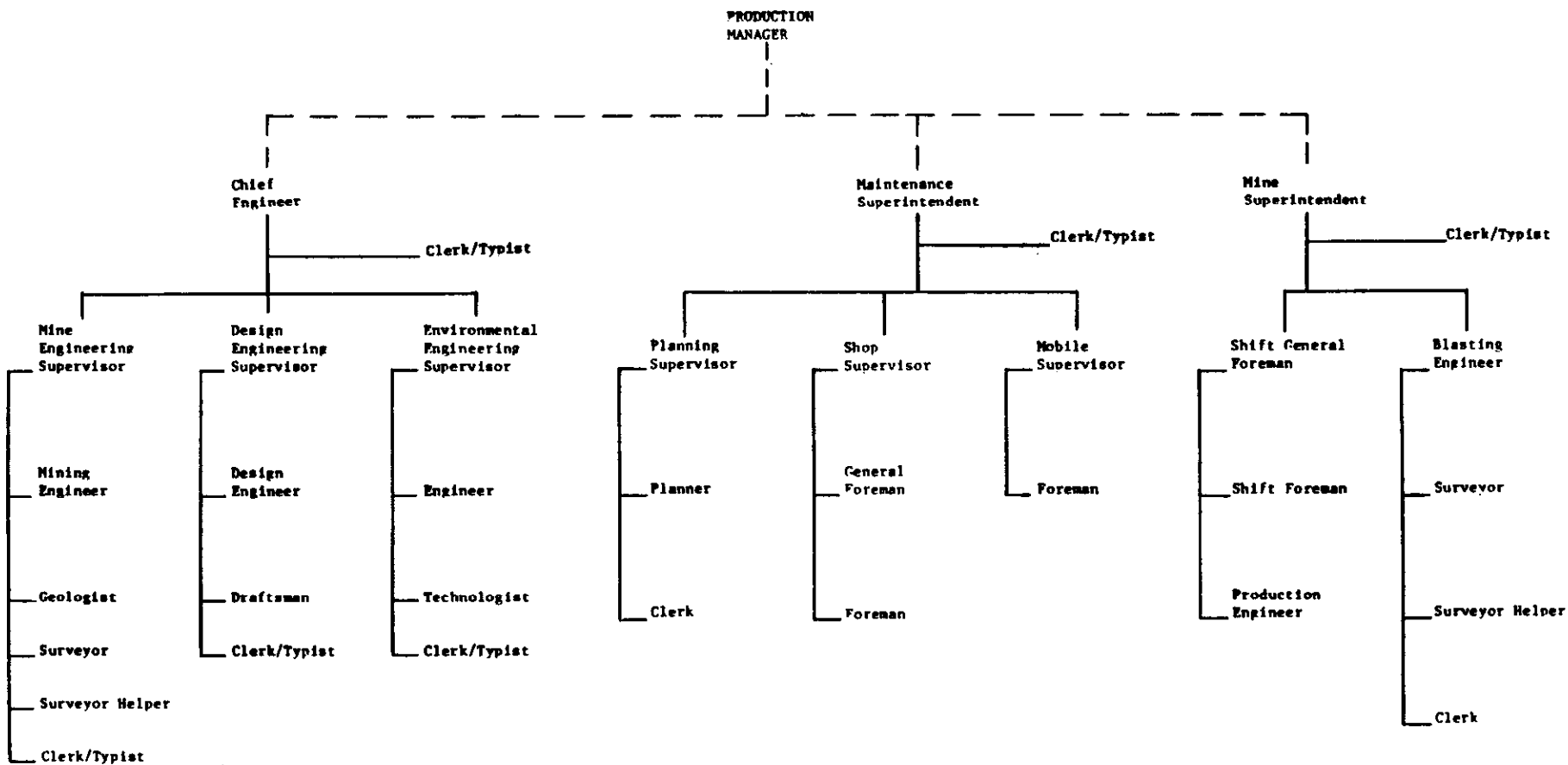
Figure 3.6

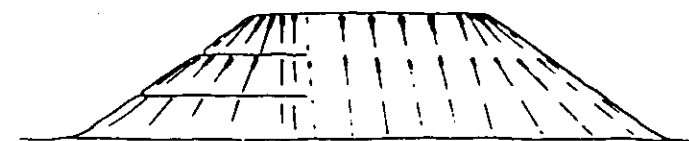
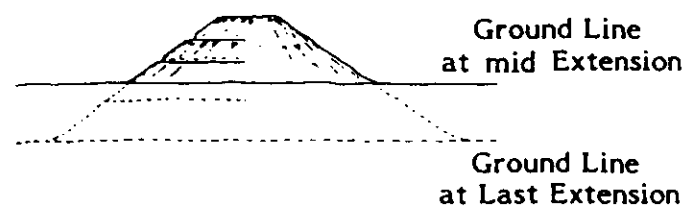
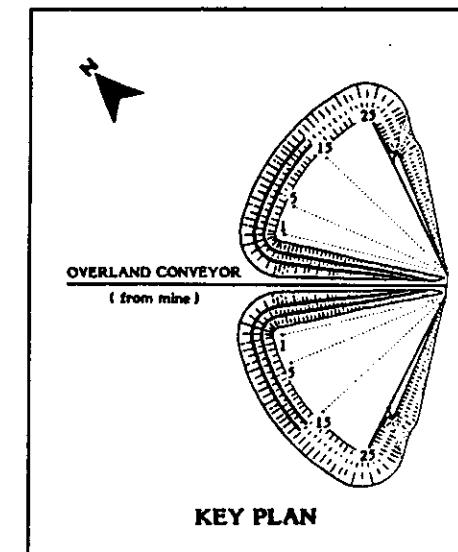
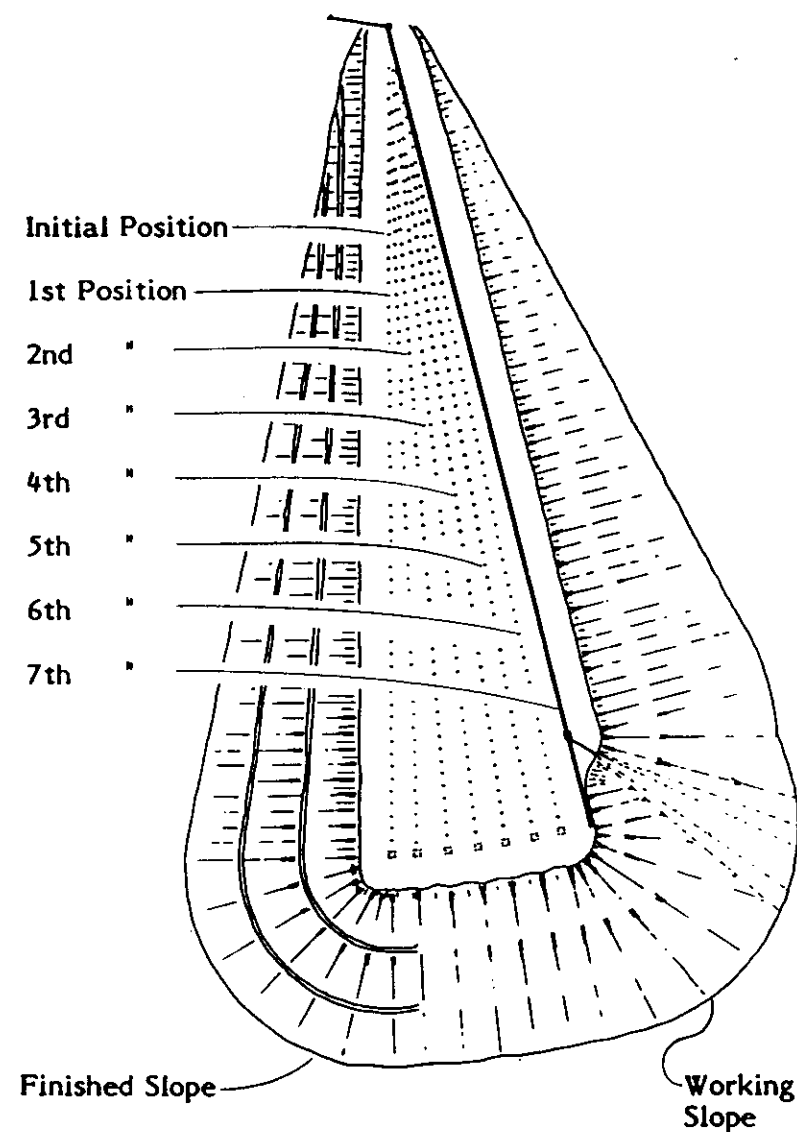
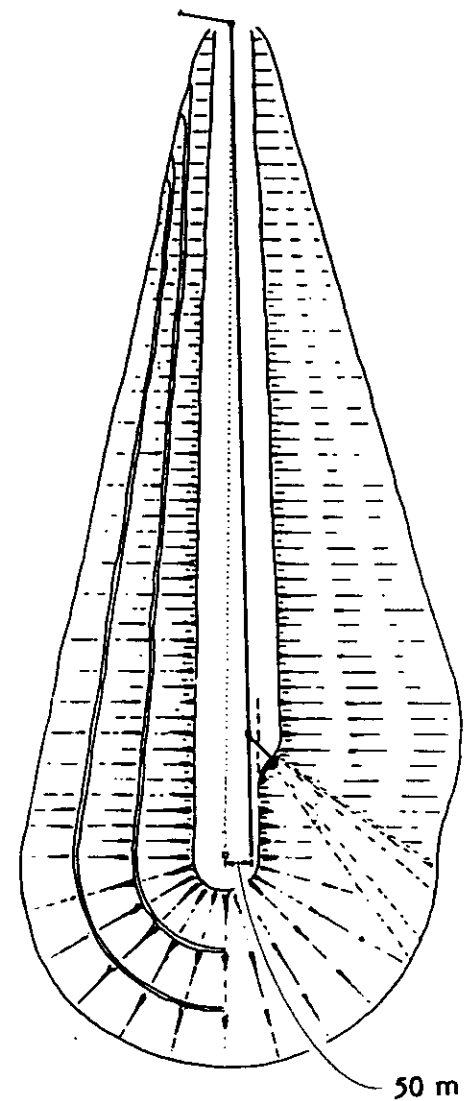
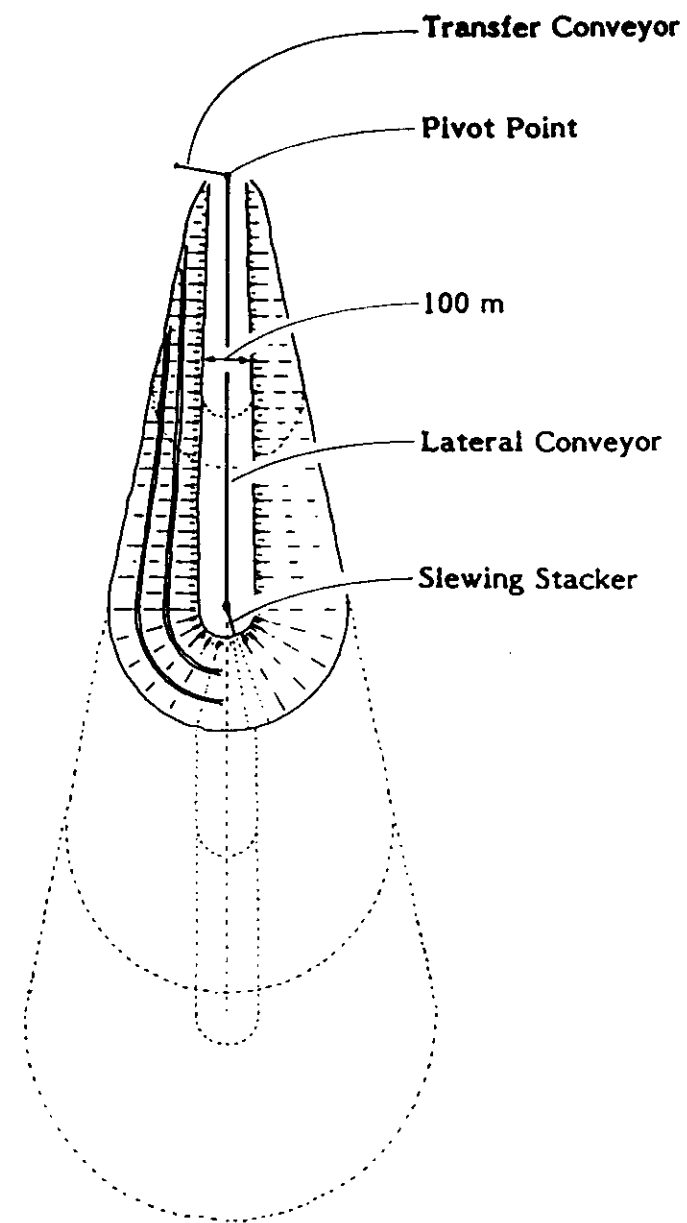
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FIGURE 3.7
ORGANIZATION CHART 5 Mtpy Case
MINING





Initial Construction
by Extension of Conveyor

Dump Extension by Radial
Slewing of Conveyor - 1st Slew

Dump Extension by Radial
Slewing of Conveyor - 7th Slew

FIGURE 3.8
WING WASTE
DUMP CONSTRUCTION

FIGURE 3.9

MINE PROGRESSION AT END OF YEAR 5
5 Mtpy Case

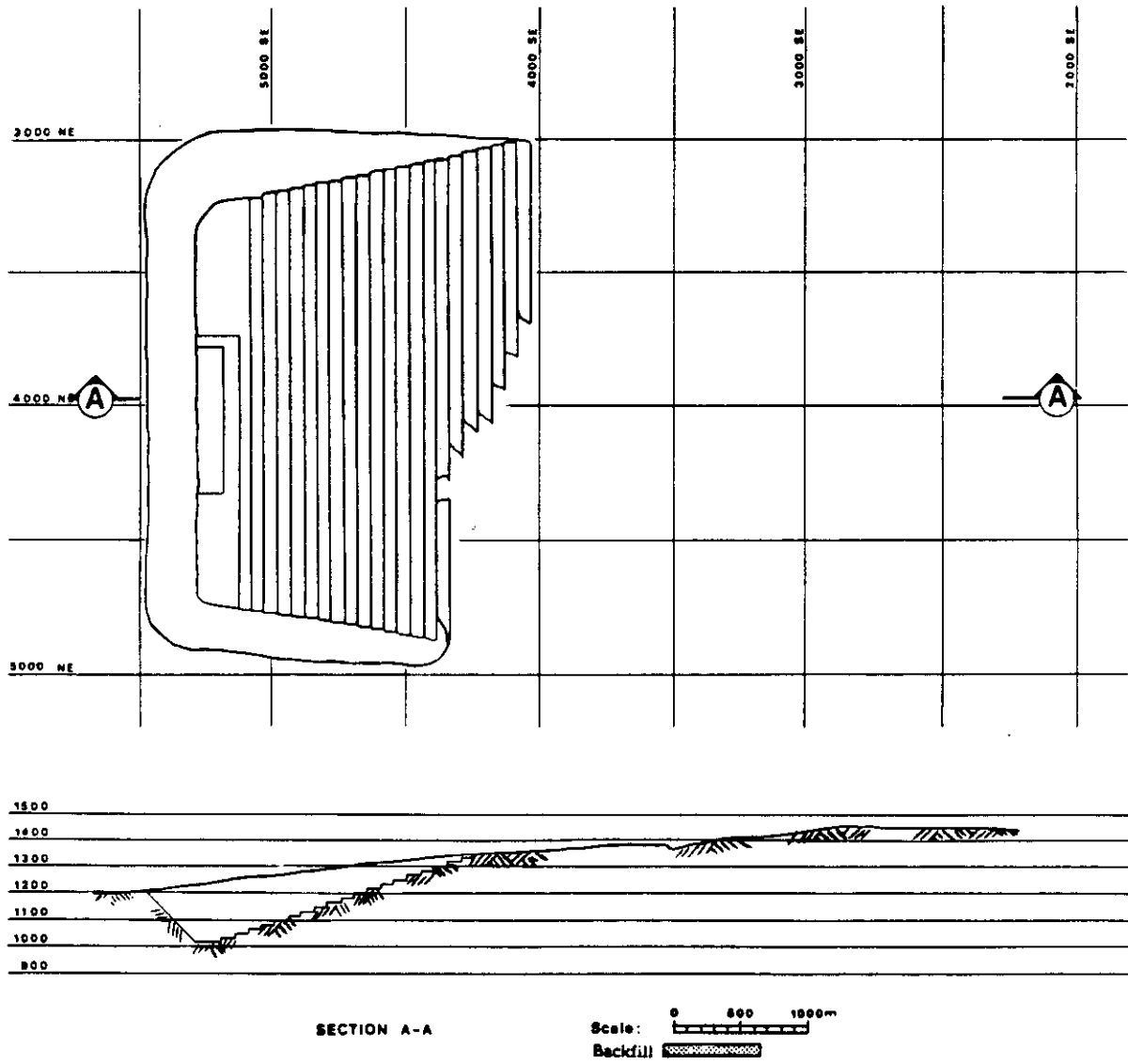
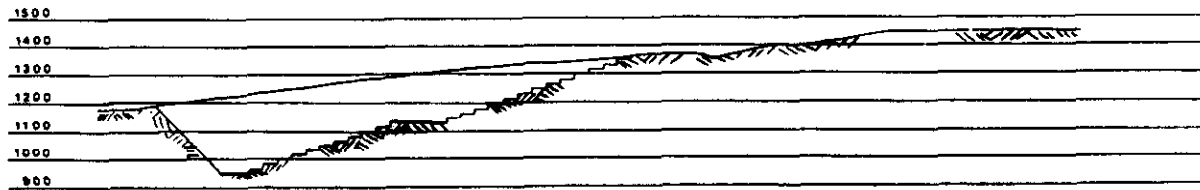
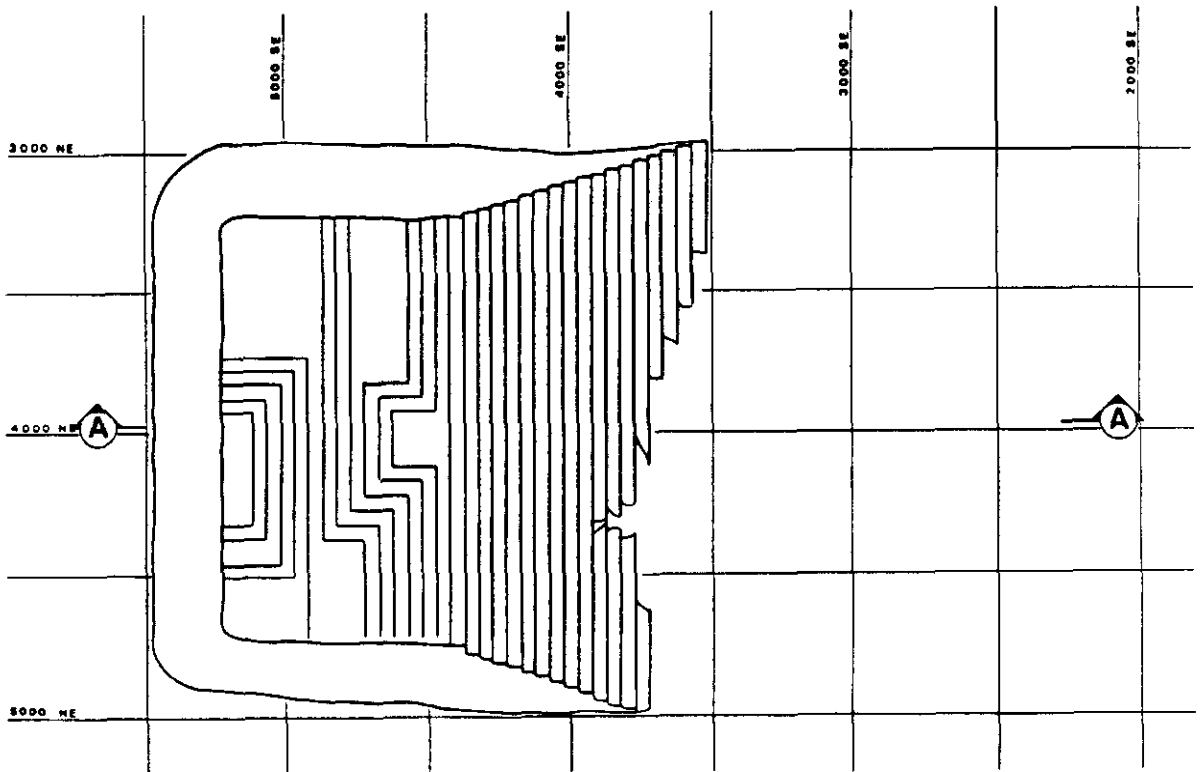


FIGURE 3.10

MINE PROGRESSION AT END OF YEAR 10
5 Mtpy Case



SECTION A-A


Scale: 0 500 1000 m
Backfill 

FIGURE 3.11

MINE PROGRESSION AT END OF YEAR 15
5 Mtpy Case

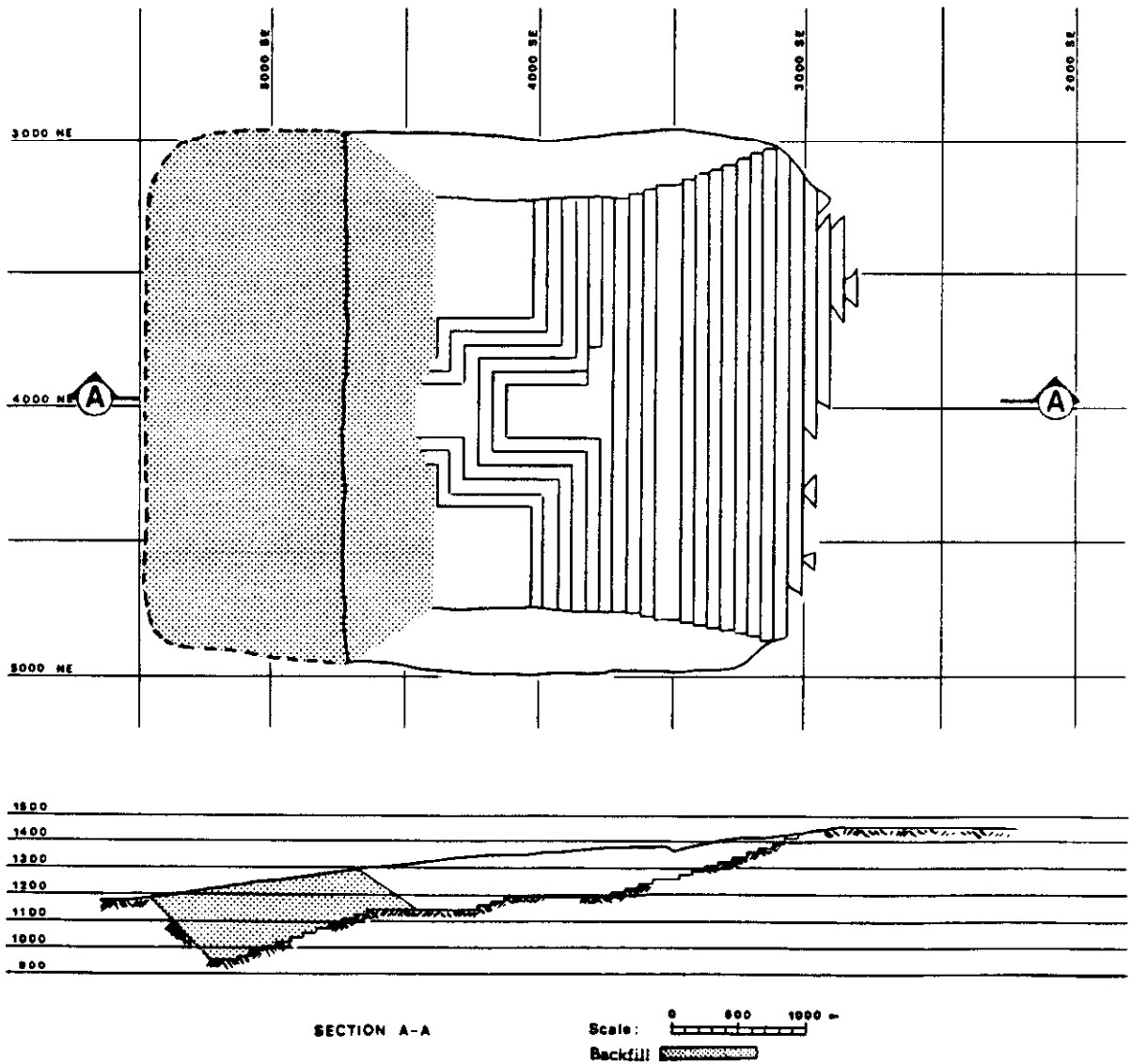
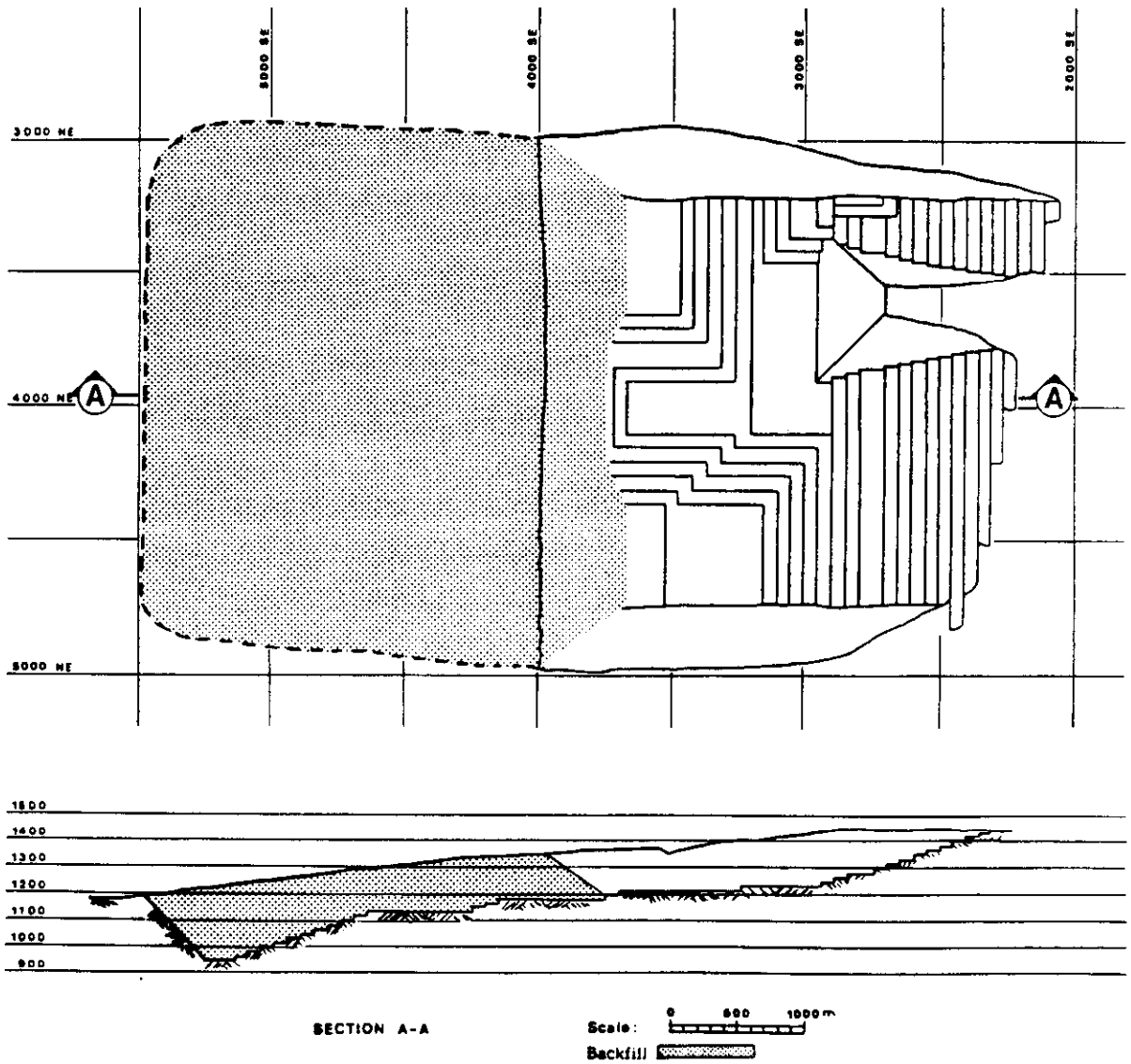
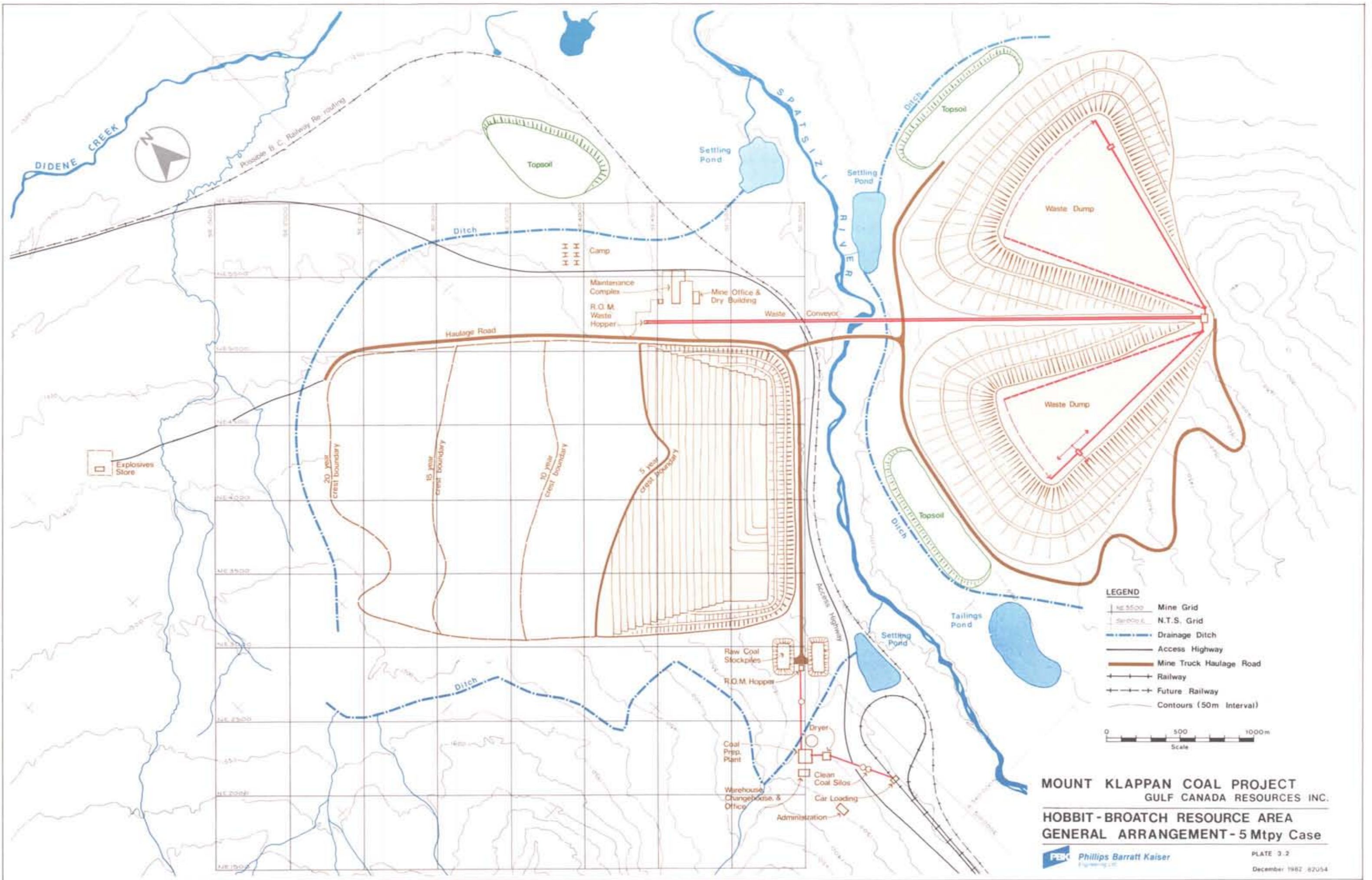


FIGURE 3.12

MINE PROGRESSION AT END OF YEAR 20
5 Mtpy Case





PART 4
MINE SITE INFRASTRUCTURE

PART 4 - MINESITE INFRASTRUCTURE

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431 Surface	4-1
432 Pit Drainage	4-2
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451 1 Mtpy Case	4-3
452 5 Mtpy Case	4-3

Table

- 4.1 Administration Labour Requirements - 1 Mtpy Case and 5 Mtpy Case

Figure

- 4.1 Organization Chart - 1 Mtpy Case - Administration
- 4.2 Administration Chart - 5 Mtpy Case - Administration

4.1 INTRODUCTION

This section presents a brief description of the major support facilities and services required to administer and maintain the project's production. The 1 Mtpy Case is based on a fly-in-type operation with all personnel living in a camp. The 5 Mtpy Case is based on employees residing in a new town built near the mine operation.

4.2 ROADS

421 HAUL ROADS

The layout of the coal and waste haulage roads are shown on Plate 3.1 for the 1 Mtpy Case and Plate 3.2 for the 5 Mtpy Case. A sequence of road extensions will be required as the mine is developed.

422 ACCESS ROADS

Separate roads will be constructed to provide access between major work centres. Other access roads connecting the waste dumps, explosives store, and other areas will connect to the haulage roads.

423 RAMPS

In-pit ramps will be constructed as an on-going operating function. These ramps will connect the various benches within the pit to the surface haulage roads.

4.3 DRAINAGE

431 SURFACE DRAINAGE

Mine plans call for perimeter ditching as shown on Plates 3.1 and 3.2 for the two mining cases. These ditches will intercept surface water courses and also divert run-off. The collected water will pass to collecting and settling ponds prior to release.

432 PIT DRAINAGE

In-pit sumps and pumping systems will be provided as necessary. This system will collect water from the mine and pump it to containment ponds prior to release.

4.4 SERVICES

441 WATER SUPPLY

Water for process, domestic and fire use is assumed for this assessment to be available on or near the plantsite. No investigations have been made yet into the source and supply of water.

442 ELECTRIC POWER

Electrical power is from a 138 kV supply through substations and thence to the two major load demand areas - mine and plant.

The mine will be serviced from a pit boundary loop using stationary and portable substations.

443 SHOPS AND WAREHOUSE

A large shop and warehouse complex is provided. This will contain all the necessary equipment and support facilities to adequately maintain and service all mine related equipment. The following bays will be provided: box-up maintenance, lubrication, tire maintenance, welding, track vehicle, vehicle washing and light vehicles. The complex will also house a machine shop, electrical shops, warehouse facilities and offices. In the 1 Mtpy case the warehouse and shop complex will also house the mine dry.

444 FUEL SUPPLY

Fuel and lubricant supply and storage have not been included. It is assumed for the assessment that this service will be supplied on a service contract.

4.5 ADMINISTRATION

451 1 Mtpy CASE

In the 1 Mtpy Case an office building for plantsite personnel has been included: Figure 4.1 presents an organization chart and Table 4.1 summarizes the labour.

A separate office in Smithers will be necessary for 24 staff.

452 5 Mtpy CASE

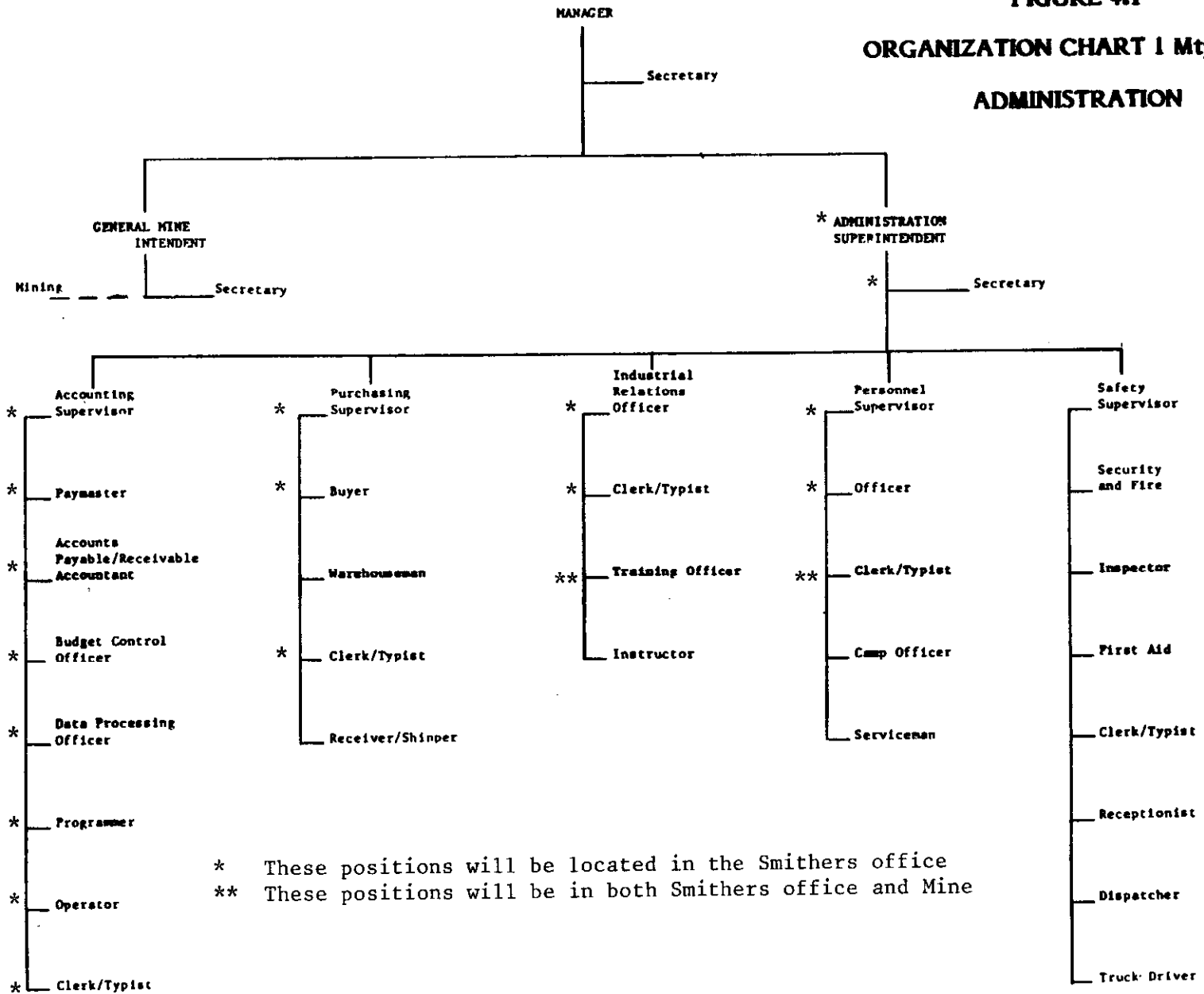
The administrative personnel for the 5 Mtpy Case will live in the nearby townsite and operate from the Administration building located on the site. Figure 4.2 presents the organization chart and Table 4.1 summarizes the labour requirements.

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FIGURE 4.1
ORGANIZATION CHART 1 Mtpy Case
ADMINISTRATION



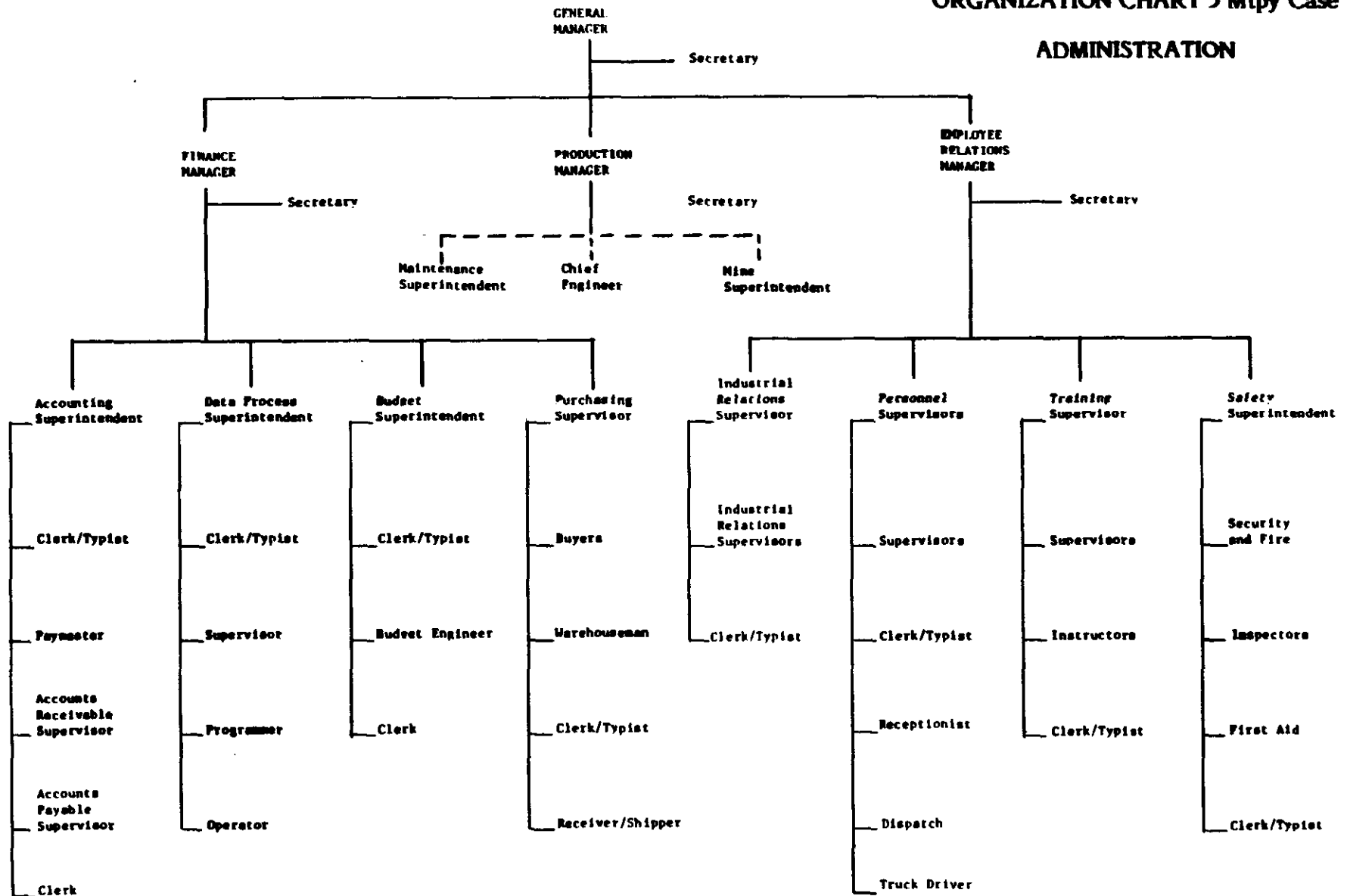
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FIGURE 4.2

ORGANIZATION CHART 5 Mtpy Case
ADMINISTRATION



PART 5

ASSESSMENT PARAMETERS - MINING

PART 5 - ASSESSMENT PARAMETERS

MINING

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Table

- 5.1 Staff Classification
- 5.2 Non-Supervisory Classification
- 5.3 Major Equipment Availability - Hours Per Year

5.1 INTRODUCTION

This Part records all the study parameters and assumptions for mining as used to design the mine, to size and select equipment and to estimate labour requirements.

5.2 LABOUR

521 INTRODUCTION

This subsection on labour provides the assumptions on which the labour classifications, hours and costs have been estimated.

522 PERSONNEL

.1 Classification

Table 5-1 lists mine site supervisory and support staff classifications; Table 5-2 lists hourly paid personnel classifications.

.2 Age of Equipment

Varying needs for maintenance labour as a function of equipment ages are not addressed in this study.

.3 Shift cycles and systems will be as shown in the following tabulation:

	<u>1 Mtpy Case</u>	<u>5 Mtpy Case</u>
Shifts per week	14	21
Hours per shift	12	8
Labour Arrangement	26 weeks x 7 shifts x 12 hours	52 weeks x 5 shifts x 8 hours

.4 Utilization

.41 Availability

The two mining production levels present different labour annual hours effectiveness. The 1 Mtpy case is a fly-in operation which means personnel in camp work through any public holidays and take additional annual vacation in lieu. Thus, availability of labour for the two cases can be tabulated as follows:

	<u>1 Mtpy Case</u>	<u>5 Mtpy Case</u>
Base Hours Available	(26 x 7 x 12) 2184	(52 x 5 x 8) 2080

Less the following hours:

	<u>Non Supv.</u>	<u>Supv</u>	<u>Non Supv.</u>	<u>Supv</u>
	<u>days</u> <u>hours</u>		<u>days</u> <u>hours</u>	
Annual Vac.	224*	224*	120	120
Equals the net available hours:	1960	1960	1960	1960

*Includes allowances for public holidays worked.

.42 Utilization

	<u>Operators</u> 75% with losses for	<u>Mechanics</u> 87.5% with losses for
-	coffee, lunch breaks	coffee, lunch breaks
-	shift-changing losses and delays	shift-changing losses and delays

.5 Equipment Matching

Operators will be provided for equipment according to the following guidelines:

- all equipment is manned to utilization within fleets

TABLE 5.1

STAFF CLASSIFICATIONS

MT. KLAPPAN MINING STUDY

General Manager

Managers

Production

Finance

Employee Relations

General Superintendents

Mine

Maintenance

Plant

Superintendents

Ch.Engineer, Industrial Relations,

Accounting, Personnel

Data Process, Training,

Budget, Safety,

Purchasing

Supervisors

General Foreman, Engineers & Geologist

Engineers

Foreman & Training Instructor

Accountants

Sr. Draftsman

Purchasing Agent

Programmer

Warehouseman

Planners

Surveyors, Technicians, Servicemen,
Dispatcher, Truck driver

Jr. Draftsman

Clerks, Secretary

* Not all positions are described.

TABLE 5.2

NON-SUPERVISORY CLASSIFICATIONS

MT. KLAPPAN MINING STUDY

A	Stationary Engineer/Utilities Maintenance Man
B	Crane Operator
C	Elec. Shovel Operator
D	F.E.L., Hyd. Shovel or Elec. OB Drill Operators, Mechanics
E	Truck Driver +100 t
F	Apprentice Tradesman/Dozer Operator
G	Heavy Mobile Equip. Operator/Truck Driver 50 - 100 t
H	Light Mobile Equip. Operator/Skilled Helper/Repairman
J	Truck Driver 25 - 50 t
K	Serviceman/Truck Driver - up to 25 t
M	Labourer

5.3 EQUIPMENT

531 INTRODUCTION

This subsection provides all the assumptions used in the selection of equipment, determination of sizing and number of units to purchase.

532 MINING STRATEGY

.1 Introduction

This subsection presents the equipment groups allocated to and the assumptions made for the various job functions. Use of propriety names implies a size or type and does not represent an endorsement of a particular brand.

.2 Waste

.21 Drilling

95% of all waste is drilled and blasted.

300 mm electric drill	- 90% of drilling
150/250 mm diesel drill	- 10% of drilling

.22 Blasting

Contract for delivery of powder to the hole, includes mixer trucks.

.23 Loading

24.5 m ³ electric shovel	95% of waste
14 m ³ hydraulic shovel	5% of waste
Dozer support 1.33 hours/shovel hour	

.24 Trucking

154 t rear dump trucks.

.25 Conveying

1 Mtpy CASE

	<u>NUMBER OF UNITS</u>	<u>kW (TOTAL)</u>
<u>CONVEYOR SYSTEM</u>		
<u>Crusher Station</u>		
Dump hoppers each c/w vibrating grizzly feeder	2	22
Apron feeder to crusher	1	156
Coarse rock crusher	1	373
<u>Overland Conveyors</u>		
1 066 mm wide declined belt conveyor 1 200 m flight	1	746
1 066 mm wide belt conveyor 1 500 m flight c/w river crossing bridge	1	746
1 066 mm wide inclined belt conveyor 1 500 m flight	1	984 2 984
1 066 mm wide horizontal transfer conveyor, one 1 200 m flight and one 1 500 m flight	2	1 492
1 066 mm wide travelling stackers	2	746

5 Mtpy CASE

	<u>NUMBER OF UNITS</u>	<u>kW (TOTAL)</u>
<u>CONVEYOR SYSTEM</u>		
<u>Crusher Station</u>		
Dump hoppers each c/w vibrating grizzly feeder	5	55
Apron feeder to crusher	2	112
Coarse rock crusher	2	2 238
<u>Overland Conveyors</u>		
2 134 mm wide declined belt conveyors each 600 m flight	2	1 492
2 134 mm wide inclined belt conveyor 600 m flight c/w river crossing bridge	1	6 714
2 134 mm wide inclined belt conveyors each 600 m flight	3	20 142
2 134 mm wide horizontal transfer conveyors each 1 400 m flight	2	3 581
2 134 mm wide travelling stackers	2	1 492

.3 Coal Mining

.31 Drill/Blast

Assumed not necessary.

.32 Loading

21 m³ hydraulic shovel 90%

15 m³ front end loader 10%

Dozer support 1.33 hours/shovel hour

.33 Trucking

154 t rear dump truck with coal box.

.4 Auxiliary Operations

.41 Drainage

Scraper, small backhoe, pumps.

.42 Road Maintenance and Construction

Water Trucks - 15 hours/day - 7 months/yr

Gravel Truck

Grader

Front End Loader

Dozer

Scraper

.43 Waste Dump Backfill Levelling

D8 dozer

.44 Conveyor Slewing

D8 side boom rigged

TABLE 5.3

MAJOR EQUIPMENT AVAILABILITY - HOURS PER YEAR

<u>Schedule</u>		<u>1 Mtpy</u>	<u>5 Mtpy</u>
Shifts per day		2	3
Days per week		7	7
Hours per shift		12	8
Days per year		365	365
<u>Deduct (Hours)</u>			
Public Holidays			240
Other		120	120
Hours per year base		8 640	8 400
<u>Equipment</u>	<u>Physical Availability %</u>	<u>Use of Availability %</u>	<u>Maximum Annual Operating Hours</u>
Shovel electric	85	75	5 508 5 355
Shovel hydraulic	75	75	4 860 4 725
Trucks) Drills)	80	70	4 838 4 704
Dozer) Scraper) F.E.L.)	70	75	4 536 4 410

Physical Availability = Total operational availability, includes time lost for any reason.

Use of Availability = Use of total operational availability.

533 EQUIPMENT AVAILABILITY AND UTILIZATION

Table 5.3 summarizes the hours of availability of major equipment and the projected physical availability and use of availability.

534 MINING EQUIPMENT SERVICE LIFE

The estimated service life of the mining equipment is listed below.

SERVICE LIFE OF MINE EQUIPMENT

<u>Equipment</u>	<u>Service Life Years</u>
Shovels	+ 20
Hydraulic Excavator	10
Front-end Loader	6
Drill Electric	+ 20
Drill Diesel	+ 20
Truck - 154 t	+ 20
Truck - 45 t	10
Dozers - Track	3
- Wheel	5
Grader	6
Portable Tower Lights	6
Cranes	10
Pickups	3
Service Trucks	6
Conveyor	+ 20

535 EQUIPMENT PRODUCTIVITIES

.1 Assumptions

All productivities assume a 60 minute hour and volumes are all in bank m³ or bank equivalent.

.2 Waste Loading

	Unit	Rock Shovel	Hydraulic Shovel
Bucket Size	m ³	24.5	14
Fill Factor		.9	.9
Swell Factor		1.4	1.4
Bucket Capacity	m ³	15.7	9.0
Cycle Time	sec.	35	35
Max Productivity (60 x 60)/35 x Bucket Capacity	m ³ /hr.	1 615	925
Truck Capacity (154 t/2.6)	m ³	59.2	59.2
Cycles to load		3.7	6.6
approx.		4.0	7.0
Loading Time	min	2.33	4.1
Spotting Time	min	<u>0.50</u>	<u>0.50</u>
Fixed Time	min	2.83	4.6
Actual Shovel Productivity	m ³ /h	1 255	775
(60/Fixed time) x load			
Annual Capacity - m³			
Max hrs. x Productivity			
for 1 Mtpy	m ³	6 912 540	3 766 500
for 5 Mtpy	m ³	6 720 525	3 661 875

.3 Coal Loading

	<u>Unit</u>	<u>Hydraulic Shovel</u>	<u>Front-end Loader</u>
Bucket Size	m ³	21	15
Fill Factor		.9	.9
Swell Factor		1.4	1.4
Bucket Capacity	t	22.9	16.4
Cycle time	sec	35	45
Max Productivity	t/hr	2355	1312
Truck Capacity	t	154	154
Cycles to load	min	6.7	9.4
approx.	min.	7.0	10.0
Loading Time	min	4.1	7.5
Spotting		0.5	-
Fixed Time	min	<u>4.6</u>	<u>7.5</u>
Actual Shovel Productivity	t/hr	2 009	1 232
(60/Fixed time) x Truck Capacity			
Annual Capacity			
Max hr. x Productivity (Table 6.3)			
for 1 Mtpy	t	9 763 740	9 492 525
for 5 Mtpy	t	5 588 352	5 433 120

.4 Drills

	<u>Unit</u>	<u>Electric</u>	<u>Diesel</u>
Penetration Rate	m/hr	27.4	19.8
Overdrill	%	10	10
Effective Rate	m/hr	24.7	17.8
Hole Spacing	m x m	9.1 x 9.1	6.1 x 6.1
Productivity	m³/hr	2045	662

Annual Capacity
 Max hr. x Productivity
 (Table 5.3)

for 1 Mtpy	m ³	9 893 710	3 202 756
for 5 Mtpy	m ³	9 619 680	3 114 048

.5 Trucks: Sample Calculation 154 t rear dump

		<u>Unit</u>	<u>Waste</u>	<u>Coal</u>	
Capacity		t m ³	- 59.2	154 -	
			<u>Rock Shovel</u>	<u>Hyd. Shovel</u>	<u>Hyd. Shovel</u> <u>F.E.L.</u>
Loading Time		min	2.3	4.1	4.1 7.5
Spotting Time		min	0.5	0.5	0.5 -
Dumping Time		min	1.5	1.5	1.5 1.5
Total Fixed Time		min	4.3	6.1	6.1 9.0
Cycle Time	1 Mtpy	min	21.2	22.9	41.9 44.8
	5 Mtpy	min	17.9	19.6	30.9 33.8
Productivity (60/Cycle Time x Capacity)	1 Mtpy	m ³ /hr t/h	168	155	221 206
	5 Mtpy	m ³ /hr t/h	198	181	299 273
Material Movement (x 10 ³)	1 Mtpy	m ³ t	7 102	789	906 100
	5 Mtpy	m ³ t	36 725	4 081	6 229 692
Truck Hrs. (Mat. Mov/Prod)	1 Mtpy	hr	42 388	5 087	4 108 485
	5 Mtpy	hr	185 072	22 519	20 831 2 531
Trucks Required					
(Trucks Hrs/ Hrs per year)	1 Mtpy		9.0	1.1	0.9 0.1
	5 Mtpy		39.2	4.8	4.4 0.5

Some of the above numbers have been rounded for clarity of presentation.

5.4 MINING

541 MATERIAL PROPERTIES

.1 Swell Factor

	<u>Initial</u>	<u>Final</u>
Coal	1.4	1.3
Waste	1.4	1.3
Swell Factor	$= \frac{\text{m}^3/\text{t broken}}{\text{m}^3/\text{t insitu}}$	

.2 Coal Loss

10% by weight lost to waste = 90% recovered

.3 Out of Seam Dilution

5% by weight of coal or $= \frac{0.5 \times .9}{(1 + .05) \times .9} = 4.76\%$
4.76% by weight run of mine.

.4 Moistures

Raw Coal

- 1.5 % Inherent
- 3.6 % Surface

Product Coal

for 1 Mtpy 5.0 % total
 3.6 % surface
 1.5 % inherent

for 5 Mtpy 8.0 % total
 6.6 % surface
 1.5 % inherent

Sample Calculation

$$8 = 1.5 \frac{(100 - 6.6)}{100} + 6.6$$

.5 Densities

Coal	1.7 t/m ³
Waste	2.6 t/m ³
Out-of-Seam dilution	2.4 t/m ³
Coarse Refuse	2.3 t/m ³

542 DERIVATION OF MATERIAL QUANTITIES - SAMPLE CALCULATIONS - 5 MTPY CASE

.1 Run of Mine Feed Calculation

5 000 000 x .934 = 4 670 000 Residual dry t
 using 70% 'dry' plant yield

4 670 000/.7 = 6 671 428 ROM dry t
 at 3.6% surface moisture raw coal

6 671 428/.94 = 6 920 568 ROM feed t

.2 Coal in Situ Calculation

Out-of-Seam dilution

$$= \frac{.05 \times .9}{(1 + .05) \times .9} = 4.76\%$$

6 671 428 x .9524 = 6 353 868 t raw coal to plant
 6 353 868/.9 = 7 059 853 t raw insitu

.3 Preparation Plant Reject Calculation

	6 671 428	ROM 'dry'
-	<u>4 670 000</u>	Product 'dry'
	2 001 428	tonne reject
x	<u>.77</u>	(+ 0.6 mm)
	1 543 959	t coarse refuse (2.3 t/m ³ density)

543 HAUL ROADS

.1 Design Specifications

- 10 cm pit run gravel topping
- 1 m elevated above grade
- 8% maximum gradient

.2 Maintenance Criteria

- resurfacing 2.5 cm gravel per year

544 BLASTING

.1 Requirements

.11 Waste

95% blasted, with 90% ANFO and 10% Slurry using 0.44 kg/m³ powder factor to give a fragmentation of 80% less than .76 m

.12 Coal

No blasting required.

545 PRODUCTION RESERVES

.1 Stripped Coal

To be maintained at 1 months production.

5.5 HYDROLOGICAL AND HYDROGEOLOGICAL

551 INTRODUCTION

No hydrological or hydrogeological information for this greenfield site is available.

552 RUN OFF PROTECTION

Perimeter ditching, excavated by scraper, is adopted for this assessment.

553 DRAINAGE

6" pumps appear adequate at this stage.

554 WATER QUALITY

Sedimentation ponds to control particulate matter are provided.

5.6 GEOTECHNICAL

561 INTRODUCTION

For this greenfield project no specific information is available at this time regarding the soil and rock. The following conservative dimensions have been assumed.

562 PIT

Pit wall slopes

45° overall slope which includes allowances for spillage berms.

563 WASTE DUMPS

35° overall slope which includes allowances for spillage berms.

5.7 RECLAMATION

571 INTRODUCTION

The following generalized assumptions have been made.

572 TOP SOIL

To be recovered to 0.5 m below surface for all areas to be disturbed.

573 REPLACEMENT

Top soil to be spread on all disturbed and formed areas excluding mine slopes below original ground.

574 REVEGETATION

Where top soil has been replaced, the areas will be hydro seeded with appropriate mixes.

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MOUNT KLAPPAN COAL PROJECT

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VOLUME 4

COAL PREPARATION FACILITIES

MOUNT KLAPPAN COAL PROJECT

VOLUME 4

COAL PREPARATION FACILITIES

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- 1 INTRODUCTION
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- 3 PREPARATION PLANT - 5 Mtpy CASE
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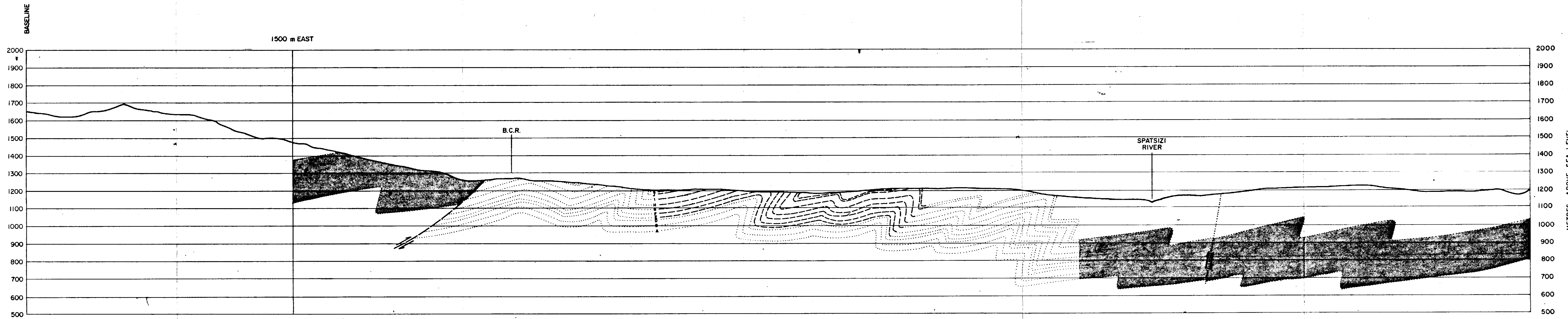
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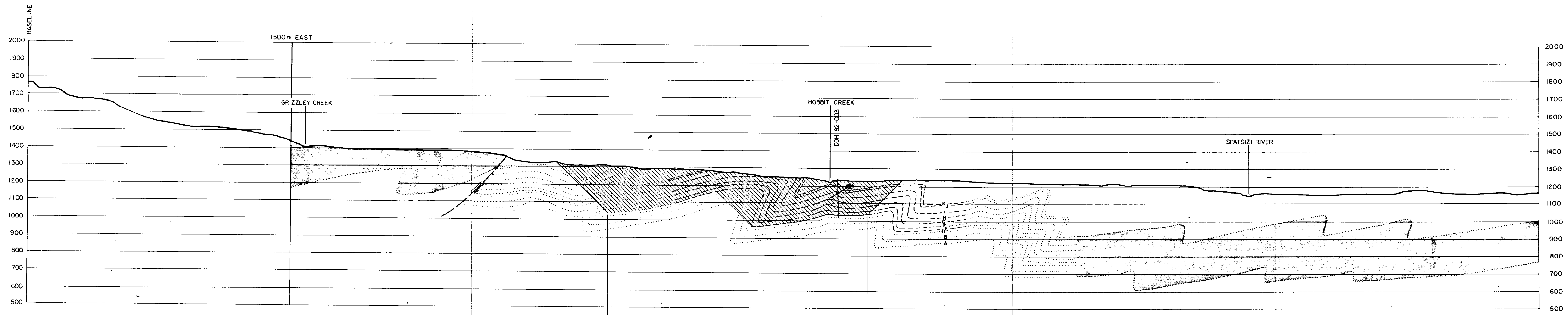


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- FAULT TRACE (DEFINED, APPROXIMATE, INFERRED)
- CONGLOMERATE UNIT (DEFINED, APPROXIMATE, INFERRED)
- STRUCTURAL TRACE
- ATTITUDE CONTROL POINT
- DIAMOND DRILL HOLE WITH ATTITUDE CONTROL

DH 82001

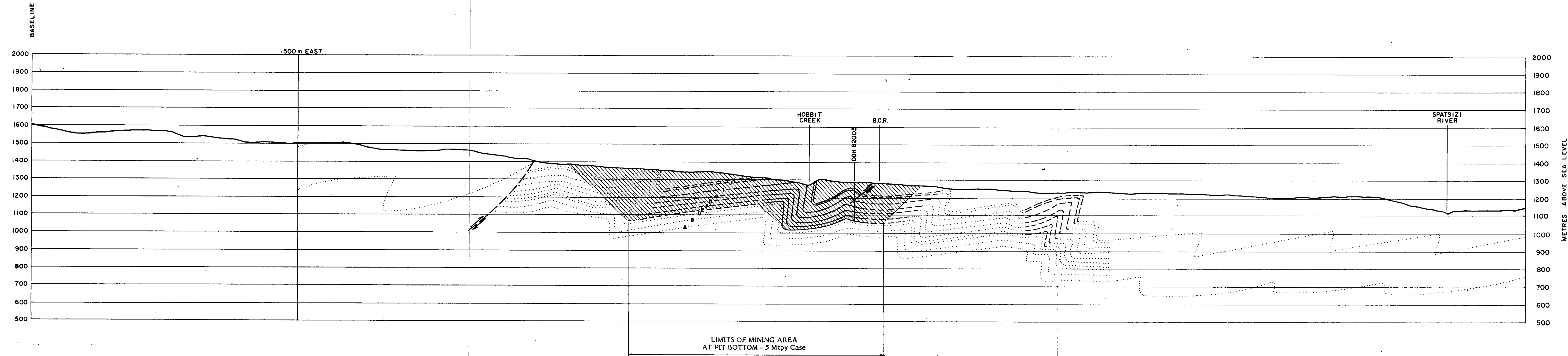
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Coal Division		
CALGARY	ALBERTA	
Northwestern British Columbia		
MT. KLAPPAN COAL PROPERTY		
GEOLOGICAL CROSS-SECTION		
5500 S (EAST)		
PREPARED BY: G. SEVE		00110 (9) MA
APPROVED BY:		SCALE 1:10,000
DATE: SEPT. 82		FIGURE A-1



Legend

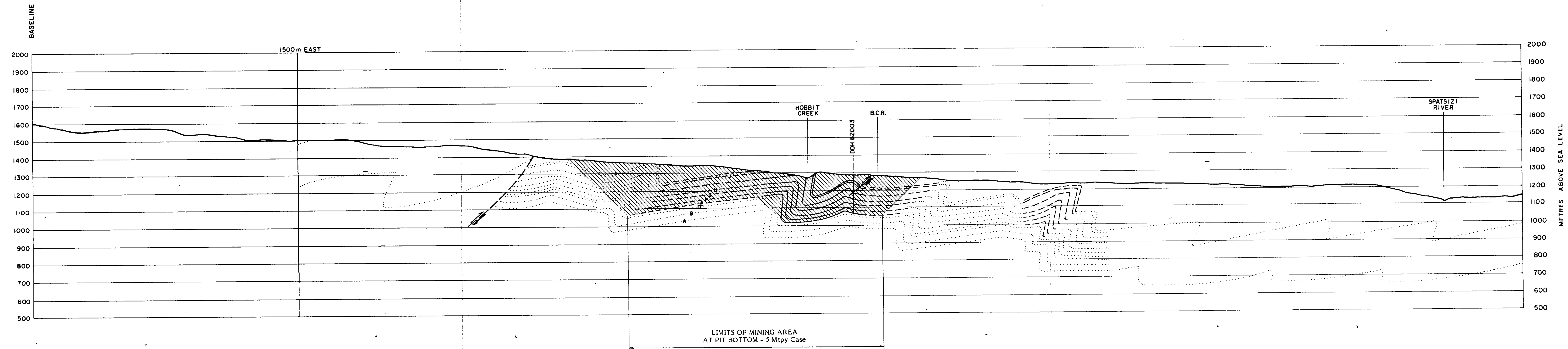
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	FAULT TRACE (DEFINED, APPROXIMATE, INFERRED)
	CONGLOMERATE UNIT (DEFINED, APPROXIMATE, INFERRED)
	STRUCTURAL TRACE
	ATTITUDE CONTROL POINT
	DIAMOND DRILL HOLE WITH ATTITUDE CONTROL
	PBK ADDITION: MINING AREA - 5 Mtpy Case

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5000 S (EAST)		
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APPROVED BY:		DATE: SEPT. 82 FIGURE A-2



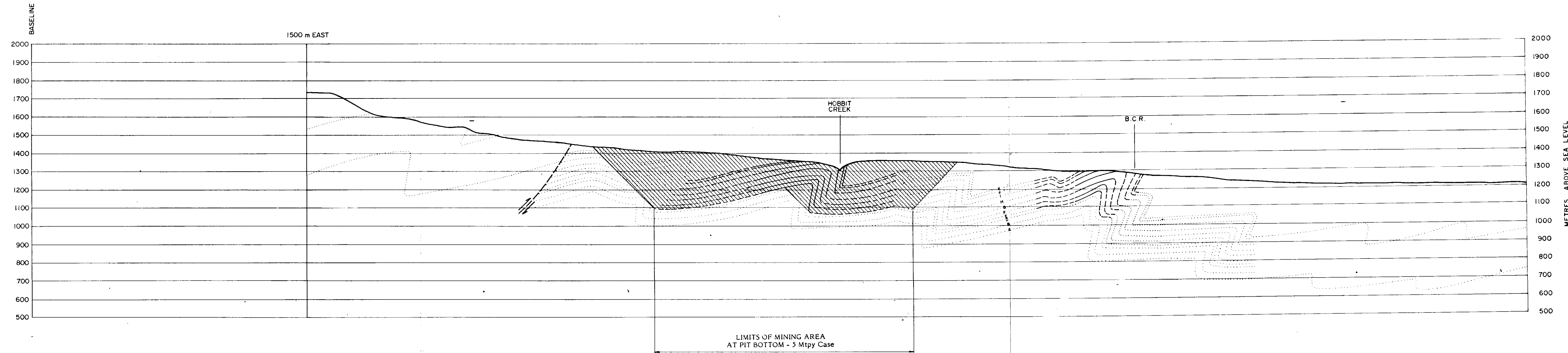
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 - MINING AREA - 5 Mtpy Case

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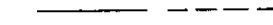









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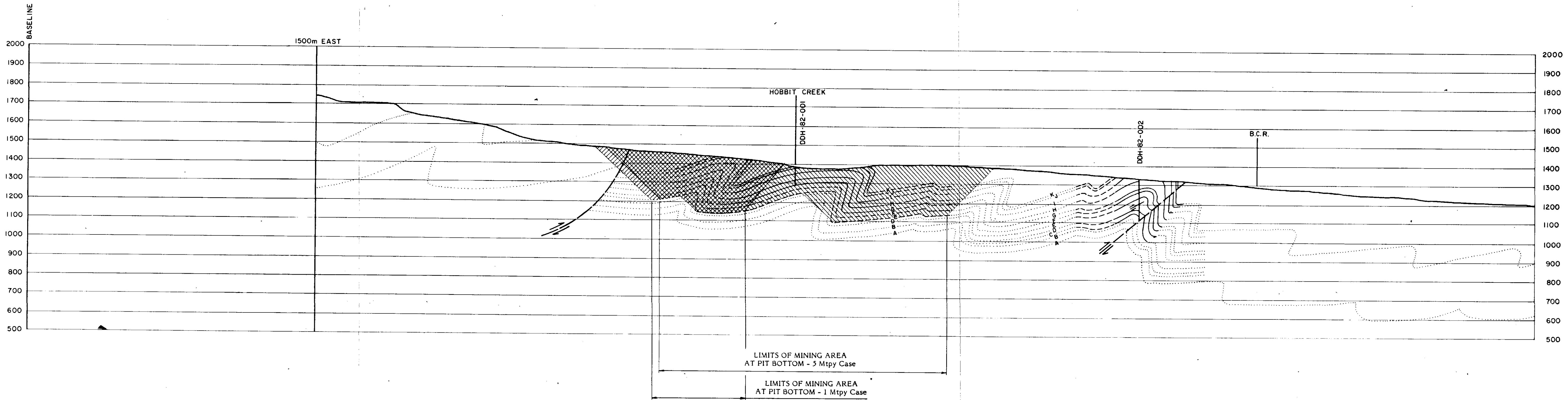
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-  CONGLOMERATE UNIT (DEFINED, APPROXIMATE, INFERRED)
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-  ATTITUDE CONTROL POINT
-  DIAMOND DRILL HOLE WITH ATTITUDE CONTROL
-  PBK ADDITION:
MINING AREA - 5 Mtpy Case

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4000 S (EAST)		
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FIGURE A-4



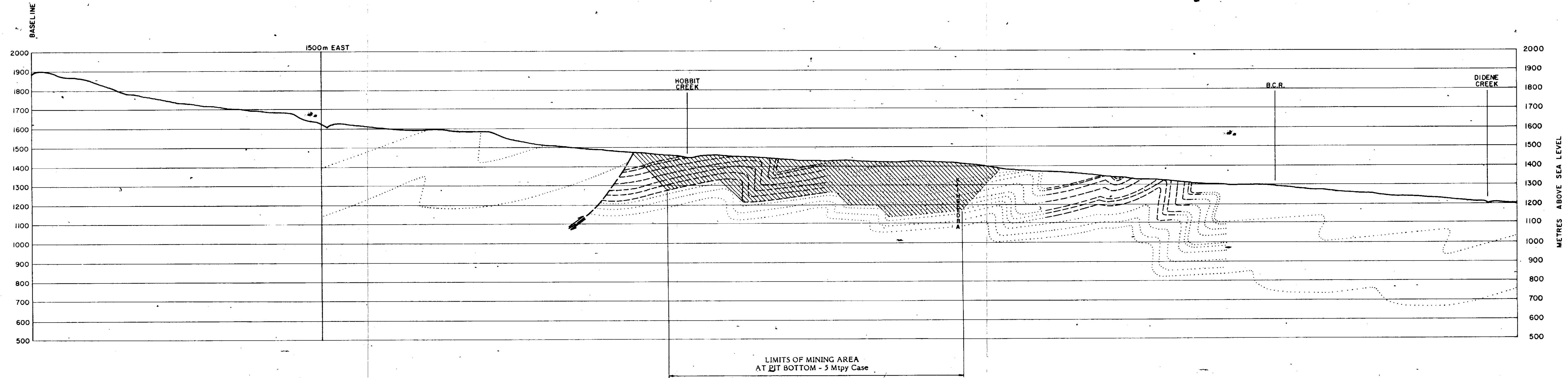
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- CONGLOMERATE UNIT (DEFINED, APPROXIMATE, INFERRED)
- STRUCTURAL TRACE
- ATTITUDE CONTROL POINT
- DIAMOND DRILL HOLE WITH ATTITUDE CONTROL

PIK ADDITION:

- MINING AREA - 5 Mtpy Case
- MINING AREA - 1 Mtpy Case

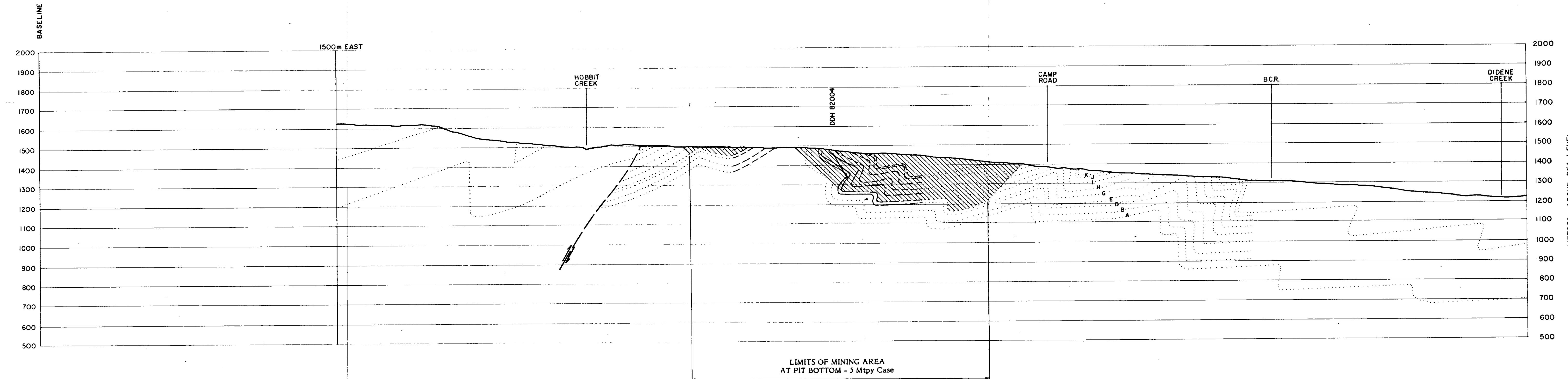
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3500 S (EAST)		
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APPROVED BY:	DATE: SEPT. 82	00110 (9) M9 FIGURE A-5



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 - CONGLOMERATE UNIT (DEFINED, APPROXIMATE, INFERRED)
 - STRUCTURAL TRACE
 - ATTITUDE CONTROL POINT
 - DH 82001
DIAMOND DRILL HOLE WITH ATTITUDE CONTROL
 - PBK ADDITION:
MINING AREA - 5 Mtpy Case

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MT. KLAPPAN COAL PROPERTY		
GEOLOGICAL CROSS-SECTION		
3000 S (EAST)		
PREPARED BY: G. SEVE		SCALE 1:10,000
APPROVED BY:		DATE: SEPT. 82 FIGURE A-6

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 - STRUCTURAL TRACE
 - ATTITUDE CONTROL POINT
 - DIAMOND DRILL HOLE WITH ATTITUDE CONTROL
 - PBK ADDITION:**
 - MINING AREA - 5 Mtpy Case

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GEOLOGICAL CROSS-SECTION		
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00110 (9) (M11)

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JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - K

SAMPLE ID - 4701

WASHABILITY ID - WAI

FRACTION SIZE (MM)		ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -	
S.G.TME	SIZE (MM)	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V. (MJ/KG)	CUM. C.V.		
		WT%	ASH%	WT%	ASH%	WT%	ASH%				
1.70	9.53 X	83.36	11.13	83.36	11.13	16.64	54.25	30.19	30.19		
2.60	0.00	16.64	54.25	100.00	18.31			10.84	26.97		

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - K

SAMPLE ID - 4702

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70	53.72	15.93	53.72	15.93	46.28	58.05	28.10	28.10		
2.60	46.28	58.05	100.00	35.42			11.64	20.48		

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - K

SAMPLE ID - 4703

WASHABILITY ID - WA1

FRACTION SIZE (MM)		ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -	
S.G.TME	SIZE (MM)	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	C.V.	CUM.
		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)			
1.70	9.53	83.87	10.34	83.87	10.34	16.13	44.91	30.16	30.16		
2.60	0.00	16.13	44.91	100.00	15.92			13.16	27.42		

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - K

SAMPLE ID - 4704

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70	49.83	11.43	49.83	11.43	50.17	61.88	30.83	30.83		
2.60	50.17	61.88	100.00	36.74			8.95	19.85		

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - J

SAMPLE ID - 4705

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		74.27	9.36	74.27	9.36	25.73	56.07	30.85	30.85
2.60		25.73	56.07	100.00	21.38			9.87	25.45

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82001

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=====
SAMPLE ID          1          DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID   HD1       DATE ANALYSED   08/10/82
                                ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)                10.00
SURFACE MOISTURE %<AD,AR>    ---
TOTAL MOISTURE %             ---
EQUILIBRIUM MOISTURE %      ---
RESIDUAL MOISTURE %<AD,EM>   1.75
ASH %                        28.02
VOLATILE MATTER %           8.78
FIXED CARBON %              61.45

TOTAL SULPHUR %              0.54
PHOSPHOROUS %               ---
CHLORINE (PPM)              00172
SPECIFIC GRAVITY            1.60
FSI                          ---
HGI                          45.0
CO2 %                        3.22

GROSS CALORIFIC VALUE (MJ/KG) 23.09
NET CALORIFIC VALUE (MJ/KG)  ---

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GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82001

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=====
SAMPLE ID          1          DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID   SZ1       DATE ANALYSED   08/10/82
FRACTION SIZE     WT%      ASH%      FSI      CAL      RM      VM      TS
FROM (MM) TO (MM) (MJ/KG)
10.00  0.60    81.32    27.57    ---     23.40    1.69    8.74    0.52
0.60   0.15    13.02    21.79    ---     26.58    1.31    8.44    0.53
0.15   0.00     5.66    35.55    ---     19.91    1.42    8.90    0.48

```

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82001

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=====
SAMPLE ID          1          DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP1       DATE ANALYSED   20/10/82
SPLIT SAMPLE ID   UL1

```

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

```

WATER      %      1.75
CARBON     %      65.72
HYDROGEN   %      2.42
SULPHUR    %      0.54
NITROGEN   %      0.86
ASH        %      28.02
OXYGEN     %      0.69

```

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82001

SAMPLE ID 1
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1195.0
SOFTENING TEMP.(C) 1255.0
HEMISPHERICAL TEMP.(C) 1280.0
FLUID TEMP.(C) 1340.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1160.0
SOFTENING TEMP.(C) 1215.0
HEMISPHERICAL TEMP.(C) 1240.0
FLUID TEMP.(C) 1270.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82001

SAMPLE ID 1
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE % (SI02) 47.47
ALUMINIUM OXIDE % (AL2O3) 20.76
FERRIC OXIDE % (FE2O3) 10.99
TITANIUM DIOXIDE % (TI02) 0.80
PHOSPHOROUS PENTOXIDE % (P2O5) 1.09
CALCIUM OXIDE % (CAO) 5.49
MAGNESIUM OXIDE % (MGO) 2.51
SULPHUR TRIOXIDE % (S03) 4.44
SODIUM OXIDE % (NA2O) 1.39
POTASSIUM OXIDE % (K2O) 0.41

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82001

SAMPLE ID 1
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE % 52.00
SULPHATE % 2.00
ORGANIC % 46.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - K

SAMPLE ID - 1

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE(MM)	10.00 X	0.60	RELATIVE WEIGHT % - 81.32 ASH % - 27.57				
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS	C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	10.34	7.76	10.34	7.76	89.66	29.75	32.43	32.43
1.50	39.60	10.65	49.94	10.05	50.06	44.87	31.24	31.49
1.60	13.83	20.26	63.77	12.27	36.23	54.26	27.21	30.56
1.70	6.60	27.51	70.37	13.70	29.63	60.22	23.22	29.87
1.80	3.10	32.09	73.47	14.47	26.53	63.50	20.64	29.48
1.90	3.02	39.42	76.49	15.46	23.51	66.60	17.73	29.02
2.00	3.15	43.61	79.64	16.57	20.36	70.15	15.78	28.49
2.10	2.76	47.41	82.40	17.60	17.60	73.72	13.24	27.98
2.20	0.46	47.76	82.86	17.77	17.14	74.42	11.48	27.89
2.30	1.58	60.51	84.44	18.57	15.56	75.83	9.95	27.56
2.60	15.56	75.83	100.00	27.48			3.04	23.74

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE(MM)	0.60 X	0.15	RELATIVE WEIGHT % - 13.02 ASH % - 21.79				
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS	C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	24.12	2.16	24.12	2.16	75.88	23.63	34.50	34.50
1.50	45.27	7.69	69.39	5.77	30.61	47.21	32.60	33.26
1.60	7.97	16.96	77.36	6.92	22.64	57.86	28.62	32.78
1.70	4.14	25.92	81.50	7.89	18.50	65.01	24.42	32.36
1.80	1.36	32.37	82.86	8.29	17.14	67.60	21.51	32.18
1.90	1.89	37.04	84.75	8.93	15.25	71.38	19.32	31.89
2.00	1.31	43.76	86.06	9.46	13.94	73.98	16.39	31.66
2.10	1.45	49.44	87.51	10.12	12.49	76.83	13.38	31.35
2.30	1.03	61.03	88.54	10.71	11.46	78.25	8.64	31.09
2.60	11.46	78.25	100.00	18.45			0.00	27.53

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - K

SAMPLE ID - 1

WASHABILITY ID - WAI

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % - 5.66 ASH % - 35.55		
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG) C.V.
30.00	69.29	16.20	69.29	16.20	30.71	75.89	28.73
45.00	4.41	44.92	73.70	17.92	26.30	81.09	17.26
60.00	1.60	47.99	75.30	18.56	24.70	83.23	15.89
90.00	1.43	66.63	76.73	19.45	23.27	84.25	6.36
120.00	1.43	76.18	78.16	20.49	21.84	84.78	3.15
300.00	21.84	84.78	100.00	34.53			0.02

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82001

SAMPLE ID 1 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP3
SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.50	48.82	39.70
0.60	0.15	2.08	87.22	11.36

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82001

SAMPLE ID 1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.59
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	0.92	SPECIFIC GRAVITY	1.42
ASH %	9.99	FSI	---
VOLATILE MATTER %	6.74	HGI	36.0
FIXED CARBON %	82.35	CO2 %	0.32

GROSS CALORIFIC VALUE (MJ/KG) 31.20
NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82001

SAMPLE ID 1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP3 DATE ANALYSED 06/12/82
SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.92
CARBON	%	81.53
HYDROGEN	%	2.67
SULPHUR	%	0.59
NITROGEN	%	1.00
ASH	%	9.99
OXYGEN	%	3.30

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82001

SAMPLE ID 1
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 03/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
SOFTENING TEMP.(C) 1430.0
HEMISPHERICAL TEMP.(C) 1465.0
FLUID TEMP.(C) 1475.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
SOFTENING TEMP.(C) 1420.0
HEMISPHERICAL TEMP.(C) 1450.0
FLUID TEMP.(C) 1460.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82001

SAMPLE ID 1
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE % (SI02) 57.91
ALUMINIUM OXIDE % (AL2O3) 23.10
FERRIC OXIDE % (FE2O3) 2.69
TITANIUM DIOXIDE % (TI02) 1.16
PHOSPHOROUS PENTOXIDE % (P2O5) 1.62
CALCIUM OXIDE % (CAO) 3.15
MAGNESIUM OXIDE % (MGO) 0.89
SULPHUR TRIOXIDE % (SO3) 1.22
SODIUM OXIDE % (NA2O) 1.53
POTASSIUM OXIDE % (K2O) 0.67

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82001

SAMPLE ID 1
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE % 2.00
SULPHATE % 2.00
ORGANIC % 96.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82001

SAMPLE ID 1 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.30	84.44	68.67
0.60	0.15	2.30	88.54	11.53
0.15	0.00	120.00	78.16	4.42

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82001

SAMPLE ID 1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 15/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.56
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	06966
RESIDUAL MOISTURE (AD,EM)	2.78	SPECIFIC GRAVITY	1.53
ASH %	17.73	FSI	---
VOLATILE MATTER %	9.45	HGI	43.0
FIXED CARBON %	70.04	CO2 %	1.77

GROSS CALORIFIC VALUE (MJ/KG) 27.13
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82001

SAMPLE ID 1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 23/11/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	2.78
CARBON	%	71.71
HYDROGEN	%	2.58
SULPHUR	%	0.56
NITROGEN	%	0.94
ASH	%	17.73
OXYGEN	%	3.70

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82001

SAMPLE ID 1 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP5

SAMPLE WEIGHT (KG) ----

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION	YIELD/FRACTION RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.80	24.72	20.10
0.15	0.00	120.00	78.16	4.42

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82001

SAMPLE ID 1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP5 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % <AD,AR>	----	TOTAL SULPHUR %	0.36
TOTAL MOISTURE % <AR>	----	PHOSPHOROUS	----
EQ MOISTURE %	----	CHLORINE (PPM)	----
		SPG	----
INHERENT MOISTURE <AD,EM>	0.99	FSI	----
ASH %	22.38	HGI	----
FIXED CARBON %	68.41	CO2 %	----
VOLITILE MATTER %	8.22		

GROSS CALORIFIC VALUE (MJ,KG) 26.34
 NET CALORIFIC VALUE (MJ,KG) ----

Vitrinite Reflectance Data For
Gulf Canada Resources Inc.
Sample #4701-4704
Pellet #1

OBSERVATION NUMBER	ROMAX VALUE
1	3.61
2	3.44
3	3.58
4	3.45
5	3.58
6	3.75
7	3.47
8	3.42
9	3.46
10	3.62
11	3.76
12	3.65
13	3.62
14	3.57
15	3.47
16	3.55
17	3.63
18	3.54
19	3.61
20	3.55
21	3.43
22	3.64
23	3.48
24	3.55
25	3.40

OBSERVATION NUMBER	ROMAX VALUE
26	3.49
27	3.53
28	3.64
29	3.48
30	3.47
31	3.67
32	3.53
33	3.97
34	3.61
35	3.53
36	3.60
37	3.39
38	3.48
39	3.59
40	3.42
41	3.61
42	3.40
43	3.67
44	3.65
45	3.55
46	3.52
47	3.62
48	3.62
49	3.64
50	3.55

Gulf Canada Resources Inc.
 Sample #4701-4704
 Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS 20
 MEAN MAXIMUM REFLECTANCE
 OF VITRINITE% 3.34
 STANDARD ERROR OF THE MEAN 0.02
 COEFFICIENT OF VARIATION% 4.23
 VARIANCE 0.0223
 STANDARD DEVIATION 0.1492
 SKEWNESS 0.1177
 KURTOSIS 3.7256

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
8	3.20	1	2.00
9	3.30	7	14.00
10	3.40	14	28.00
11	3.50	11	22.00
12	3.60	12	24.00
13	3.70	2	4.00
14	3.80	2	4.00
15	3.90	1	2.00

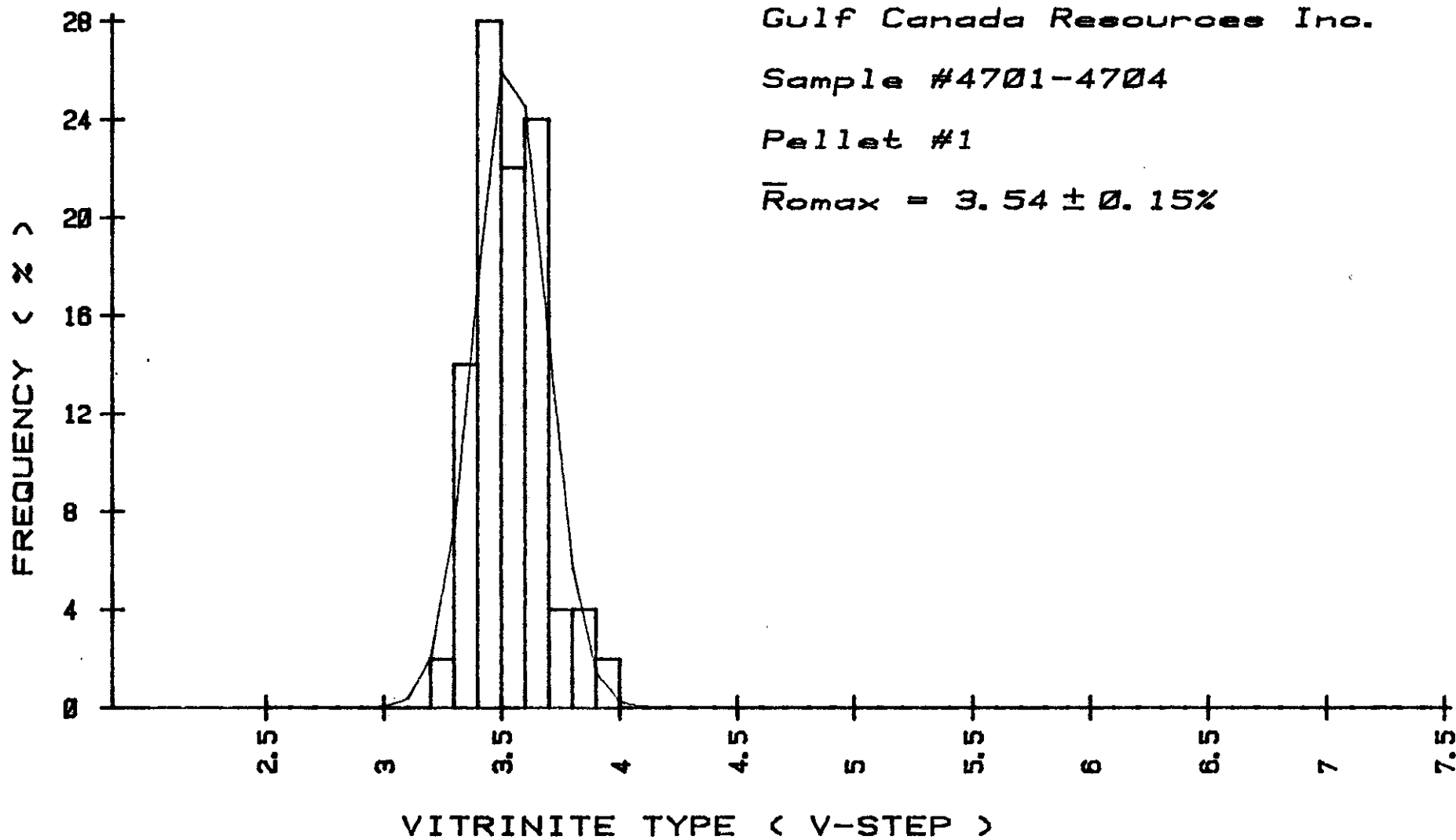
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4701-4704

Pellet #1

$\bar{R}_{\text{omax}} = 3.54 \pm 0.15\%$



GULF CANADA RESOURCES INC.

SAMPLE # 4701-4704

MINERAL MATTER - DRY LENS				
Calc.	Py	Qu	Sh	Coal
12	1	4	5	78
11	0	5	4	80
9	0	2	13	76
8	0	3	4	85
5	0	3	2	90

AVERAGE				
9	0.2	3.4	5.6	81.8

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 08/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 10.00
 SURFACE MOISTURE %<AD,AR> ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE %<AD,EM> 1.13
 ASH % 22.07
 VOLATILE MATTER % 9.05
 FIXED CARBON % 67.75
 TOTAL SULPHUR % 0.63
 PHOSPHOROUS % ---
 CHLORINE (PPM) 00217
 SPECIFIC GRAVITY 1.55
 FSI ---
 HGI ---
 CO2 % 3.20
 GROSS CALORIFIC VALUE (MJ/KG) 26.03
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 08/10/82
 FRACTION SIZE WT% ASH% FSI CAL RM VM TS
 (MM (MM) TO (MM) (MJ/KG)
 0.00 0.60 73.40 21.55 --- 24.73 1.54 9.53 0.68
 0.60 0.15 17.23 17.77 --- 28.12 1.36 8.10 0.58
 0.15 0.00 9.37 25.84 --- 24.96 1.17 8.33 0.48

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 20/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER % 1.13
 CARBON % 69.33
 HYDROGEN % 2.39
 SULPHUR % 0.63
 NITROGEN % 0.81
 ASH % 22.07
 OXYGEN % 3.64

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1200.0	INITIAL TEMP.(C)	1165.0
SOFTENING TEMP.(C)	1240.0	SOFTENING TEMP.(C)	1220.0
HEMISPHERICAL TEMP.(C)	1250.0	HEMISPHERICAL TEMP.(C)	1230.0
FLUID TEMP.(C)	1295.0	FLUID TEMP.(C)	1285.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE %	(SI02)	44.49
ALUMINIUM OXIDE %	(AL2O3)	18.93
FERRIC OXIDE %	(FE2O3)	10.79
TITANIUM DIOXIDE %	(TI02)	0.65
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.62
CALCIUM OXIDE %	(CAO)	8.09
MAGNESIUM OXIDE %	(MGO)	3.85
SULPHUR TRIOXIDE %	(SO3)	5.43
SODIUM OXIDE %	(NA2O)	1.01
POTASSIUM OXIDE %	(K2O)	1.16

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

FYRITE	%	11.00
SULPHATE	%	2.00
ORGANIC	%	87.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - J

SAMPLE ID - 2

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE(MM)	10.00 X	0.60	RELATIVE WEIGHT % - 73.40 ASH % - 21.55				
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	21.16	2.37	21.16	2.37	78.84	29.63	34.51	34.51
1.50	34.13	9.81	55.29	6.96	44.71	44.76	31.50	32.65
1.60	10.37	19.84	65.66	9.00	34.34	52.29	27.39	31.82
1.70	5.35	28.52	71.01	10.47	28.99	56.68	23.05	31.16
1.80	3.38	34.97	74.39	11.58	25.61	59.54	20.15	30.66
1.90	2.41	39.46	76.80	12.46	23.20	61.63	18.00	30.26
2.00	2.08	43.22	78.88	13.27	21.12	63.44	15.63	29.88
2.10	3.09	47.57	81.97	14.56	18.03	66.16	12.19	29.21
2.20	0.69	52.67	82.66	14.88	17.34	66.70	11.83	29.06
2.30	1.77	53.39	84.43	15.69	15.57	68.21	9.85	28.66
2.60	15.57	68.21	100.00	23.86			3.90	24.81

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE(MM)	0.60 X	0.15	RELATIVE WEIGHT % - 17.23 ASH % - 17.77				
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	45.86	1.91	45.86	1.91	54.14	33.83	34.53	34.53
1.50	14.60	8.66	60.46	3.54	39.54	43.13	31.60	33.82
1.60	13.03	15.28	73.49	5.62	26.51	56.81	28.67	32.91
1.70	4.58	24.82	78.07	6.75	21.93	63.50	24.34	32.41
1.80	2.41	32.29	80.48	7.51	19.52	67.35	21.34	32.07
1.90	1.63	37.46	82.11	8.11	17.89	70.07	19.30	31.82
2.00	0.99	43.31	83.10	8.53	16.90	71.64	17.00	31.64
2.10	2.19	49.70	85.29	9.58	14.71	74.91	13.80	31.19
2.30	1.26	61.20	86.55	10.34	13.45	76.19	8.95	30.86
2.60	13.45	76.19	100.00	19.19			0.00	26.71

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - J

SAMPLE ID - 2

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 9.37 ASH % - 25.84		
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG) C.V.
30.00	77.74	13.25	77.74	13.25	22.26	65.21	30.12
45.00	2.65	30.37	80.39	13.81	19.61	69.92	23.32
60.00	1.90	49.72	82.29	14.64	17.71	72.09	14.83
90.00	1.77	57.94	84.06	15.56	15.94	73.66	10.99
120.00	1.63	68.05	85.69	16.55	14.31	74.30	7.69
300.00	14.31	74.30	100.00	24.82			5.43

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP2

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.46	41.65	30.57
0.60	0.15	1.57	68.28	11.76

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP2 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %<AD,AR>	---	TOTAL SULPHUR %	0.66
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	0.51	SPECIFIC GRAVITY	1.39
ASH %	5.98	FSI	---
VOLATILE MATTER %	6.89	HGI	35.0
FIXED CARBON %	86.62	CO2 %	0.29

GROSS CALORIFIC VALUE (MJ/KG) 32.99
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP2 DATE ANALYSED 06/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.51
CARBON	%	86.47
HYDROGEN	%	2.97
SULPHUR	%	0.66
NITROGEN	%	1.06
ASH	%	6.20
OXYGEN	%	2.13

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 03/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1190.0
SOFTENING TEMP.(C) 1285.0
HEMISPHERICAL TEMP.(C) 1310.0
FLUID TEMP.(C) 1360.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1175.0
SOFTENING TEMP.(C) 1280.0
HEMISPHERICAL TEMP.(C) 1310.0
FLUID TEMP.(C) 1340.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE %	(SI02)	52.28
ALUMINIUM OXIDE %	(AL203)	23.70
FERRIC OXIDE %	(FE203)	4.05
TITANIUM DIOXIDE %	(TI02)	1.37
PHOSPHOROUS PENTOXIDE %	(P205)	3.34
CALCIUM OXIDE %	(CA0)	5.10
MAGNESIUM OXIDE %	(MGO)	1.38
SULPHUR TRIOXIDE %	(SO3)	1.40
SODIUM OXIDE %	(NA2O)	1.14
POTASSIUM OXIDE %	(K2O)	1.38

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.30	84.43	65.59
0.60	0.15	2.60	100.00	17.23
0.15	0.00	300.00	100.00	9.37

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 16/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %<AD,AR>	---	TOTAL SULPHUR %	0.52
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	07031
RESIDUAL MOISTURE <AD,EM>	2.21	SPECIFIC GRAVITY	1.55
ASH %	18.28	FSI	---
VOLATILE MATTER %	8.53	HGI	43.0
FIXED CARBON %	70.98	CO2 %	2.10

GROSS CALORIFIC VALUE (MJ/KG) 27.07
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 24/11/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	2.21
CARBON	%	71.45
HYDROGEN	%	2.54
SULPHUR	%	0.52
NITROGEN	%	0.89
ASH	%	18.28
OXYGEN	%	4.11

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 18/11/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1210.0	INITIAL TEMP.(C)	1190.0
SOFTENING TEMP.(C)	1240.0	SOFTENING TEMP.(C)	1230.0
HEMISPHERICAL TEMP.(C)	1260.0	HEMISPHERICAL TEMP.(C)	1250.0
FLUID TEMP.(C)	1300.0	FLUID TEMP.(C)	1270.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 25/11/82

SILICON DIOXIDE %	(SIO2)	49.10
ALUMINIUM OXIDE %	(AL2O3)	22.47
FERRIC OXIDE %	(FE2O3)	6.62
TITANIUM DIOXIDE %	(TIO2)	0.62
PHOSPHOROUS PENTOXIDE %	(P2O5)	2.06
CALCIUM OXIDE %	(CAO)	10.10
MAGNESIUM OXIDE %	(MGO)	2.73
SULPHUR TRIOXIDE %	(SO3)	3.08
SODIUM OXIDE %	(NA2O)	1.69
POTASSIUM OXIDE %	(K2O)	1.36

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE	%	6.00
SULPHATE	%	2.00
ORGANIC	%	92.00

TOTAL 100.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP5

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION	YEILD/FRACTION RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.20	41.01	30.10
0.60	0.15	1.70	9.79	6.97
0.15	0.00	300.00	100.00	9.37

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82001

SAMPLE ID 2 DATA TYPE (REAL,BORD,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP5 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.46
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS	---
EQ MOISTURE %	---	CHLORINE (PPM)	---
		SPG	---
INHERENT MOISTURE (AD,EM)	0.89	FSI	---
ASH %	23.73	HGI	---
FIXED CARBON %	67.05	CO2 %	---
VOLITILE MATTER %	8.33		

GROSS CALORIFIC VALUE (MJ,KG) 25.24
 NET CALORIFIC VALUE (MJ,KG) ---

Vitrinite Reflectance Data For
 Gulf Canada Resources Inc.
 Sample #4705
 Pellet #1

OBSERVATION NUMBER	ROMAX VALUE	OBSERVATION NUMBER	ROMAX VALUE
1	3.40	26	3.42
2	3.39	27	3.47
3	3.46	28	3.42
4	3.46	29	3.45
5	3.41	30	3.39
6	3.61	31	3.46
7	3.33	32	3.44
8	3.50	33	3.36
9	3.42	34	3.32
10	3.63	35	3.43
11	3.26	36	3.35
12	3.39	37	3.43
13	3.54	38	3.38
14	3.52	39	3.41
15	3.42	40	3.31
16	3.54	41	3.41
17	3.43	42	3.54
18	3.52	43	3.53
19	3.27	44	3.37
20	3.33	45	3.33
21	3.36	46	3.31
22	3.36	47	3.37
23	3.43	48	3.33
24	3.47	49	3.43
25	3.51	50	3.34

Gulf Canada Resources Inc.
 Sample #4705
 Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.47
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION	2.97
VARIANCE	0.0106
STANDARD DEVIATION	0.1029
SKEWNESS	0.0083
KURTOSIS	4.8872

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
8	3.20	2	4.00
9	3.30	7	14.00
10	3.40	23	46.00
11	3.50	12	24.00
12	3.60	4	8.00
14	3.80	1	2.00

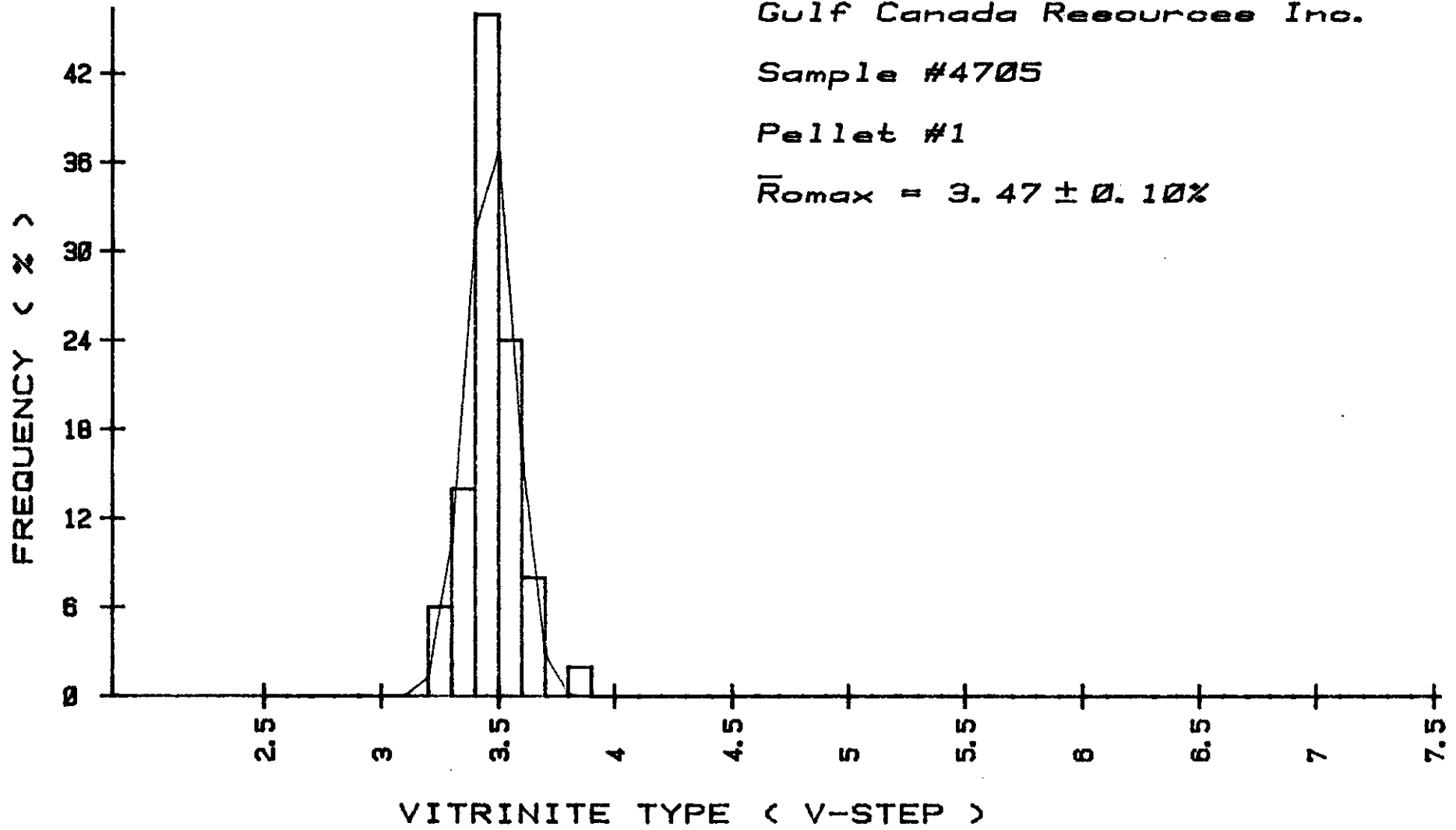
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4705

Pellet #1

$\bar{R}_{\text{omax}} = 3.47 \pm 0.10\%$



GULF CANADA RESOURCES INC.

SAMPLE # 4705

MINERAL MATTER-DRY LENS				
Calc.	Py	Qu	Sh	Coal.
7	0	9	0	84
4	0	3	2	91
4	0	2	3	91
4	0	0	2	94
6	0	4	2	88

AVERAGE				
5	0	3.6	1.8	89.6

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - I

SAMPLE ID - 4706

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	45.59	9.23	45.59	9.23	54.41	56.27	29.11	29.11
2.60	54.41	56.27	100.00	34.82			10.81	19.15

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - I

SAMPLE ID - 4707

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 9.53 X 0.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.		
1.70	84.91	9.90	84.91	9.90	15.09	41.79	29.82	29.82				
2.60	15.09	41.79	100.00	14.71			16.35	27.79				

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82001

SAMPLE ID 3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 08/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.47
TOTAL MOISTURE %	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00500
		SPECIFIC GRAVITY	1.52
RESIDUAL MOISTURE % (AD,EM)	2.04	FSI	---
ASH %	18.01	HGI	67.0
VOLATILE MATTER %	7.25	CO2 %	2.12
FIXED CARBON %	72.70		
GROSS CALORIFIC VALUE (MJ/KG)	27.30		
NET CALORIFIC VALUE (MJ/KG)	---		

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82001

SAMPLE ID	3	DATA TYPE (REAL,BORO,AVER,CALC)		REAL			
SPLIT SAMPLE ID	SZ1	DATE ANALYSED		08/10/82			
FRACTION SIZE	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
MM (MM) TO (MM)							
10.00 0.60	60.62	20.77	---	26.63	1.79	7.19	0.47
0.60 0.15	23.00	12.96	---	30.44	1.46	6.88	0.43
0.15 0.00	16.38	15.16	---	29.30	1.65	7.05	0.46

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82001

SAMPLE ID 3
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 20/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	2.04
CARBON	%	73.17
HYDROGEN	%	2.26
SULPHUR	%	0.47
NITROGEN	%	0.72
ASH	%	18.01
OXYGEN	%	3.33

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82001

SAMPLE ID 3
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1220.0
SOFTENING TEMP.(C) 1275.0
HEMISPHERICAL TEMP.(C) 1300.0
FLUID TEMP.(C) 1360.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1210.0
SOFTENING TEMP.(C) 1260.0
HEMISPHERICAL TEMP.(C) 1275.0
FLUID TEMP.(C) 1345.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82001

SAMPLE ID 3
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE %	(SI02)	55.55
ALUMINIUM OXIDE %	(AL2O3)	18.16
FERRIC OXIDE %	(FE2O3)	5.40
TITANIUM DIOXIDE %	(TI02)	0.49
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.55
CALCIUM OXIDE %	(CAO)	6.31
MAGNESIUM OXIDE %	(MGO)	2.27
SULPHUR TRIOXIDE %	(SO3)	4.93
SODIUM OXIDE %	(NA2O)	0.42
POTASSIUM OXIDE %	(K2O)	1.05

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82001

SAMPLE ID 3
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	9.00
SULPHATE	%	2.00
ORGANIC	%	89.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - I UPPER

SAMPLE ID - 3

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 10.00 X 0.60		ELEMENTAL		CUM. FLOATS		RELATIVE WEIGHT % - 60.62 ASH % - 20.77	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.40	5.08	2.39	5.08	2.39	94.92	22.16	34.44	34.44
1.50	35.21	6.67	40.29	6.13	59.71	31.29	32.44	32.69
1.60	23.64	15.83	63.93	9.72	36.07	41.43	28.35	31.09
1.70	11.05	24.19	74.98	11.85	25.02	49.04	23.96	30.04
1.80	4.84	29.48	79.82	12.92	20.18	53.73	21.51	29.52
1.90	3.41	35.58	83.23	13.85	16.77	57.42	18.52	29.07
2.00	2.84	41.97	86.07	14.78	13.93	60.57	15.85	28.63
2.10	4.03	51.08	90.10	16.40	9.90	64.44	12.08	27.89
2.20	0.85	60.07	90.95	16.81	9.05	64.85	10.00	27.72
2.30	2.48	60.11	93.43	17.96	6.57	66.64	9.15	27.23
2.60	6.57	66.64	100.00	21.16			4.66	25.75

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 0.60 X 0.00		ELEMENTAL		CUM. FLOATS		RELATIVE WEIGHT % - 23.00 ASH % - 12.96	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.40	15.58	3.16	15.58	3.16	84.42	15.67	34.37	34.37
1.50	42.50	5.83	58.08	5.11	41.92	25.65	32.69	33.14
1.60	15.26	12.86	73.34	6.73	26.66	32.98	29.24	32.33
1.70	12.03	18.97	85.37	8.45	14.63	44.50	26.41	31.49
1.80	4.66	26.60	90.03	9.39	9.97	52.86	22.99	31.05
1.90	1.95	35.19	91.98	9.94	8.02	57.16	20.04	30.82
2.00	1.18	41.42	93.16	10.34	6.84	59.87	17.35	30.65
2.10	1.54	50.15	94.70	10.98	5.30	62.70	13.10	30.37
2.60	5.30	62.70	100.00	13.72			8.42	29.20

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - I UPPER

SAMPLE ID - 3

WASHABILITY ID - WA1

FRACTION S.G.TME	ANALYSIS TYPE - FROTH		0.15 X		0.00		RELATIVE WEIGHT % - 16.38 ASH % - 15.16		
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
30.00	78.77	10.08	78.77	10.08	21.23	30.77	30.69	30.69	
45.00	4.49	14.66	83.26	10.33	16.74	35.10	29.06	30.60	
60.00	1.77	18.73	85.03	10.50	14.97	37.03	27.55	30.54	
90.00	2.70	28.92	87.73	11.07	12.27	38.81	23.97	30.34	
120.00	2.00	33.96	89.73	11.58	10.27	39.76	21.84	30.15	
300.00	10.27	39.76	100.00	14.47			18.18	28.92	

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82001

SAMPLE ID 3 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP3
 SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.61	65.04	39.43
0.60	0.15	1.92	92.16	21.20

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82001

SAMPLE ID 3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.49
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	1.51	SPECIFIC GRAVITY	1.50
ASH %	10.58	FSI	---
VOLATILE MATTER %	8.37	HGI	59.0
FIXED CARBON %	79.54	CO2 %	0.39

GROSS CALORIFIC VALUE (MJ/KG) 29.98
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82001

SAMPLE ID 3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 06/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.51
CARBON	%	79.90
HYDROGEN	%	2.70
SULPHUR	%	0.49
NITROGEN	%	1.00
ASH	%	10.58
OXYGEN	%	3.82

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDHS2001

SAMPLE ID 3
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 03/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1215.0
 SOFTENING TEMP.(C) 1365.0
 HEMISPHERICAL TEMP.(C) 1380.0
 FLUID TEMP.(C) 1415.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1215.0
 SOFTENING TEMP.(C) 1355.0
 HEMISPHERICAL TEMP.(C) 1380.0
 FLUID TEMP.(C) 1410.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDHS2001

SAMPLE ID 3
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE %	(SI02)	65.61
ALUMINIUM OXIDE %	(AL2O3)	18.75
FERRIC OXIDE %	(FE2O3)	2.94
TITANIUM DIOXIDE %	(TI02)	0.37
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.16
CALCIUM OXIDE %	(CAO)	1.81
MAGNESIUM OXIDE %	(MGO)	1.40
SULPHUR TRIOXIDE %	(SO3)	1.78
SODIUM OXIDE %	(NA2O)	0.78
POTASSIUM OXIDE %	(K2O)	1.07

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDHS2001

SAMPLE ID 3
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE	%	6.00
SULPHATE	%	2.00
ORGANIC	%	92.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDHS2001

SAMPLE ID 3 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.60	100.00	60.62
0.60	0.15	2.60	100.00	23.00
0.15	0.00	300.00	100.00	16.38

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDHS2001

SAMPLE ID 3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP4 DATE ANALYSED 08/10/82
SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.47
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00500
RESIDUAL MOISTURE (AD,EM)	2.04	SPECIFIC GRAVITY	1.52
ASH %	18.01	FSI	---
VOLATILE MATTER %	7.25	HGI	67.0
FIXED CARBON %	72.70	CO2 %	2.12

GROSS CALORIFIC VALUE (MJ/KG) 27.30
NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDHS2001

SAMPLE ID 3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP4 DATE ANALYSED 20/10/82
SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	2.04
CARBON	%	73.17
HYDROGEN	%	2.49
SULPHUR	%	0.47
NITROGEN	%	0.72
ASH	%	18.01
OXYGEN	%	5.14

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82001
 =====

SAMPLE ID 3
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
*****		*****	
INITIAL TEMP.(C)	1220.0	INITIAL TEMP.(C)	1210.0
SOFTENING TEMP.(C)	1275.0	SOFTENING TEMP.(C)	1260.0
HEMISPHERICAL TEMP.(C)	1300.0	HEMISPHERICAL TEMP.(C)	1275.0
FLUID TEMP.(C)	1360.0	FLUID TEMP.(C)	1345.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82001
 =====

SAMPLE ID 3
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE %	(SI02)	55.55
ALUMINIUM OXIDE %	(AL2O3)	18.16
FERRIC OXIDE %	(FE2O3)	5.40
TITANIUM DIOXIDE %	(TI02)	0.49
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.55
CALCIUM OXIDE %	(CAO)	6.31
MAGNESIUM OXIDE %	(MGO)	2.27
SULPHUR TRIOXIDE %	(SO3)	4.93
SODIUM OXIDE %	(NA2O)	0.42
POTASSIUM OXIDE %	(K2O)	1.05

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82001
 =====

SAMPLE ID 3
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	9.00
SULPHATE	%	2.00
ORGANIC	%	89.00

TOTAL 100.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82001

SAMPLE ID 3 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP5

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION	YEILD/FRACTION RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.70	9.94	6.00
0.15	0.00	300.00	100.00	16.38

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82001

SAMPLE ID 3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP5 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % <AD,AR>	---	TOTAL SULPHUR %	0.47
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS	---
EG MOISTURE %	---	CHLORINE (PPM)	---
		SPG	---
INHERENT MOISTURE <AD,EM>	0.80	FSI	---
ASH %	17.66	HGI	---
FIXED CARBON %	73.99	CO2 %	---
VOLITILE MATTER %	7.55		

GROSS CALORIFIC VALUE (MJ,KG) 28.05
 NET CALORIFIC VALUE (MJ,KG) ---

Vitrinite Reflectance Data For
 Gulf Canada Resources Inc.
 Sample #4706-4707
 Pellet #1

OBSERVATION NUMBER	ROMAX VALUE	OBSERVATION NUMBER	ROMAX VALUE
1	3.37	26	3.69
2	3.55	27	3.56
3	3.28	28	3.72
4	3.53	29	3.77
5	3.60	30	3.25
6	3.40	31	3.49
7	3.29	32	3.45
8	3.56	33	3.41
9	3.36	34	3.57
10	3.51	35	3.51
11	3.27	36	3.33
12	3.43	37	3.62
13	3.47	38	3.32
14	3.59	39	3.51
15	3.74	40	3.40
16	3.77	41	3.40
17	3.49	42	3.46
18	3.30	43	3.69
19	3.43	44	3.62
20	3.39	45	3.64
21	3.71	46	3.48
22	3.24	47	3.46
23	3.66	48	3.57
24	3.56	49	3.27
25	3.57	50	3.74

Gulf Canada Resources Inc.
 Sample #4706-4707
 Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS 50
 MEAN MAXIMUM REFLECTANCE
 OF VITRINITE 8.52
 STANDARD ERROR OF THE MEAN 0.02
 COEFFICIENT OF VARIATION 4.29
 VARIANCE 0.0212
 STANDARD DEVIATION 0.1456
 SKEWNESS -0.0792
 KURTOSIS 2.2375

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
8	3.20	3	10.00
9	3.30	5	10.00
10	3.40	10	20.00
11	3.50	11	22.00
12	3.60	7	14.00
13	3.70	4	8.00
14	3.80	1	2.00

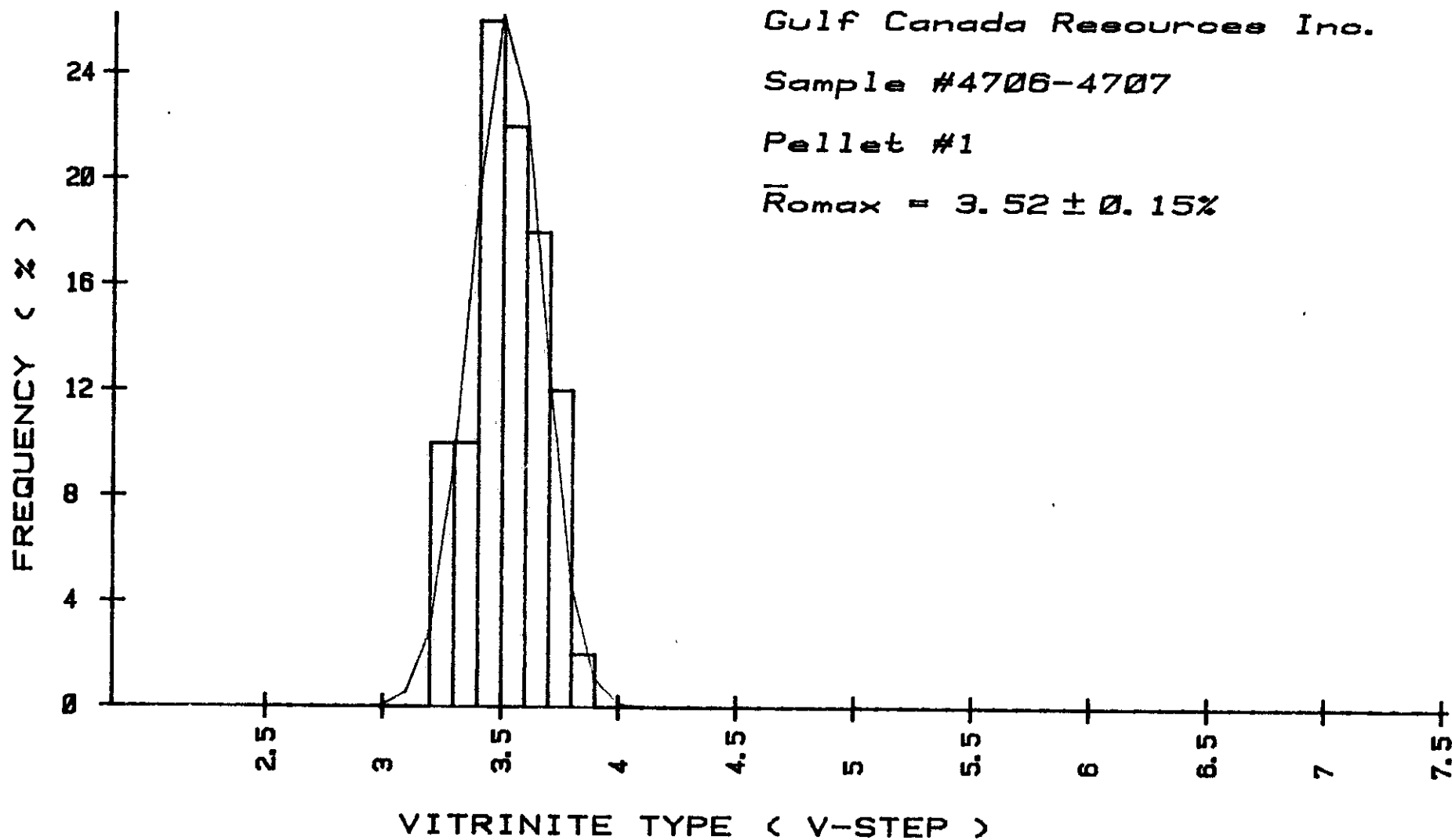
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4706-4707

Pellet #1

$\bar{R}_{\text{max}} = 3.52 \pm 0.15\%$



Results Of Maceral Analysis For
 Gulf Canada Resources Inc.
 #4706 - 4707
 Semifusinite - KOENSLER method

COUNT #	1	2	3	4	5	6	7	8	9	10
VITRINITE	57.0	50.0	52.0	61.0	46.0	44.0	47.0	43.0	57.0	54.0
EXINITE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REACTIVE SEMIF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL REACTIVE	57.0	50.0	52.0	61.0	46.0	44.0	47.0	43.0	57.0	54.0
MACRINITE	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
INERT SEMIFUSI	38.0	47.0	44.0	34.0	53.0	52.0	48.0	54.0	39.0	41.0
FUSINITE	5.0	1.0	2.0	4.0	1.0	4.0	3.0	0.0	4.0	5.0
INERTODETRINIT	0.0	2.0	1.0	1.0	0.0	0.0	2.0	2.0	0.0	0.0
TOTAL INERTINI	43.0	50.0	48.0	39.0	54.0	56.0	53.0	57.0	43.0	46.0

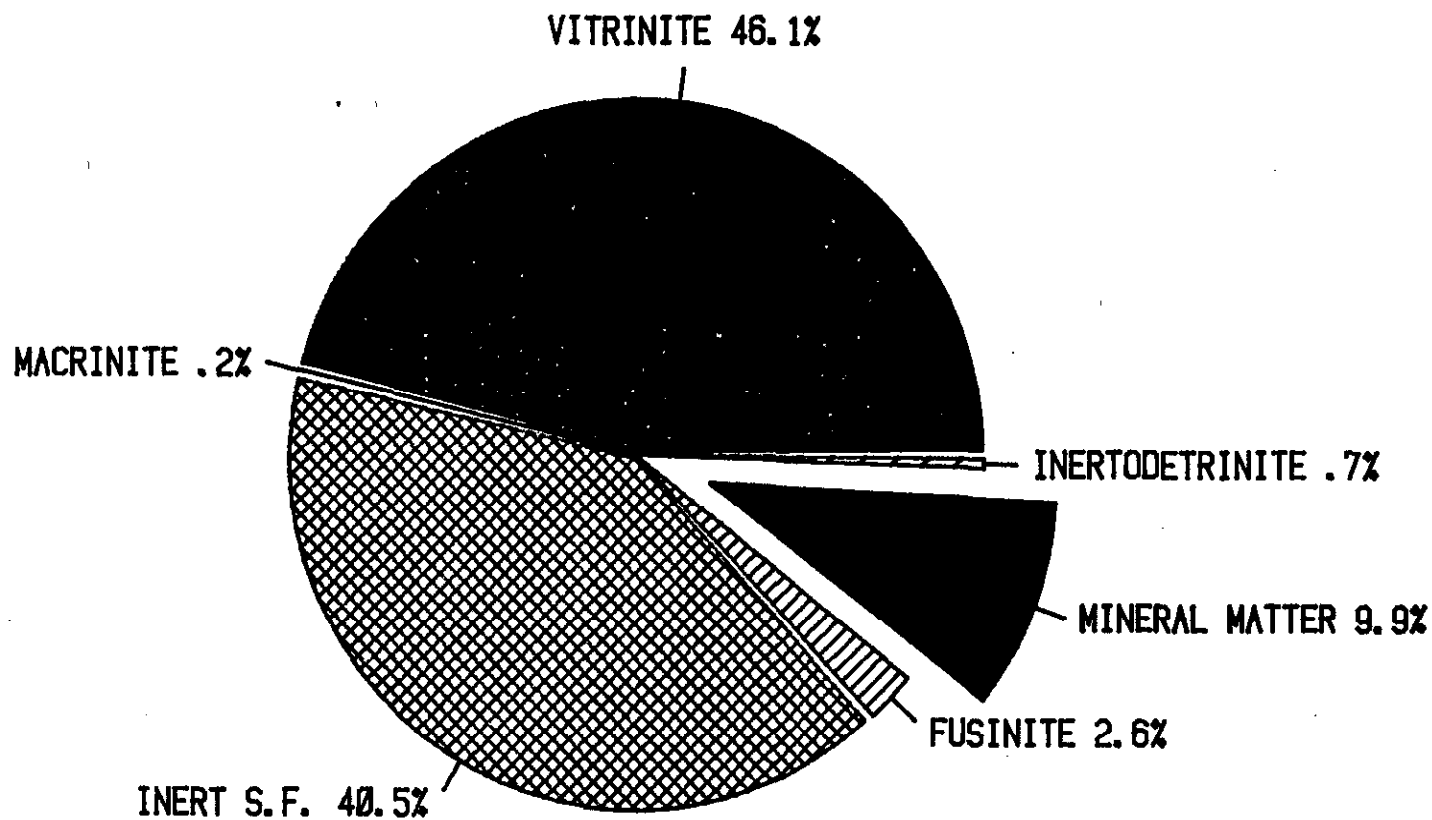
BASIC STATISTICS	MEAN	ST.DEVIATION	VARIANCE
VITRINITE	51.1	6.1	37.4
EXINITE	0.0	0.0	0.0
REACTIVE SEMIFUSINITE	0.0	0.0	0.0
TOTAL REACTIVES	51.1	6.1	37.4
MACRINITE	0.2	0.4	0.2
INERT SEMIFUSINITE	45.0	6.9	47.8
FUSINITE	2.9	1.8	3.2
INERTODETRINITE	0.8	0.9	0.8
TOTAL INERTINITES	48.9	6.1	37.4

MACERAL DATA CORRECTED FOR MINERAL-MATTER CONTENT

VITRINITE	46.1
EXINITE	0.0
REACTIVE SEMIFUSINITE	0.0
TOTAL REACTIVES	46.1
MACRINITE	0.2
INERT SEMIFUSINITE	40.5
FUSINITE	2.6
INERTODETRINITE	0.7
MINERAL MATTER	9.9
TOTAL INERTS	53.9

MACERAL DISTRIBUTION

Gulf Sample #4706 -4707
Semifusinite - KOENSLER method



GULF CANADA RESOURCES INC.

SAMPLE # 4706-4707

MINERAL MATTER—DRY LENS				
Calc.	Py	Qu	Sh	Coal.
6	0	3	2	89
5	1	5	3	86
4	0	4	1	91
4	0	4	1	91
12	0	3	4	81

AVERAGE				
6.2	0.2	3.8	2.2	87.6

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - I

SAMPLE ID - 4708

WASHABILITY ID - WA1

FRACTION SIZE (MM)		ANALYSIS TYPE - FLOAT		RELATIVE WEIGHT % - 100.00		ASH % -		
S.G.TME	SIZE (MM)	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.
		WT%	ASH%	WT%	ASH%	WT%	ASH%	
1.70	9.53	6.30	16.52	6.30	16.52	93.70	81.76	27.44
2.60	0.00	93.70	81.76	100.00	77.65			2.31

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - I

SAMPLE ID - 4709

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT										
FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.70		48.43	15.05	48.43	15.05	51.57	58.05	28.12		28.12
2.60		51.57	58.05	100.00	37.23			10.33		18.95

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - 1

SAMPLE ID - 4725

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT											
FRACTION	SIZE(MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		C.V.
1.70		2.08	17.21	2.08	17.21	97.92	85.98	27.27		27.27	
2.60		97.92	85.98	100.00	84.55			0.00		0.57	

GCRI COAL DIVISION		HEAD	PROJ	KPN	BLK	HC	DS	DDH82001
SAMPLE ID	4							DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID	HD1							DATE ANALYSED 08/10/82
								ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)		ASTM						
TOP SIZE (MM)		10.00						
SURFACE MOISTURE %<AD,AR>		---				TOTAL SULPHUR %		0.28
TOTAL MOISTURE %		---				PHOSPHOROUS %		---
EQUILIBRIUM MOISTURE %		---				CHLORINE (PPM)		00209
						SPECIFIC GRAVITY		1.91
RESIDUAL MOISTURE %<AD,EM>		1.93				FSI		---
ASH %		50.42				HGI		67.0
VOLATILE MATTER %		7.78				CO2 %		3.10
FIXED CARBON %		39.87						
GROSS CALORIFIC VALUE (MJ/KG)		14.32						
NET CALORIFIC VALUE (MJ/KG)		---						

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	HC	DS	DDH82001
SAMPLE ID	4							DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID	SZ1							DATE ANALYSED 08/10/82
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS	
MM (MM) TO (MM)				(MJ/KG)				
10.00	0.60	69.36	54.62	---	12.44	1.83	8.28	0.27
0.60	0.15	20.15	44.66	---	16.59	1.18	8.41	0.34
0.15	0.00	10.49	44.48	---	15.60	1.49	7.68	0.31

GCRI COAL DIVISION		ULTIMATE	PROJ	KPN	BLK	HC	DS	DDH82001
SAMPLE ID	4							
SAMPLE PRODUCT ID	SP1							DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID	UL1							DATE ANALYSED 20/10/82
ANALYSIS BASIS TYPE (DAF,DB,AD)		AD						
WATER	%	1.93						
CARBON	%	43.17						
HYDROGEN	%	1.71						
SULPHUR	%	0.28						
NITROGEN	%	0.54						
ASH	%	50.42						
OXYGEN	%	1.95						

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82001

SAMPLE ID 4
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1280.0
 SOFTENING TEMP.(C) 1370.0
 HEMISPHERICAL TEMP.(C) 1420.0
 FLUID TEMP.(C) 1455.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
 SOFTENING TEMP.(C) 1320.0
 HEMISPHERICAL TEMP.(C) 1370.0
 FLUID TEMP.(C) 1450.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82001

SAMPLE ID 4
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE %	(SI02)	59.35
ALUMINIUM OXIDE %	(AL2O3)	22.62
FERRIC OXIDE %	(FE2O3)	4.14
TITANIUM DIOXIDE %	(TI02)	0.60
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.10
CALCIUM OXIDE %	(CAO)	1.64
MAGNESIUM OXIDE %	(MGO)	2.07
SULPHUR TRIOXIDE %	(SO3)	1.49
SODIUM OXIDE %	(NA2O)	1.43
POTASSIUM OXIDE %	(K2O)	1.58

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82001

SAMPLE ID 4
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	32.00
SULPHATE	%	4.00
ORGANIC	%	64.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDH82001 SEAM - I UPPER

SAMPLE ID - 4

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM) 10.00 X 0.60		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 69.36 ASH % - 54.62		
	ELEMENTAL		WT%	ASH%	WT%	ASH%	C.V.	CUM.	C.V.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	1.92	5.21	1.92	5.21	98.08	53.99	32.95	32.95	
1.50	7.45	9.13	9.37	8.33	90.63	57.68	31.81	32.04	
1.60	13.35	19.31	22.72	14.78	77.28	64.30	28.22	29.80	
1.70	11.38	27.63	34.10	19.07	65.90	70.64	23.70	27.76	
1.80	6.15	35.53	40.25	21.58	59.75	74.25	19.89	26.56	
1.90	5.72	41.85	45.97	24.11	54.03	77.68	17.56	25.44	
2.00	5.27	49.12	51.24	26.68	48.76	80.77	13.72	24.23	
2.10	4.20	55.37	55.44	28.85	44.56	83.16	10.26	23.18	
2.20	1.74	59.61	57.18	29.79	42.82	84.12	10.23	22.78	
2.30	2.45	64.77	59.63	31.23	40.37	85.29	8.91	22.21	
2.60	40.37	85.29	100.00	53.05			0.00	13.24	

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM) 0.60 X 0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 20.15 ASH % - 44.66		
	ELEMENTAL		WT%	ASH%	WT%	ASH%	C.V.	CUM.	C.V.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	11.18	2.30	11.18	2.30	88.82	50.55	34.57	34.57	
1.50	18.93	6.28	30.11	4.80	69.89	62.54	32.64	33.36	
1.60	7.30	15.35	37.41	6.86	62.59	68.04	28.84	32.48	
1.70	7.87	21.03	45.28	9.32	54.72	74.80	26.09	31.37	
1.80	3.56	31.31	48.84	10.93	51.16	77.83	21.73	30.66	
1.90	2.26	38.92	51.10	12.16	48.90	79.63	19.20	30.16	
2.00	1.73	45.67	52.83	13.26	47.17	80.87	16.27	29.70	
2.10	2.50	53.10	55.33	15.06	44.67	82.43	12.66	28.93	
2.20	0.70	62.50	56.03	15.65	43.97	82.74	9.75	28.69	
2.30	0.69	65.33	56.72	16.26	43.28	83.02	9.18	28.45	
2.60	43.28	83.02	100.00	45.15			0.00	16.14	

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - I UPPER

SAMPLE ID -

4

WASHABILITY ID - WAI

ANALYSIS TYPE - FROTH

FRACTION	SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT %		- 10.49 ASH % - 44.48	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00		58.23	19.84	58.23	19.84	41.77	70.53	26.76	26.76
45.00		8.17	38.45	66.40	22.13	33.60	78.34	19.96	25.92
60.00		3.99	56.37	70.39	24.07	29.61	81.30	11.77	25.12
90.00		4.57	69.32	74.96	26.83	25.04	83.48	6.16	23.97
120.00		3.72	81.26	78.68	29.40	21.32	83.87	0.00	22.83
300.00		21.32	83.87	100.00	41.02			0.00	17.96

Vitrinite Reflectance Data For
 Gulf Canada Resources Inc.
 Sample #4708-4709
 Pellet #1

OBSERVATION NUMBER	R _{MAX} VALUE	OBSERVATION NUMBER	R _{MAX} VALUE
1	3.35	26	3.80
2	3.33	27	3.21
3	3.38	28	3.22
4	3.37	29	3.39
5	3.21	30	3.21
6	3.00	31	3.44
7	3.27	32	3.39
8	3.19	33	3.25
9	3.31	34	3.23
10	3.28	35	3.43
11	3.24	36	3.40
12	3.23	37	3.39
13	3.21	38	3.22
14	3.28	39	3.21
15	3.26	40	3.22
16	3.22	41	3.33
17	3.26	42	3.33
18	3.23	43	3.20
19	3.28	44	3.28
20	3.28	45	3.23
21	3.26	46	3.22
22	3.29	47	3.26
23	3.22	48	3.22
24	3.27	49	3.27
25	3.42	50	3.30

Gulf Canada Resources Inc.
 Sample #4708-4709
 Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.38
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	3.03
VARIANCE	0.0167
STANDARD DEVIATION	0.1292
SKENNESS	0.7072
KURTOSIS	2.2140

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	3.20	14	28.00
4	3.30	20	40.00
5	3.40	6	12.00
6	3.50	7	14.00
7	3.60	3	6.00

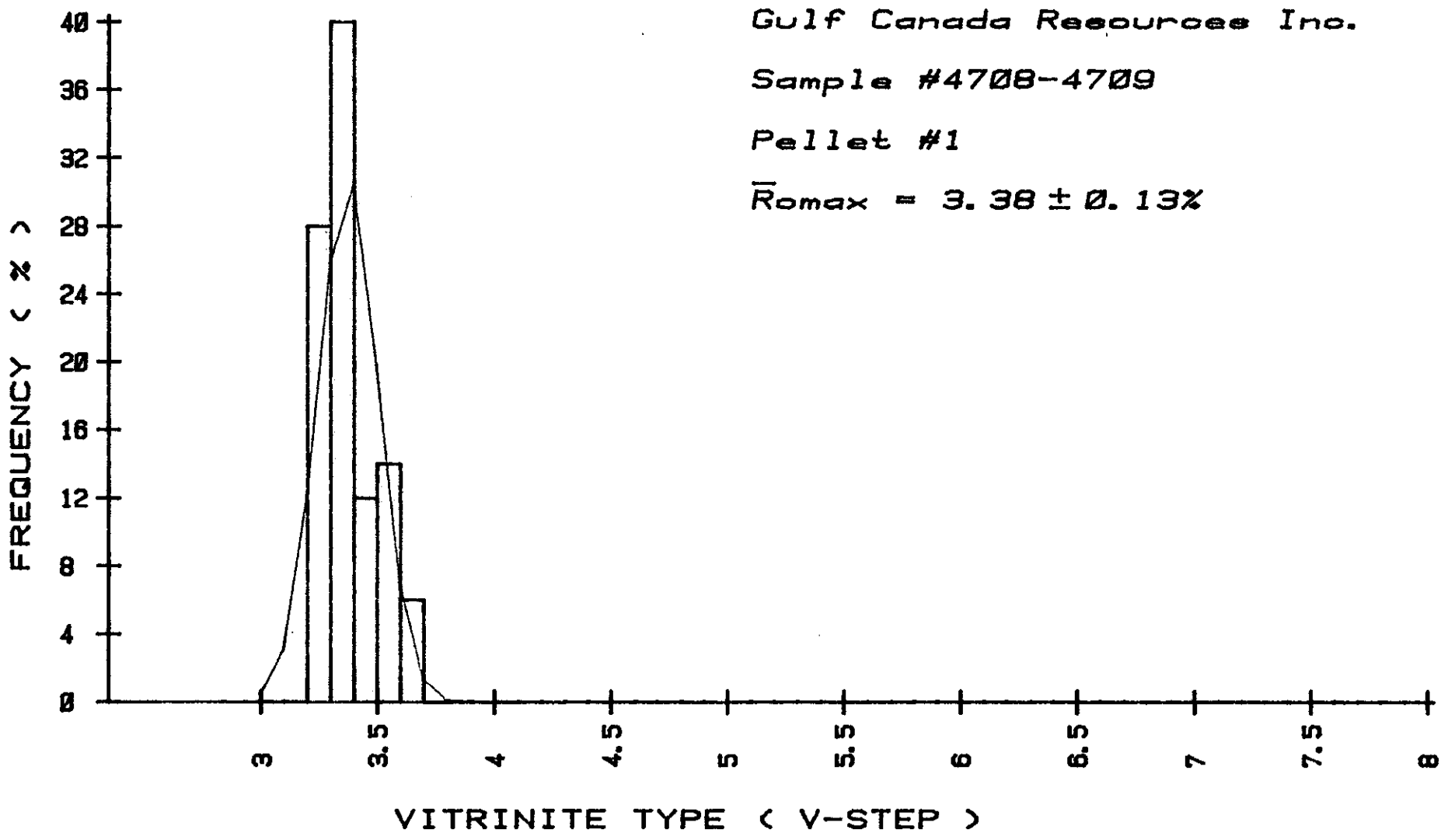
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4708-4709

Pellet #1

$\bar{R}_{\text{omax}} = 3.38 \pm 0.13\%$



GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - 1

SAMPLE ID - 4710

WASHABILITY ID - WAI

FRACTION		ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -	
SIZE (MM)		9.53 X		0.00		CUM. SINKS		C.V.		CUM.	
S.G.TME		ELEMENTAL		CUM. FLOATS		WT% ASH%		(MJ/KG)		C.V.	
		WT%	ASH%	WT%	ASH%	WT%	ASH%				
1.70		88.02	11.42	88.02	11.42	11.98	52.53	29.24		29.24	
2.60		11.98	52.53	100.00	16.34			12.84		27.28	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - I

SAMPLE ID - 4711

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	68.50	16.85	68.50	16.85	31.50	38.50	27.20	27.20
2.60	31.50	38.50	100.00	23.67			20.20	24.99

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - I

SAMPLE ID - 4712

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	80.84	13.21	80.84	13.21	19.16	49.42	29.66	29.66
2.60	19.16	49.42	100.00	20.15			17.30	27.29

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - I

SAMPLE ID - 4713

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE (MM) 9.53 X 0.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00	ASH % -
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.70	49.27	18.32	49.27	18.32	50.73	55.56	27.27	27.27		
2.60	50.73	55.56	100.00	37.21			12.42	19.74		

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDH82001 SEAM - I

SAMPLE ID - 4714

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00 ASH % -			
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	91.52	7.88	91.52	7.88	8.48	48.38	31.45	31.45
2.60	8.48	48.38	100.00	11.31			12.04	29.80

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82001

SAMPLE ID 5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 08/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 10.00
 SURFACE MOISTURE %<AD,AR> ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---

RESIDUAL MOISTURE %<AD,EM> 1.63
 ASH % 16.91
 VOLATILE MATTER % 6.99
 FIXED CARBON % 74.47

TOTAL SULPHUR % 0.47
 PHOSPHOROUS % ---
 CHLORINE (PPM) 00275
 SPECIFIC GRAVITY 1.50
 FSI ---
 HGI 40.0
 CO2 % 1.31

GROSS CALORIFIC VALUE (MJ/KG) 28.73
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82001

SAMPLE ID 5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 08/10/82

FRACTION SIZE	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00 0.60	71.79	17.32	---	27.80	1.60	6.95	0.50
0.60 0.15	17.65	13.69	---	29.76	1.21	6.87	0.42
0.15 0.00	10.56	18.11	---	28.08	1.61	6.80	0.46

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82001

SAMPLE ID 5
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 20/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.63
CARBON	%	74.95
HYDROGEN	%	2.41
SULPHUR	%	0.47
NITROGEN	%	0.92
ASH	%	16.91
OXYGEN	%	2.71

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82001
=====

SAMPLE ID 5
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
SOFTENING TEMP.(C) 1260.0
HEMISPHERICAL TEMP.(C) 1310.0
FLUID TEMP.(C) 1330.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1195.0
SOFTENING TEMP.(C) 1245.0
HEMISPHERICAL TEMP.(C) 1265.0
FLUID TEMP.(C) 1300.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82001
=====

SAMPLE ID 5
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE % (SI02) 54.66
ALUMINIUM OXIDE % (AL2O3) 23.61
FERRIC OXIDE % (FE2O3) 5.49
TITANIUM DIOXIDE % (TI02) 0.81
PHOSPHOROUS PENTOXIDE % (P2O5) 1.46
CALCIUM OXIDE % (CAO) 3.92
MAGNESIUM OXIDE % (MGO) 2.33
SULPHUR TRIOXIDE % (SO3) 3.05
SODIUM OXIDE % (NA2O) 1.29
POTASSIUM OXIDE % (K2O) 0.89

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82001
=====

SAMPLE ID 5
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE % 2.00
SULPHATE % 2.00
ORGANIC % 96.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - I LOWER

SAMPLE ID - 5

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 10.00 X 0.60		CUM. FLOATS		RELATIVE WEIGHT % - 71.79 ASH % - 17.32		C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	WT%	ASH%	CUM. SINKS WT%	ASH%		
1.40	16.13	2.43	16.13	2.43	83.87	20.85	34.53	34.53
1.50	38.92	7.73	55.05	6.18	44.95	32.21	31.93	32.69
1.60	21.01	17.80	76.06	9.39	23.94	44.86	28.22	31.46
1.70	8.16	27.74	84.22	11.17	15.78	53.71	23.41	30.68
1.80	3.63	35.00	87.85	12.15	12.15	59.30	20.26	30.25
1.90	2.65	41.14	90.50	13.00	9.50	64.37	17.52	29.87
2.00	1.16	44.91	91.66	13.40	8.34	67.07	15.31	29.69
2.10	2.06	57.92	93.72	14.38	6.28	70.07	12.22	29.31
2.20	0.36	58.33	94.08	14.55	5.92	70.79	10.17	29.23
2.30	0.51	59.01	94.59	14.79	5.41	71.90	8.78	29.12
2.60	5.41	71.90	100.00	17.88			3.18	27.72

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 0.60 X 0.15		CUM. FLOATS		RELATIVE WEIGHT % - 17.65 ASH % - 13.69		C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	WT%	ASH%	CUM. SINKS WT%	ASH%		
1.40	24.76	2.02	24.76	2.02	75.24	18.61	34.57	34.57
1.50	37.88	5.94	62.64	4.39	37.36	31.47	32.72	33.45
1.60	15.82	13.72	78.46	6.27	21.54	44.50	29.53	32.66
1.70	6.80	22.47	85.26	7.56	14.74	54.66	25.19	32.06
1.80	2.80	28.35	88.06	8.22	11.94	60.83	23.05	31.78
1.90	2.16	36.29	90.22	8.90	9.78	66.25	19.03	31.47
2.00	1.30	43.68	91.52	9.39	8.48	69.71	16.23	31.26
2.10	1.45	51.22	92.97	10.04	7.03	73.53	13.10	30.97
2.30	0.89	61.17	93.86	10.53	6.14	75.32	8.82	30.76
2.60	6.14	75.32	100.00	14.51			2.82	29.05

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - I LOWER

SAMPLE ID - 5

WASHABILITY ID - WAI

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % - 10.56 ASH % - 18.11		C.V.	CUM.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
S.G.TME							(MJ/KG)	C.V.
30.00	59.48	9.48	59.48	9.48	40.52	30.13	31.56	31.56
45.00	10.94	11.10	70.42	9.73	29.58	37.17	30.60	31.41
60.00	4.37	11.41	74.79	9.83	25.21	41.63	30.33	31.35
90.00	3.68	21.40	78.47	10.37	21.53	45.09	26.23	31.11
120.00	3.32	34.91	81.79	11.37	18.21	46.95	20.94	30.69
300.00	18.21	46.95	100.00	17.85			16.28	28.07

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82001

SAMPLE ID 5 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP2

SAMPLE WEIGHT (KG) -----

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.47	43.37	31.14
0.60	0.15	1.53	67.39	11.89

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82001

SAMPLE ID 5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP2 DATE ANALYSED 01/12/82
SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %<AD,AR>	-----	TOTAL SULPHUR %	0.55
TOTAL MOISTURE % (AR)	-----	PHOSPHOROUS %	-----
EQUILIBRIUM MOISTURE %	-----	CHLORINE (PPM)	-----
RESIDUAL MOISTURE (AD,EM)	0.55	SPECIFIC GRAVITY	1.41
ASH %	6.04	FSI	-----
VOLATILE MATTER %	6.44	HGI	36.0
FIXED CARBON %	86.97	CO2 %	0.10

GROSS CALORIFIC VALUE (MJ/KG) 32.73
NET CALORIFIC VALUE (MJ/KG) -----

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82001

SAMPLE ID 5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP2 DATE ANALYSED 06/12/82
SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.55
CARBON	%	86.90
HYDROGEN	%	3.20
SULPHUR	%	0.55
NITROGEN	%	1.13
ASH	%	6.04
OXYGEN	%	1.63

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82001

SAMPLE ID 5
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 03/12/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1220.0
SOFTENING TEMP.(C) 1415.0
HEMISPHERICAL TEMP.(C) 1465.0
FLUID TEMP.(C) 1500.0

INITIAL TEMP.(C) 1195.0
SOFTENING TEMP.(C) 1390.0
HEMISPHERICAL TEMP.(C) 1455.0
FLUID TEMP.(C) 1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82001

SAMPLE ID 5
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE % (SI02) 57.71
ALUMINIUM OXIDE % (AL2O3) 24.91
FERRIC OXIDE % (FE2O3) 2.02
TITANIUM DIOXIDE % (TI02) 1.09
PHOSPHOROUS PENTOXIDE % (P2O5) 3.63
CALCIUM OXIDE % (CAO) 2.39
MAGNESIUM OXIDE % (MGO) 0.67
SULPHUR TRIOXIDE % (SO3) 0.77
SODIUM OXIDE % (NA2O) 1.27
POTASSIUM OXIDE % (K2O) 0.80

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82001

SAMPLE ID 5
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE % 2.00
SULPHATE % 2.00
ORGANIC % 96.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDHB2001

SAMPLE ID 5 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.60	100.00	71.79
0.60	0.15	2.60	100.00	17.65
0.15	0.00	300.00	100.00	10.56

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDHB2001

SAMPLE ID 5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 08/10/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.47
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00275
RESIDUAL MOISTURE (AD,EM)	1.63	SPECIFIC GRAVITY	1.50
ASH %	16.91	FSI	---
VOLATILE MATTER %	6.99	HGI	40.0
FIXED CARBON %	74.47	CO2 %	1.31

GROSS CALORIFIC VALUE (MJ/KG) 28.73
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDHB2001

SAMPLE ID 5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 20/10/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.63
CARBON	%	74.95
HYDROGEN	%	2.59
SULPHUR	%	0.47
NITROGEN	%	0.92
ASH	%	16.91
OXYGEN	%	4.16

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82001

=====

SAMPLE ID 5
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
*****		*****	
INITIAL TEMP.(C)	1230.0	INITIAL TEMP.(C)	1195.0
SOFTENING TEMP.(C)	1260.0	SOFTENING TEMP.(C)	1245.0
HEMISPHERICAL TEMP.(C)	1310.0	HEMISPHERICAL TEMP.(C)	1265.0
FLUID TEMP.(C)	1330.0	FLUID TEMP.(C)	1300.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82001

=====

SAMPLE ID 5
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE %	(SI02)	54.66
ALUMINIUM OXIDE %	(AL2O3)	23.61
FERRIC OXIDE %	(FE2O3)	5.49
TITANIUM DIOXIDE %	(TI02)	0.81
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.46
CALCIUM OXIDE %	(CAO)	3.92
MAGNESIUM OXIDE %	(MGO)	2.33
SULPHUR TRIOXIDE %	(SO3)	3.05
SODIUM OXIDE %	(NA2O)	1.29
POTASSIUM OXIDE %	(K2O)	0.89

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82001

=====

SAMPLE ID 5
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

TOTAL 100.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82001

SAMPLE ID 5 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP5

SAMPLE WEIGHT (KG) ---.---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION	YEILD/FRACTION RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.30	51.22	36.77
0.60	0.15	2.30	26.47	4.67
0.15	0.00	300.00	100.00	10.56

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82001

SAMPLE ID 5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP5 DATE ANALYSED 02/12/82
SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % <AD,AR>	---.---	TOTAL SULPHUR %	0.31
TOTAL MOISTURE % <AR>	---.---	PHOSPHOROUS	---.---
TO MOISTURE %	---.---	CHLORINE (PPM)	---.---
		SPG	---.---
INHERENT MOISTURE <AD,EM>	0.99	FSI	---.---
ASH %	20.71	HGI	---.---
FIXED CARBON %	70.99	CO2 %	---.---
VOLITILE MATTER %	7.31		

GROSS CALORIFIC VALUE (MJ,KG) 26.43
NET CALORIFIC VALUE (MJ,KG) ---.---

Vitrinite Reflectance Data For
 Gulf Canada Resources Inc.
 Sample #4710-4714
 Pellet #1

OBSERVATION NUMBER	ROMAX VALUE	OBSERVATION NUMBER	ROMAX VALUE
1	4.02	26	3.90
2	3.97	27	3.78
3	3.84	28	3.90
4	3.61	29	3.60
5	3.68	30	3.71
6	3.77	31	3.60
7	3.73	32	3.67
8	3.68	33	3.73
9	4.12	34	3.61
10	3.80	35	3.78
11	3.68	36	3.66
12	3.61	37	3.76
13	3.60	38	3.62
14	3.42	39	4.02
15	3.86	40	3.61
16	3.69	41	3.76
17	3.68	42	3.59
18	3.61	43	3.77
19	3.91	44	3.61
20	3.71	45	3.71
21	4.04	46	3.86
22	3.70	47	3.59
23	3.63	48	3.87
24	3.72	49	3.67
25	3.87	50	3.62

Gulf Canada Resources Inc.
 Sample #4710-4714
 Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRENITE	3.76
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	3.58
VARIANCE	0.0161
STANDARD DEVIATION	0.1345
SKEWNESS	0.7426
KURTOSIS	0.1221

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY
5	3.50	4	8.00
7	3.60	14	28.00
8	3.70	12	24.00
9	3.80	10	20.00
10	3.90	4	8.00
11	4.00	3	6.00
12	4.10	1	2.00

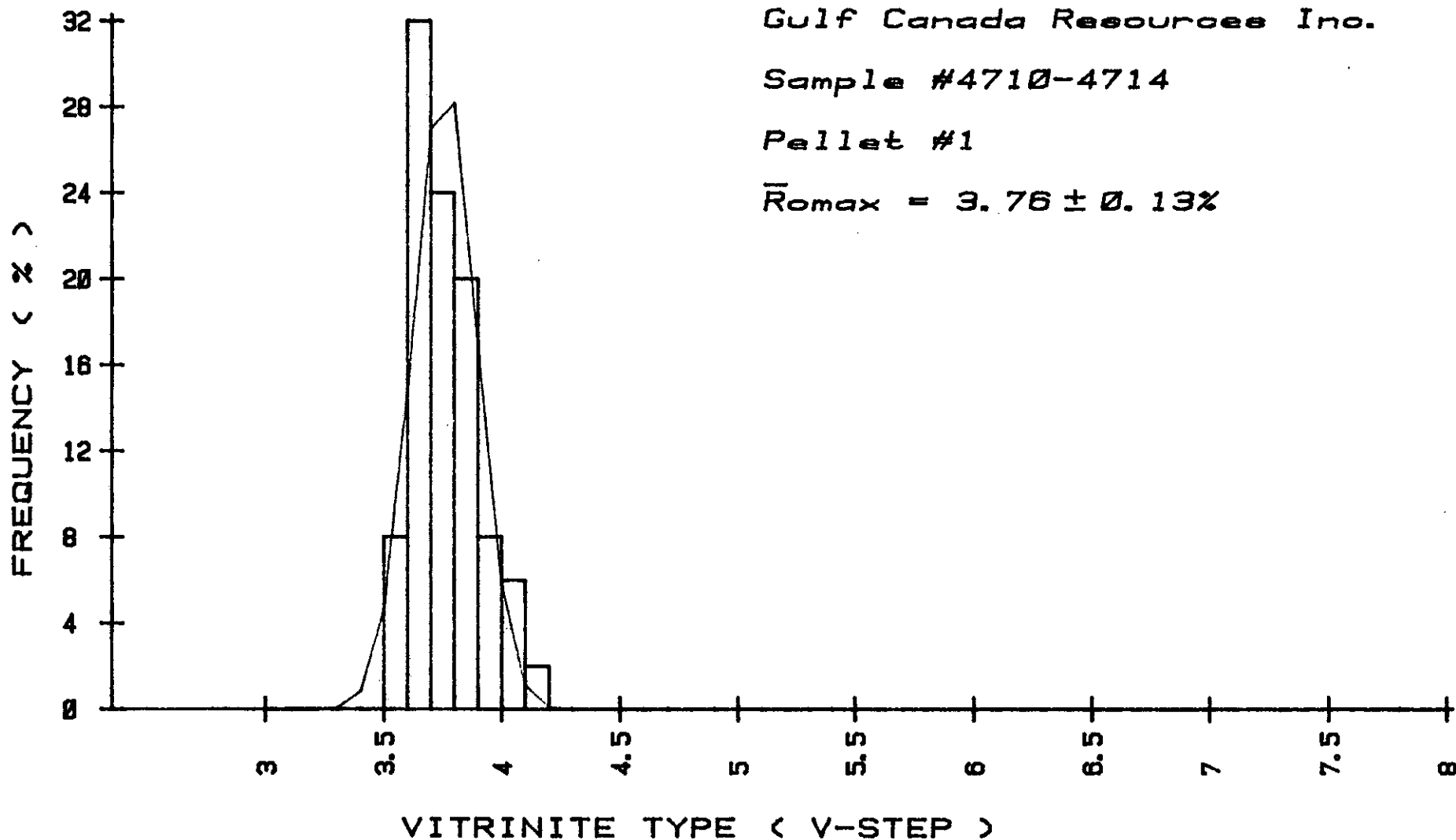
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4710-4714

Pellet #1

$\bar{R}_{\text{omax}} = 3.76 \pm 0.13\%$



GULF CANADA RESOURCES INC.

SAMPLE # 4710-4714

MINERAL MATTER - DRY LENS				
Calc.	Py	Qu	Sh	Coal
6	0	2	2	90
7	0	1	1	91
6	0	2	4	88
8	0	1	0	91
3	0	1	1	95

AVERAGE				
6	0	1.4	1.6	91

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - H

SAMPLE ID - 4715

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT											
FRACTION	SIZE(MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		C.V.
1.70		27.47	18.14	27.47	18.14	72.53	51.28	25.83		25.83	
2.60		72.53	51.28	100.00	42.18			14.34		17.50	

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - H

SAMPLE ID - 4716

WASHABILITY ID - WA1

FRACTION SIZE (MM)		ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -	
S.G.TME	SIZE (MM)	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	C.V.	CUM.
		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)			
1.70	9.53 X	72.67	14.11	72.67	14.11	27.33	45.74	29.61	29.61		
2.60	0.00	27.33	45.74	100.00	22.75			16.92	26.14		

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - H

SAMPLE ID - 4717

WASHABILITY ID - WA1

FRACTION S.G.TME	ANALYSIS TYPE - FLOA1				RELATIVE WEIGHT % - 100.00				ASH % -		
	SIZE(MM)	9.53 X		0.00		CUM. SINKS		C.V.		CUM.	
	ELEMENTAL	CUM. FLOATS		CUM. SINKS		C.V.		C.V.			
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.			
1.70	41.14	19.13	41.14	19.13	58.86	55.00	27.43	27.43			
2.60	58.86	55.00	100.00	40.24			13.45	19.20			

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - H

SAMPLE ID - 4718

WASHABILITY ID - #A1

FRACTION SIZE (MM)		ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00			
S.G.TME	SIZE (MM)	ELEMENTAL		CUM. FLOATS		CUM. SINKS		ASH % -	
		WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.70	9.53 X	43.16	17.74	43.16	17.74	56.84	53.34	27.94	27.94
2.60	0.00	56.84	53.34	100.00	37.98			12.78	19.32

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - H

SAMPLE ID - 4719

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	8.08	19.53	8.08	19.53	91.92	77.25	27.62	27.62
2.60	91.92	77.25	100.00	72.59			5.15	6.97

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - H

SAMPLE ID - 4720

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE (MM) 9.53 X 0.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00	ASH % -
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.70	70.37	13.29	70.37	13.29	29.63	49.94	29.90	29.90		
2.60	29.63	49.94	100.00	24.15			10.12	24.04		

GCRI COAL DIVISION		HEAD	PROJ	KPN	BLK	HC	DS	DDHB2001	
=====		=====	=====						
SAMPLE ID	6		DATA TYPE (REAL,BORO,AVER,CALC)					REAL	
SPLIT SAMPLE ID	HD1		DATE ANALYSED 08/10/82						
			ANALYSIS BASIS TYPE (AD,DB,AR,EM)					AD	
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)		ASTM							
TOP SIZE (MM)			10.00						
SURFACE MOISTURE % (AD,AR)			---						
TOTAL MOISTURE %			---						
EQUILIBRIUM MOISTURE %			---						
RESIDUAL MOISTURE % (AD,EM)			1.77						
ASH %			40.16						
VOLATILE MATTER %			7.19						
FIXED CARBON %			50.88						
GROSS CALORIFIC VALUE (MJ/KG)			19.47						
NET CALORIFIC VALUE (MJ/KG)			---						

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	HC	DS	DDHB2001
=====		=====	=====					
SAMPLE ID	6		DATA TYPE (REAL,BORO,AVER,CALC)					REAL
SPLIT SAMPLE ID	SZ1		DATE ANALYSED 08/10/82					
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS	
MM (MM) TO (MM)				(MJ/KG)				
10.00 0.60	82.91	40.62	---	19.40	1.75	7.20	1.33	
0.60 0.15	11.53	38.35	---	19.92	1.20	7.29	0.98	
0.15 0.00	5.56	47.53	---	15.44	1.45	7.20	0.93	

GCRI COAL DIVISION		ULTIMATE	PROJ	KPN	BLK	HC	DS	DDHB2001
=====		=====	=====					
SAMPLE ID	6		DATA TYPE (REAL,BORO,AVER,CALC)					REAL
SAMPLE PRODUCT ID	SP1		DATE ANALYSED 20/10/82					
SPLIT SAMPLE ID	UL1		ANALYSIS BASIS TYPE (DAF,DB,AD)					AD
WATER		%	1.77					
CARBON		%	52.07					
HYDROGEN		%	1.86					
SULPHUR		%	1.26					
NITROGEN		%	0.61					
ASH		%	40.16					
OXYGEN		%	2.27					

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82001
=====

SAMPLE ID 6
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1270.0
SOFTENING TEMP.(C) 1345.0
HEMISPHERICAL TEMP.(C) 1380.0
FLUID TEMP.(C) 1440.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1220.0
SOFTENING TEMP.(C) 1300.0
HEMISPHERICAL TEMP.(C) 1350.0
FLUID TEMP.(C) 1415.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82001
=====

SAMPLE ID 6
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE %	(SI02)	57.55
ALUMINIUM OXIDE %	(AL2O3)	24.39
FERRIC OXIDE %	(FE2O3)	3.34
TITANIUM DIOXIDE %	(TI02)	0.75
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.27
CALCIUM OXIDE %	(CAO)	1.78
MAGNESIUM OXIDE %	(MGO)	1.57
SULPHUR TRIOXIDE %	(SO3)	3.07
SODIUM OXIDE %	(NA2O)	1.68
POTASSIUM OXIDE %	(K2O)	1.09

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82001
=====

SAMPLE ID 6
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	88.00
SULPHATE	%	2.00
ORGANIC	%	10.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - H

SAMPLE ID - 6

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	10.00 X	0.60	ELEMENTAL		CUM. FLOATS		RELATIVE WEIGHT % - 82.91 ASH % - 40.62	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG) CUM. C.V.
1.40	4.78	3.28	4.78	3.28	95.22	40.85	34.25	34.25	
1.50	14.37	8.94	19.15	7.53	80.85	46.52	31.97	32.54	
1.60	15.87	18.07	35.02	12.30	64.98	53.47	28.23	30.59	
1.70	15.68	27.51	50.70	17.01	49.30	61.73	23.78	28.48	
1.80	7.82	34.25	58.52	19.31	41.48	66.91	20.56	27.42	
1.90	8.12	40.38	66.64	21.88	33.36	73.37	17.87	26.26	
2.00	3.78	46.62	70.42	23.21	29.58	76.79	15.29	25.67	
2.10	4.28	51.30	74.70	24.82	25.30	81.10	13.08	24.95	
2.20	0.86	53.16	75.56	25.14	24.44	82.09	12.24	24.80	
2.30	1.10	61.00	76.66	25.65	23.34	83.08	10.55	24.60	
2.60	23.34	83.08	100.00	39.06			3.00	19.56	

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	0.60 X	0.15	ELEMENTAL		CUM. FLOATS		RELATIVE WEIGHT % - 11.53 ASH % - 38.35	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG) CUM. C.V.
1.40	13.11	2.26	13.11	2.26	86.89	44.23	34.55	34.55	
1.50	12.11	7.74	25.22	4.89	74.78	50.14	31.92	33.29	
1.60	15.10	15.09	40.32	8.71	59.68	59.00	29.13	31.73	
1.70	9.45	25.26	49.77	11.85	50.23	65.35	24.37	30.33	
1.80	6.57	31.60	56.34	14.16	43.66	70.43	21.62	29.32	
1.90	6.76	38.07	63.10	16.72	36.90	76.36	19.31	28.24	
2.00	3.41	44.62	66.51	18.15	33.49	79.59	16.04	27.62	
2.10	3.99	51.37	70.50	20.03	29.50	83.41	13.61	26.83	
2.30	2.95	62.16	73.45	21.72	26.55	85.77	10.51	26.17	
2.60	26.55	85.77	100.00	38.73			0.00	19.22	

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - H

SAMPLE ID - 6

WASHABILITY ID - WA1

FRACTION SIZE (MM)	ANALYSIS TYPE - FROTH		0.15 X		0.00		RELATIVE WEIGHT % - 5.56 ASH % - 47.53	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00	50.81	23.11	50.81	23.11	49.19	71.99	26.37	26.37
45.00	3.30	50.87	54.11	24.80	45.89	73.50	14.70	25.66
60.00	2.91	56.40	57.02	26.42	42.98	74.66	13.07	25.02
90.00	4.47	61.18	61.49	28.94	38.51	76.23	11.34	24.02
120.00	4.04	70.65	65.53	31.51	34.47	76.88	7.54	23.01
300.00	34.47	76.88	100.00	47.15			5.14	16.85

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82001

SAMPLE ID 6 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.80	58.52	55.25
0.60	0.15	2.10	70.50	8.13
0.15	0.00	30.00	50.81	2.82

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82001

SAMPLE ID 6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP4 DATE ANALYSED 15/11/82
SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % <AD,AR>	---	TOTAL SULPHUR %	1.07
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	04318
RESIDUAL MOISTURE <AD,EM>	1.19	SPECIFIC GRAVITY	1.54
ASH %	20.63	FSI	---
VOLATILE MATTER %	6.78	HGI	43.0
FIXED CARBON %	71.40	CO2 %	0.29

GROSS CALORIFIC VALUE (MJ/KG) 26.93
NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82001

SAMPLE ID 6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP4 DATE ANALYSED 23/11/82
SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.19
CARBON	%	71.52
HYDROGEN	%	2.57
SULPHUR	%	1.07
NITROGEN	%	0.83
ASH	%	20.63
OXYGEN	%	2.19

Vitrinite Reflectance Data For
Gulf Canada Resources Inc.
Sample #4716-4720
Pellet #1

OBSERVATION
NUMBER

ROMAX
VALUE

OBSERVATION
NUMBER

ROMAX
VALUE

1 3.50
2 3.52
3 3.44
4 3.56
5 3.53
6 3.48
7 3.54
8 3.52
9 3.73
10 3.52
11 3.45
12 3.71
13 3.45
14 3.57
15 3.38
16 3.57
17 3.52
18 3.52
19 3.59
20 3.39
21 3.45
22 3.45
23 3.52
24 3.45
25 3.38

26 3.51
27 3.71
28 3.56
29 3.58
30 3.57
31 3.57
32 3.51
33 3.59
34 3.52
35 3.54
36 3.54
37 3.64
38 3.55
39 3.54
40 3.35
41 3.54
42 3.45
43 3.45
44 3.45
45 3.35
46 3.29
47 3.50
48 3.58
49 3.57
50 3.55

Gulf Canada Resources Inc.
Sample #4716-4720
Pellet #1

BASIC STATISTICS

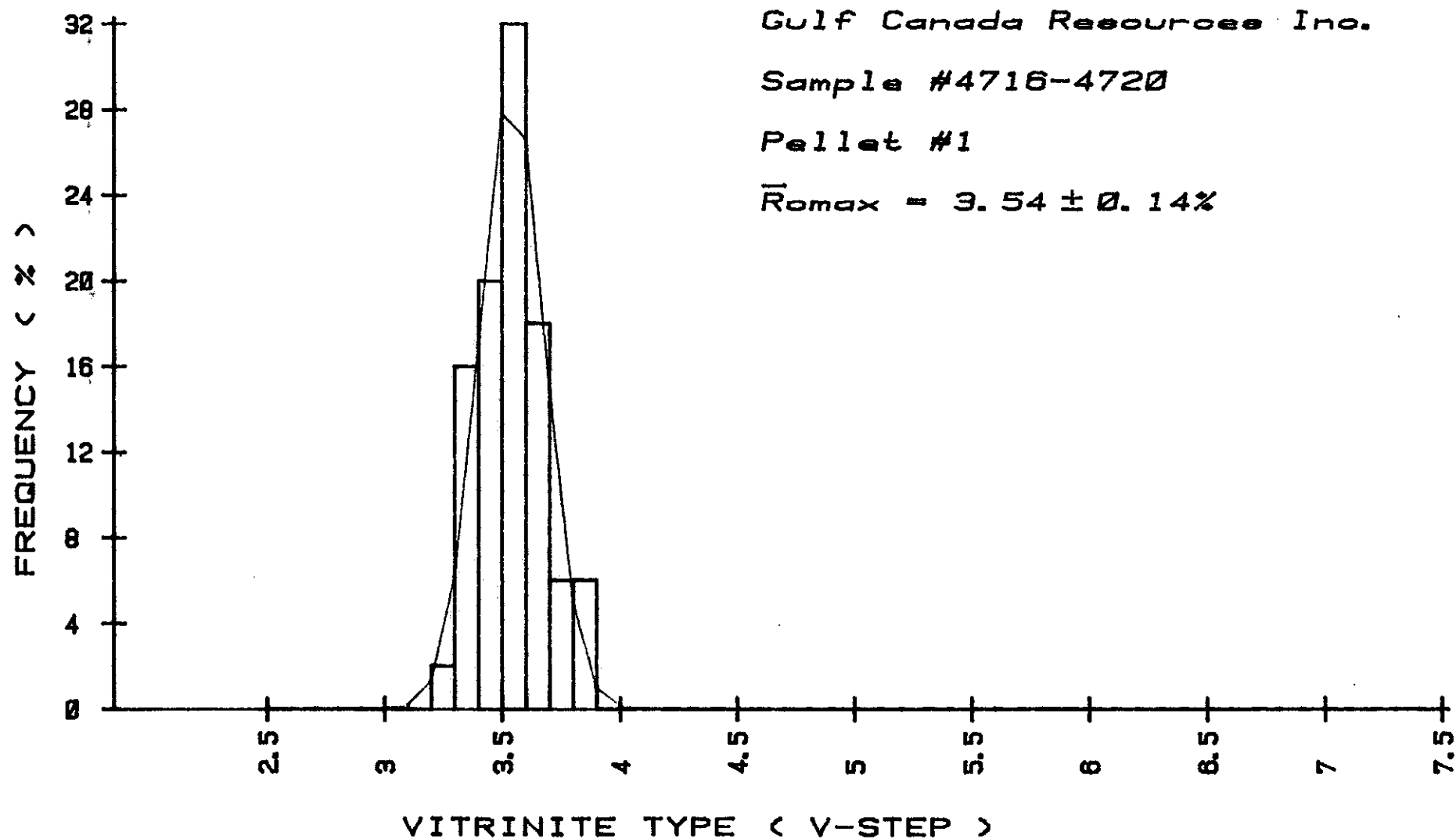
NUMBER OF OBSERVATIONS 50
MEAN MAXIMUM REFLECTANCE

OF VITRINITE% 3.54
STANDARD ERROR OF THE MEAN 0.02
COEFFICIENT OF VARIATION% 3.57
VARIANCE 0.0089
STANDARD DEVIATION 0.0942
SKEWNESS 0.3948
KURTOSIS 2.7314

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
8	3.20	1	2.00
9	3.30	8	16.00
10	3.40	10	20.00
11	3.50	15	30.00
12	3.60	9	18.00
13	3.70	3	6.00
14	3.80	3	6.00

VITRINITE FREQUENCY DISTRIBUTION



GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - G

SAMPLE ID - 4721

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
	9.53	X 0.00	WT%	ASH%	WT%	ASH%	C.V.	CUM.	C.V.	CUM.
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70	78.08	9.83	78.08	9.83	21.92	54.25	30.89	30.89		
2.60	21.92	54.25	100.00	19.57			12.44	26.85		

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - G

SAMPLE ID - 4722

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	1.15	22.79	1.15	22.79	98.85	80.76	25.64	25.64
2.60	98.85	80.76	100.00	80.09			4.12	4.37

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - G

SAMPLE ID - 4723

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	66.37	13.46	66.37	13.46	33.63	56.90	29.44	29.44
2.60	33.63	56.90	100.00	28.07			11.39	23.37

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82001

SAMPLE ID 7 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 08/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %<AD,AR>	---	TOTAL SULPHUR %	0.87
TOTAL MOISTURE %	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00429
		SPECIFIC GRAVITY	1.67
RESIDUAL MOISTURE %<AD,EM>	1.85	FSI	---
ASH %	32.05	HGI	47.0
VOLATILE MATTER %	7.40	CO2 %	2.06
FIXED CARBON %	58.70		

GROSS CALORIFIC VALUE (MJ/KG) 22.61
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82001

SAMPLE ID	7	DATA TYPE (REAL,BORO,AVER,CALC) REAL					
SPLIT SAMPLE ID	SZ1	DATE ANALYSED 12/10/82					
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS
MM (MM) TO (MM)				(MJ/KG)			
10.00 0.60	77.03	31.57	---	22.66	1.66	7.59	0.90
0.60 0.15	15.36	30.09	---	21.68	1.23	7.36	0.71
0.15 0.00	7.61	40.40	---	18.28	1.35	8.21	0.58

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82001

SAMPLE ID 7
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 20/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.85
CARBON	%	59.71
HYDROGEN	%	2.09
SULPHUR	%	0.87
NITROGEN	%	0.59
ASH	%	32.05
OXYGEN	%	2.84

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82001
=====

SAMPLE ID 7
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
*****		*****	
INITIAL TEMP.(C)	1265.0	INITIAL TEMP.(C)	1220.0
SOFTENING TEMP.(C)	1300.0	SOFTENING TEMP.(C)	1250.0
HEMISPHERICAL TEMP.(C)	1320.0	HEMISPHERICAL TEMP.(C)	1260.0
FLUID TEMP.(C)	1370.0	FLUID TEMP.(C)	1315.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82001
=====

SAMPLE ID 7
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE %	(SI02)	50.75
ALUMINIUM OXIDE %	(AL2O3)	24.69
FERRIC OXIDE %	(FE2O3)	6.08
TITANIUM DIOXIDE %	(TI02)	0.69
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.13
CALCIUM OXIDE %	(CAO)	5.35
MAGNESIUM OXIDE %	(MGO)	1.38
SULPHUR TRIOXIDE %	(SO3)	3.69
SODIUM OXIDE %	(NA2O)	1.68
POTASSIUM OXIDE %	(K2O)	1.32

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82001
=====

SAMPLE ID 7
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	55.00
SULPHATE	%	1.00
ORGANIC	%	44.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - G

SAMPLE ID - 7

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM) 10.00 X 0.60		CUM. FLOATS		RELATIVE WEIGHT % - 77.03		ASH % - 31.57	
	ELEMENTAL		CUM. SINKS		C.V.		CUM.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40	4.08	3.76	4.08	3.76	95.92	31.67	34.06	34.06
1.50	33.80	7.81	37.88	7.37	62.12	44.66	32.25	32.44
1.60	20.18	15.40	58.06	10.16	41.94	58.73	28.95	31.23
1.70	7.10	26.96	65.16	11.99	34.84	65.21	24.03	30.45
1.80	3.50	34.51	68.66	13.14	31.34	68.64	20.70	29.95
1.90	3.37	41.53	72.03	14.47	27.97	71.90	17.46	29.36
2.00	1.98	46.76	74.01	15.33	25.99	73.82	15.28	28.99
2.10	2.72	53.59	76.73	16.69	23.27	76.18	11.13	28.35
2.20	0.44	60.11	77.17	16.94	22.83	76.49	10.09	28.25
2.30	1.93	61.15	79.10	18.02	20.90	77.91	8.95	27.78
2.60	20.90	77.91	100.00	30.53			4.60	22.94

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM) 0.60 X 0.15		CUM. FLOATS		RELATIVE WEIGHT % - 15.36		ASH % - 30.09	
	ELEMENTAL		CUM. SINKS		C.V.		CUM.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40	10.44	2.15	10.44	2.15	89.56	34.42	34.46	34.46
1.50	32.21	6.48	42.65	5.42	57.35	50.12	32.59	33.05
1.60	12.05	14.16	54.70	7.35	45.30	59.68	29.29	32.22
1.70	7.29	20.70	61.99	8.92	38.01	67.16	26.03	31.49
1.80	3.00	29.62	64.99	9.87	35.01	70.38	22.47	31.08
1.90	3.31	36.25	68.30	11.15	31.70	73.94	19.67	30.52
2.00	1.98	42.72	70.28	12.04	29.72	76.02	17.27	30.15
2.10	3.01	51.96	73.29	13.68	26.71	78.73	13.38	29.46
2.30	2.25	62.54	75.54	15.13	24.46	80.22	9.89	28.88
2.60	24.46	80.22	100.00	31.05			0.00	21.81

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - G

SAMPLE ID - 7

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 7.61 ASH % - 40.40		C.V.	CUM.
	ELEMENTAL	WT%	CUM. FLOATS	WT%	CUM. SINKS	WT%		
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00	52.31	16.57	52.31	16.57	47.69	64.74	28.90	28.90
45.00	3.85	33.39	56.16	17.72	43.84	67.50	22.31	28.45
60.00	3.24	45.16	59.40	19.22	40.60	69.28	17.58	27.86
90.00	3.71	57.69	63.11	21.48	36.89	70.45	12.57	26.96
120.00	4.56	64.74	67.67	24.40	32.33	71.25	9.71	25.79
300.00	32.33	71.25	100.00	39.54			6.98	19.71

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82001

SAMPLE ID 7 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP3

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.59	56.07	43.19
0.60	0.15	1.81	65.32	10.03

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82001

SAMPLE ID 7 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %<AD,AR>	---	TOTAL SULPHUR %	0.60
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE <AD,EM>	0.84	SPECIFIC GRAVITY	1.46
ASH %	10.22	FSI	---
VOLATILE MATTER %	6.18	HGI	39.0
FIXED CARBON %	82.76	CO2 %	0.30

GROSS CALORIFIC VALUE (MJ/KG) 30.77
NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82001

SAMPLE ID 7 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP3 DATE ANALYSED 06/12/82
SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.84
CARBON	%	82.87
HYDROGEN	%	3.05
SULPHUR	%	0.60
NITROGEN	%	1.09
ASH	%	10.22
OXYGEN	%	1.33

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82001

SAMPLE ID 7
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 03/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1250.0
 SOFTENING TEMP.(C) 1305.0
 HEMISPHERICAL TEMP.(C) 1325.0
 FLUID TEMP.(C) 1345.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1245.0
 SOFTENING TEMP.(C) 1300.0
 HEMISPHERICAL TEMP.(C) 1320.0
 FLUID TEMP.(C) 1330.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82001

SAMPLE ID 7
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE %	(SI02)	51.35
ALUMINIUM OXIDE %	(AL2O3)	24.14
FERRIC OXIDE %	(FE2O3)	5.79
TITANIUM DIOXIDE %	(TI02)	1.41
PHOSPHOROUS PENTOXIDE %	(P2O5)	3.56
CALCIUM OXIDE %	(CAO)	4.35
MAGNESIUM OXIDE %	(MGO)	0.93
SULPHUR TRIOXIDE %	(SO3)	1.22
SODIUM OXIDE %	(NA2O)	1.52
POTASSIUM OXIDE %	(K2O)	0.93

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82001

SAMPLE ID 7
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE	%	13.00
SULPHATE	%	2.00
ORGANIC	%	85.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82001

=====

SAMPLE ID 7 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4
 SAMPLE WEIGHT (KG) ---.---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.30	79.10	60.93
0.60	0.15	2.30	75.54	11.60
0.15	0.00	120.00	67.67	5.15

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82001

=====

SAMPLE ID 7 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 15/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %<AD,AR>	---	TOTAL SULPHUR %	0.42
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	06660
RESIDUAL MOISTURE <AD,EM>	2.71	SPECIFIC GRAVITY	1.57
ASH %	19.04	FSI	---
VOLATILE MATTER %	7.77	HGI	43.0
FIXED CARBON %	70.48	CO2 %	0.81

GROSS CALORIFIC VALUE (MJ/KG) 26.82
 NET CALORIFIC VALUE (MJ/KG) ---.---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82001

=====

SAMPLE ID 7 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 25/11/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	2.71
CARBON	%	71.31
HYDROGEN	%	2.54
SULPHUR	%	0.42
NITROGEN	%	0.86
ASH	%	19.04
OXYGEN	%	3.12

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82001
=====

SAMPLE ID 7
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 18/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
SOFTENING TEMP.(C) 1330.0
HEMISPHERICAL TEMP.(C) 1365.0
FLUID TEMP.(C) 1400.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1220.0
SOFTENING TEMP.(C) 1305.0
HEMISPHERICAL TEMP.(C) 1360.0
FLUID TEMP.(C) 1400.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82001
=====

SAMPLE ID 7
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 25/11/82

SILICON DIOXIDE % (SI02) 51.93
ALUMINIUM OXIDE % (AL203) 27.60
FERRIC OXIDE % (FE203) 4.65
TITANIUM DIOXIDE % (TI02) 1.02
PHOSPHOROUS PENTOXIDE % (P205) 2.02
CALCIUM OXIDE % (CAO) 4.27
MAGNESIUM OXIDE % (MGO) 1.75
SULPHUR TRIOXIDE % (SO3) 1.47
SODIUM OXIDE % (NA2O) 2.70
POTASSIUM OXIDE % (K2O) 1.51

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82001
=====

SAMPLE ID 7
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE % 29.00
SULPHATE % 2.00
ORGANIC % 69.00

TOTAL 100.00

Vitrinite Reflectance Data For
Gulf Canada Resources Inc.
Sample #4721-4723
Pellet #1

OBSERVATION NUMBER	ROMAX VALUE	OBSERVATION NUMBER	ROMAX VALUE
1	3.61	36	3.48
2	3.61	37	3.44
3	3.57	38	3.56
4	3.78	39	3.82
5	3.68	40	3.63
6	3.66	41	3.54
7	3.94	42	3.79
8	3.74	43	3.66
9	3.72	44	3.78
10	3.48	45	3.60
11	3.68	46	3.86
12	3.66	47	3.88
13	3.68	48	3.72
14	3.46	49	3.72
15	3.66	50	3.55
16	3.44		
17	3.51		
18	3.82		
19	3.27		
20	3.82		
21	3.66		
22	3.70		
23	3.84		
24	3.61		
25	3.46		

Gulf Canada Resources Inc.
 Sample #4721-4723
 Pellet #1

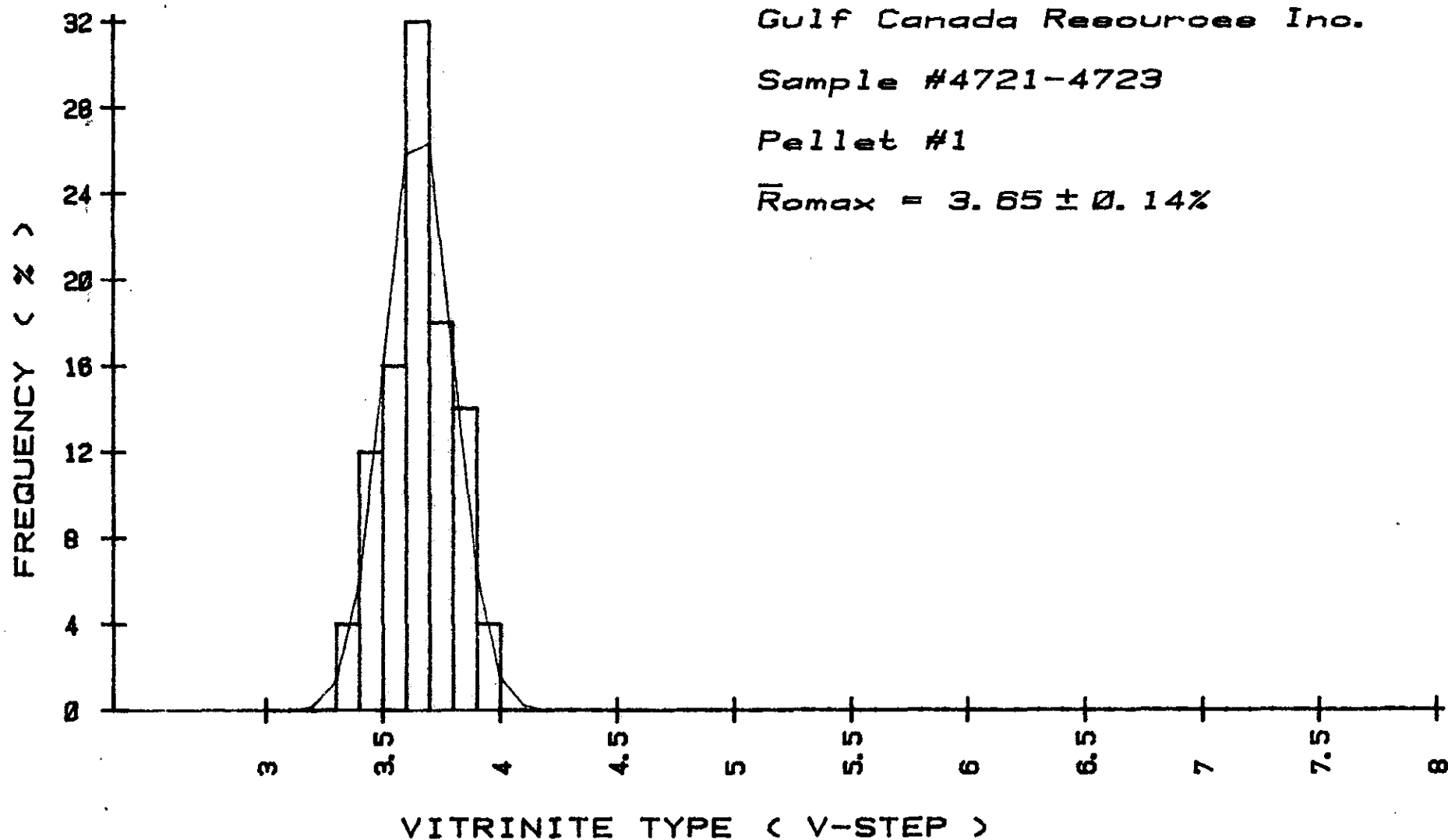
BASIC STATISTICS

NUMBER OF OBSERVATIONS	30
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.45
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	0.93
VARIANCE	0.0207
STANDARD DEVIATION	0.1457
SKENNESS	0.0126
KURTOSIS	2.3689

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
4	3.30	2	4.00
5	3.40	4	12.00
6	3.50	8	26.00
7	3.60	16	52.00
8	3.70	7	23.00
9	3.80	7	23.00
10	3.90	2	4.00

VITRINITE FREQUENCY DISTRIBUTION



Results Of Maceral Analysis For
 Gulf Canada Resources Inc.
 #4721 - 4723
 Semifusinite - KOENSLER method

COUNT #	1	2	3	4	5	6	7	8	9	10
VITRINITE	73.0	59.0	68.0	58.0	56.0	57.0	60.0	61.0	58.0	71.0
EXINITE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REACTIVE SEMIF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL REACTIVE	73.0	59.0	68.0	58.0	56.0	57.0	60.0	61.0	58.0	71.0
MACRINITE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INERT SEMIFUSI	24.0	35.0	30.0	34.0	42.0	37.0	38.0	35.0	37.0	28.0
FUSINITE	3.0	3.0	2.0	7.0	2.0	4.0	2.0	1.0	2.0	1.0
INERTODETRINIT	0.0	3.0	0.0	1.0	0.0	2.0	0.0	3.0	3.0	0.0
TOTAL INERTINI	27.0	41.0	32.0	42.0	44.0	43.0	40.0	39.0	42.0	29.0

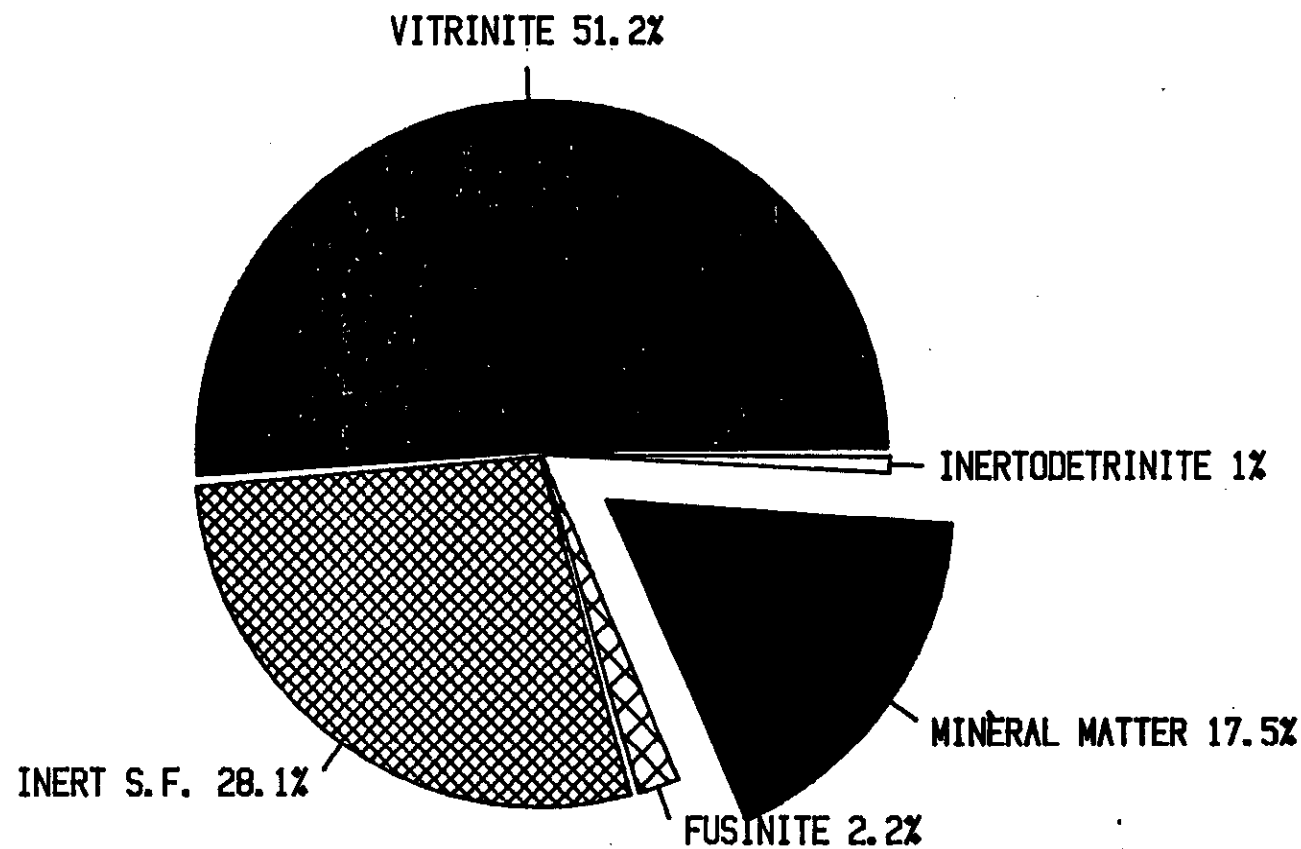
BASIC STATISTICS	MEAN	ST.DEVIATION	VARIANCE
VITRINITE	62.1	6.2	38.3
EXINITE	0.0	0.0	0.0
REACTIVE SEMIFUSINITE	0.0	0.0	0.0
TOTAL REACTIVES	62.1	6.2	38.3
MACRINITE	0.0	0.0	0.0
INERT SEMIFUSINITE	34.0	5.3	28.0
FUSINITE	2.7	1.8	3.1
INERTODETRINITE	1.2	1.4	2.0
TOTAL INERTINITES	37.9	6.2	38.3

MACERAL DATA CORRECTED FOR MINERAL-MATTER CONTENT

VITRINITE	51.2
EXINITE	0.0
REACTIVE SEMIFUSINITE	0.0
TOTAL REACTIVES	51.2
MACRINITE	0.0
INERT SEMIFUSINITE	28.1
FUSINITE	2.2
INERTODETRINITE	1.0
MINERAL MATTER	17.5
TOTAL INERTS	48.8

MACERAL DISTRIBUTION

Gulf Sample #4721 - 4723
Semifusinite - KOENSLER method



GULF CANADA RESOURCES INC.

SAMPLE # 4721-4723

MINERAL MATTER—DRY LENS				
Calc.	Py	Qu	Sh	Coal
2	3	5	2	88
6	2	5	5	82
4	1	5	5	85
4	2	7	7	80
6	1	8	10	75

AVERAGE				
4.4	1.8	6	5.8	82

DDH82002

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - G UPPER

SAMPLE ID - 4853

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	15.51	17.62	15.51	17.62	84.49	77.91	28.57	28.57
2.60	84.49	77.91	100.00	68.56			5.35	8.95

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE, -

DATA SOURCE - KPNHCDDH82002 SEAM - G UPPER

SAMPLE ID - 4854

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		60.86	17.78	60.86	17.78	39.14	70.18	28.71	28.71
2.60		39.14	70.18	100.00	38.29			7.35	20.35

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - G UPPER

SAMPLE ID - 4855

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		81.22	11.91	81.22	11.91	18.78	57.50	30.88	30.88
2.60		18.78	57.50	100.00	20.47			9.61	26.89

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - G UPPER

SAMPLE ID - 4856

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00 ASH % -			
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		37.92	14.56	37.92	14.56	62.08	66.02	28.97	28.97
2.60		62.08	66.02	100.00	46.51			9.01	16.58

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - G UPPER

SAMPLE ID - 4857

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT									
FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -		
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.70	87.40	9.02	87.40	9.02	12.60	50.10	31.73	31.73	
2.60	12.60	50.10	100.00	14.20			12.59	29.32	

GCRI COAL DIVISION	HEAD	PROJ	KPN	BLK	HC	DS	DDH82002
=====							
SAMPLE ID	8	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SPLIT SAMPLE ID	HD1	DATE ANALYSED 12/10/82					
		ANALYSIS BASIS TYPE (AD,DB,AR,EM)				AD	
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)		ASTM					
TOP SIZE (MM)		10.00					
SURFACE MOISTURE % (AD,AR)		---		TOTAL SULPHUR %	0.65		
TOTAL MOISTURE %		---		PHOSPHOROUS %	---		
EQUILIBRIUM MOISTURE %		---		CHLORINE (PPM)	00761		
				SPECIFIC GRAVITY	1.57		
RESIDUAL MOISTURE % (AD,EM)		1.43		FSI	---		
ASH %		25.59		HGI	43.0		
VOLATILE MATTER %		7.75		CO2 %	2.24		
FIXED CARBON %		65.23					
GROSS CALORIFIC VALUE (MJ/KG)		24.09					
NET CALORIFIC VALUE (MJ/KG)		---					

GCRI COAL DIVISION	SIZE	PROJ	KPN	BLK	HC	DS	DDH82002
=====							
SAMPLE ID	8	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SPLIT SAMPLE ID	SZ1	DATE ANALYSED 12/10/82					
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS
MM (MM) TO (MM)				(MJ/KG)			
10.00 0.60	77.44	25.79	---	24.25	1.23	8.20	0.67
0.60 0.15	14.63	19.29	---	27.39	1.05	7.48	0.52
0.15 0.00	7.93	24.43	---	25.63	1.16	8.55	0.56

GCRI COAL DIVISION	ULTIMATE	PROJ	KPN	BLK	HC	DS	DDH82002
=====							
SAMPLE ID	8	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SAMPLE PRODUCT ID	SP1	DATE ANALYSED 22/10/82					
SPLIT SAMPLE ID	UL1						
ANALYSIS BASIS TYPE (DAF,DB,AD)		AD					
WATER	%	1.43					
CARBON	%	66.32					
HYDROGEN	%	2.70					
SULPHUR	%	0.65					
NITROGEN	%	0.90					
ASH	%	25.59					
OXYGEN	%	2.41					

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82002

SAMPLE ID 8
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1210.0
SOFTENING TEMP.(C) 1260.0
HEMISPHERICAL TEMP.(C) 1285.0
FLUID TEMP.(C) 1325.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1170.0
SOFTENING TEMP.(C) 1205.0
HEMISPHERICAL TEMP.(C) 1230.0
FLUID TEMP.(C) 1295.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82002

SAMPLE ID 8
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE % (SI02) 58.13
ALUMINIUM OXIDE % (AL2O3) 19.71
FERRIC OXIDE % (FE2O3) 7.43
TITANIUM DIOXIDE % (TI02) 0.70
PHOSPHOROUS PENTOXIDE % (P2O5) 1.06
CALCIUM OXIDE % (CAO) 3.71
MAGNESIUM OXIDE % (MGO) 3.61
SULPHUR TRIOXIDE % (SO3) 3.23
SODIUM OXIDE % (NA2O) 1.27
POTASSIUM OXIDE % (K2O) 0.83

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82002

SAMPLE ID 8
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE % 29.00
SULPHATE % 2.00
ORGANIC % 69.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - G UPPER

SAMPLE ID - 8

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 10.00 X 0.60		ELEMENTAL		CUM. FLOATS		RELATIVE WEIGHT % - 77.44 ASH % - 25.79		CUM. C.V.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)		
1.40	16.70	2.78	16.70	2.78	83.30	32.14	34.50	34.50	
1.50	28.69	8.90	45.39	6.65	54.61	44.34	31.26	32.45	
1.60	16.80	17.84	62.19	9.67	37.81	56.12	28.32	31.34	
1.70	8.46	30.03	70.65	12.11	29.35	63.64	22.75	30.31	
1.80	4.10	36.41	74.75	13.44	25.25	68.06	19.59	29.72	
1.90	3.05	41.19	77.80	14.53	22.20	71.75	17.57	29.24	
2.00	2.26	48.35	80.06	15.48	19.94	74.40	14.05	28.81	
2.10	3.11	53.58	83.17	16.91	16.83	78.25	11.19	28.16	
2.20	0.48	63.04	83.65	17.17	16.35	78.70	9.91	28.05	
2.30	1.41	64.90	85.06	17.97	14.94	80.00	8.81	27.73	
2.60	14.94	80.00	100.00	27.23			0.00	23.59	

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 0.60 X 0.15		ELEMENTAL		CUM. FLOATS		RELATIVE WEIGHT % - 14.63 ASH % - 19.29		CUM. C.V.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)		
1.40	36.77	2.13	36.77	2.13	63.23	30.26	34.52	34.52	
1.50	25.41	7.90	62.18	4.49	37.82	45.29	32.12	33.54	
1.60	10.77	16.88	72.95	6.32	27.05	56.60	28.43	32.78	
1.70	5.42	25.55	78.37	7.65	21.63	64.38	24.77	32.23	
1.80	2.16	32.62	80.53	8.32	19.47	67.91	21.67	31.95	
1.90	2.78	38.73	83.31	9.33	16.69	72.77	18.80	31.51	
2.00	1.24	45.37	84.55	9.86	15.45	74.96	15.31	31.27	
2.10	1.94	54.45	86.49	10.86	13.51	77.91	10.59	30.81	
2.60	13.51	77.91	100.00	19.92			0.00	26.65	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - G UPPER

SAMPLE ID - 8

WASHABILITY ID - WAI

FRACTION SIZE(MM)		ANALYSIS TYPE - FROTH		RELATIVE WEIGHT % - 7.93 ASH % - 24.43		CUM. SINKS		CUM. FLOATS	
0.15 X 0.00		ELEMENTAL		C.V.		CUM.		CUM.	
S.G.TME	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	WT%	ASH%	C.V.
30.00	72.36	10.55	72.36	10.55	31.20	31.20	27.64	58.43	31.20
45.00	3.86	18.82	76.22	10.97	28.26	31.05	23.78	64.86	28.26
60.00	2.10	28.24	78.32	11.43	24.25	30.87	21.68	68.41	24.25
90.00	2.87	50.86	81.19	12.83	15.15	30.31	18.81	71.08	15.15
120.00	2.10	68.06	83.29	14.22	7.68	29.74	16.71	71.46	7.68
300.00	16.71	71.46	100.00	23.78	6.37	25.84			6.37

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82002

SAMPLE ID 8 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---.---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.30	85.06	65.87
0.60	0.15	2.60	100.00	14.63
0.15	0.00	120.00	83.29	6.60

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82002

SAMPLE ID 8 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP4 DATE ANALYSED 15/11/82
SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %(AD,AR)	---	TOTAL SULPHUR %	0.65
TOTAL MOISTURE %(AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	05488
RESIDUAL MOISTURE (AD,EM)	1.81	SPECIFIC GRAVITY	1.50
ASH %	18.92	FSI	---
VOLATILE MATTER %	7.20	HGI	46.0
FIXED CARBON %	72.07	CO2 %	1.33

GROSS CALORIFIC VALUE (MJ/KG) 27.28
NET CALORIFIC VALUE (MJ/KG) ---.---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82002

SAMPLE ID 8 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP4 DATE ANALYSED 23/11/82
SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF, DB, AD) AD

WATER	%	1.81
CARBON	%	73.03
HYDROGEN	%	2.80
SULPHUR	%	0.65
NITROGEN	%	1.02
ASH	%	18.92
OXYGEN	%	1.67

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82002
 =====

SAMPLE ID 8
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 18/11/82

OXIDIZING ATMOSPHERE *****	REDUCING ATMOSPHERE *****
INITIAL TEMP.(C) 1200.0	INITIAL TEMP.(C) 1195.0
SOFTENING TEMP.(C) 1280.0	SOFTENING TEMP.(C) 1260.0
HEMISPHERICAL TEMP.(C) 1305.0	HEMISPHERICAL TEMP.(C) 1300.0
FLUID TEMP.(C) 1365.0	FLUID TEMP.(C) 1355.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82002
 =====

SAMPLE ID 8
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 07/12/82

SILICON DIOXIDE %	(SI02)	59.22
ALUMINIUM OXIDE %	(AL2O3)	14.51
FERRIC OXIDE %	(FE2O3)	5.60
TITANIUM DIOXIDE %	(TI02)	0.56
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.58
CALCIUM OXIDE %	(CAO)	5.49
MAGNESIUM OXIDE %	(MGO)	3.46
SULPHUR TRIOXIDE %	(SO3)	1.71
SODIUM OXIDE %	(NA2O)	2.19
POTASSIUM OXIDE %	(K2O)	0.75

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82002
 =====

SAMPLE ID 8
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE	%	6.00
SULPHATE	%	2.00
ORGANIC	%	92.00

TOTAL 100.00

Vitrinite Reflectance Data For
 Gulf Canada Resources Inc.
 Sample #4854-4857
 Pellet #1

OBSERVATION NUMBER	ROMAX VALUE	OBSERVATION NUMBER	ROMAX VALUE
1	3.44	26	3.30
2	3.23	27	3.36
3	3.35	28	3.62
4	3.36	29	3.51
5	3.47	30	3.46
6	3.38	31	3.23
7	3.32	32	3.33
8	3.23	33	3.30
9	3.44	34	3.42
10	3.51	35	3.20
11	3.41	36	3.19
12	3.41	37	3.42
13	3.41	38	3.52
14	3.24	39	3.30
15	3.42	40	3.22
16	3.42	41	3.34
17	3.38	42	3.27
18	3.33	43	3.26
19	3.42	44	3.42
20	3.30	45	3.35
21	3.47	46	3.32
22	3.42	47	3.32
23	3.44	48	3.37
24	3.46	49	3.31
25	3.35	50	3.45

Gulf Canada Resources Inc.
Sample #4854-4857
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.37
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION	0.29
VARIANCE	0.0082
STANDARD DEVIATION	0.0904
SKENNESS	0.3370
KURTOSIS	3.4915

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
7	3.10	1	2.00
8	3.20	8	16.00
9	3.30	19	38.00
10	3.40	17	34.00
11	3.50	1	2.00
12	3.60	2	4.00

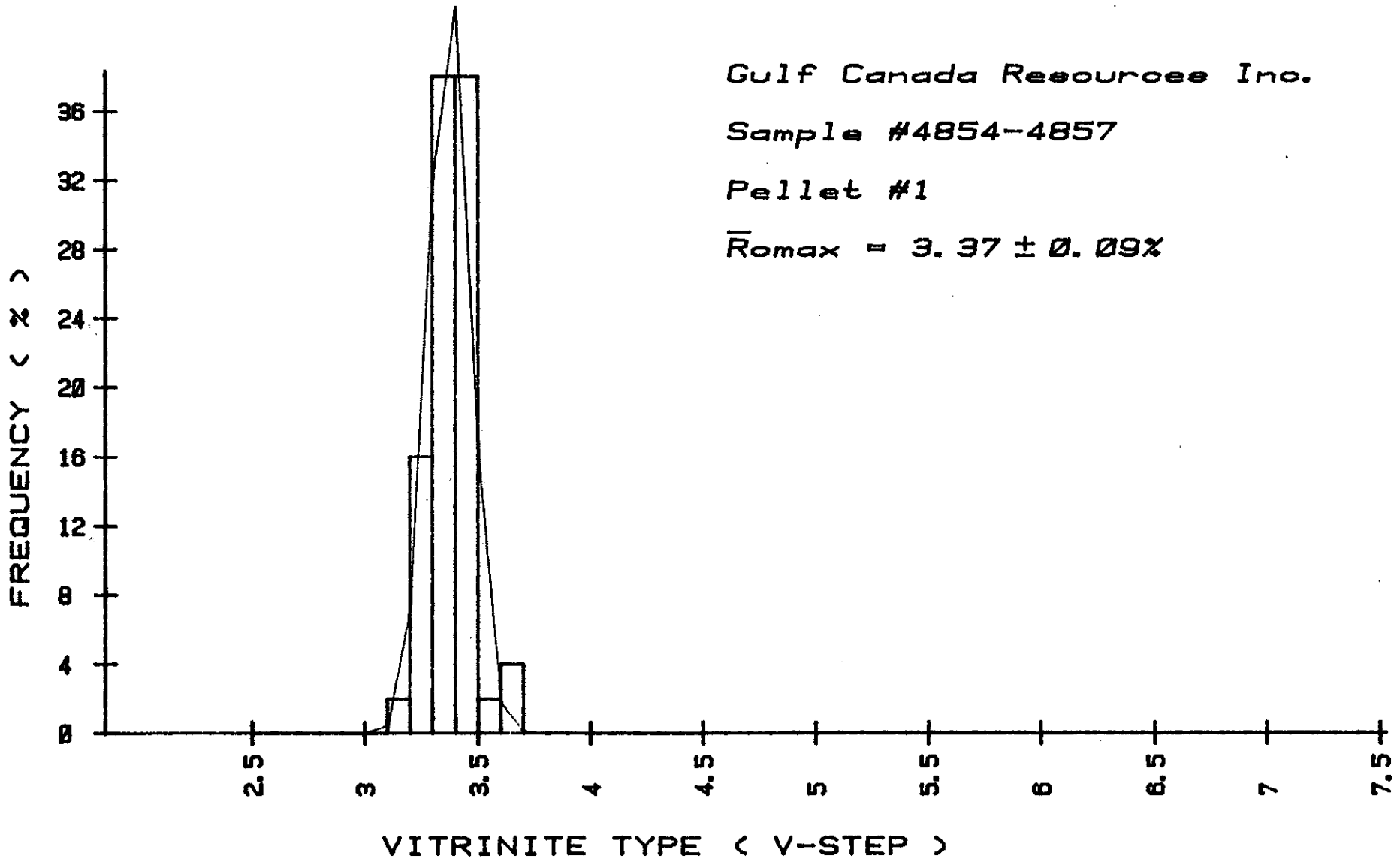
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4854-4857

Pellet #1

$\bar{R}_{\text{max}} = 3.37 \pm 0.09\%$



GULF CANADA RESOURCES INC.

SAMPLE # 4854-4857

MINERAL MATTER—DRY LENS				
Calc.	Py	Qu	Sh	Coal
14	1	4	5	76
9	0	2	10	79
12	2	4	4	78
9	3	3	0	85
9	1	1	4	85

AVERAGE				
10.6	1.4	2.8	4.6	80.5

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - G UPPER

SAMPLE ID - 4858

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	30.91	20.95	30.91	20.95	69.09	56.04	27.18	27.18
2.60	69.09	56.04	100.00	45.19			12.99	17.38

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - G UPPER

SAMPLE ID - 4859

WASHABILITY ID - WA1

FRACTION		ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00			
SIZE (MM)		9.53 X		0.00		CUM. SINKS		ASH % -	
S.G.TME		ELEMENTAL		CUM. FLOATS		C.V.		CUM.	
		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		40.15	16.29	40.15	16.29	59.85	61.43	28.84	28.84
2.60		59.85	61.43	100.00	43.31			11.69	18.58

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDDH82002 SEAM - H H H

SAMPLE ID - 4860

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X 0.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
		WTX	ASH%	WTX	ASH%	WTX	ASH%	WTX	ASH%	C.V.	CUM.	C.V.	CUM.
S.G.TME										(MJ/KG)			
1.70		14.03	14.59	14.03	14.59	85.97	71.19	30.20	30.20				
2.60		85.97	71.19	100.00	63.25			7.31	10.52				

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82002

SAMPLE ID 9 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 12/10/82
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 10.00
SURFACE MOISTURE % (AD,AR) --- TOTAL SULPHUR % 0.42
TOTAL MOISTURE % --- PHOSPHOROUS % ---
EQUILIBRIUM MOISTURE % --- CHLORINE (PPM) ---
SPECIFIC GRAVITY 1.77
RESIDUAL MOISTURE % (AD,EM) 1.52 FSI ---
ASH % 45.61 HGI 48.0
VOLATILE MATTER % 8.73 CO2 % 1.25
FIXED CARBON % 44.14
GROSS CALORIFIC VALUE (MJ/KG) 15.17
NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82002

SAMPLE ID 9
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 DATE ANALYSED 20/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER % 1.52
CARBON % 47.11
HYDROGEN % 1.86
SULPHUR % 0.42
NITROGEN % 0.82
ASH % 45.61
OXYGEN % 2.66

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDDH82002 SEAM - H H H

SAMPLE ID - 4861

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		10.74	9.57	10.74	9.57	89.26	75.25	31.29	31.29
2.60		89.26	75.25	100.00	68.20			6.44	9.11

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - G LOWER

SAMPLE ID - 4862

WASHABILITY ID - WA1

FRACTION		ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -	
SIZE (MM)		9.53 X		0.00		CUM. SINKS		C.V.		CUM.	
S.G.TME		ELEMENTAL		CUM. FLOATS		WT% ASH%		(MJ/KG)		C.V.	
		WT%	ASH%	WT%	ASH%	WT%	ASH%				
1.70		73.73	10.26	73.73	10.26	26.27	63.74	30.82		30.82	
2.60		26.27	63.74	100.00	24.31			7.53		24.70	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - G LOWER

SAMPLE ID - 4863

WASHABILITY ID - WA1

FRACTION		ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00			
SIZE (MM)		9.53 X		0.00		CUM. SINKS		ASH % -	
S.G.TME		ELEMENTAL		CUM. FLOATS		C.V.		CUM.	
		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		8.73	11.54	8.73	11.54	91.27	72.88	31.48	31.48
2.60		91.27	72.88	100.00	67.52			6.80	8.95

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - G LOWER

SAMPLE ID - 4864

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT										
FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -
		ELEMENTAL		CUM. FLUATS		CUM. SINKS		C.V.		CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)		C.V.	
1.70	72.98	9.51	72.98	9.51	27.02	69.85	30.53		30.53	
2.60	27.02	69.85	100.00	25.81			7.56		24.32	

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82002

SAMPLE ID 10 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 12/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.83
TOTAL MOISTURE %	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00419
		SPECIFIC GRAVITY	1.82
RESIDUAL MOISTURE % (AD,EM)	1.44	FSI	---
ASH %	48.77	HGI	48.0
VOLATILE MATTER %	6.46	CO2 %	0.80
FIXED CARBON %	43.33		
GROSS CALORIFIC VALUE (MJ/KG)	14.52		
NET CALORIFIC VALUE (MJ/KG)	---		

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82002

SAMPLE ID	10	DATA TYPE (REAL,BORO,AVER,CALC)		REAL				
SPLIT SAMPLE ID	SZ1	DATE ANALYSED		12/08/82				
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS	
MM (MM) TO (MM)				(MJ/KG)				
10.00 0.60	76.03	52.72	---	13.84	1.31	5.82	0.95	
0.60 0.15	15.87	36.03	---	20.81	1.08	6.60	0.68	
0.15 0.00	8.10	44.79	---	16.05	1.28	7.05	0.62	

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82002

SAMPLE ID 10
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 20/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.44
CARBON	%	44.80
HYDROGEN	%	1.77
SULPHUR	%	0.83
NITROGEN	%	0.72
ASH	%	48.77
OXYGEN	%	1.67

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82002

SAMPLE ID 10
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1365.0
 SOFTENING TEMP.(C) 1460.0
 HEMISPHERICAL TEMP.(C) 1500.0
 FLUID TEMP.(C) 1500.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1320.0
 SOFTENING TEMP.(C) 1395.0
 HEMISPHERICAL TEMP.(C) 1450.0
 FLUID TEMP.(C) 1500.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82002

SAMPLE ID 10
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE %	(SI02)	60.98
ALUMINIUM OXIDE %	(AL2O3)	24.20
FERRIC OXIDE %	(FE2O3)	3.62
TITANIUM DIOXIDE %	(TI02)	0.80
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.32
CALCIUM OXIDE %	(CAO)	0.70
MAGNESIUM OXIDE %	(MGO)	2.21
SULPHUR TRIOXIDE %	(SO3)	0.57
SODIUM OXIDE %	(NA2O)	1.12
POTASSIUM OXIDE %	(K2O)	1.65

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82002

SAMPLE ID 10
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	62.00
SULPHATE	%	2.00
ORGANIC	%	36.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - G LOWER

SAMPLE ID - 10

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM) 10.00 X 0.60		ELEMENTAL		CUM. FLOATS		RELATIVE WEIGHT % - 76.03 ASH % - 52.72		CUM. C.V.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)		
1.40	10.67	2.88	10.67	2.88	89.33	60.64	34.63	34.63	
1.50	10.97	8.75	21.64	5.86	78.36	67.90	32.13	33.36	
1.60	5.63	17.50	27.27	8.26	72.73	71.80	28.42	32.34	
1.70	2.60	28.20	29.87	10.00	70.13	73.42	23.90	31.61	
1.80	2.62	40.09	32.49	12.42	67.51	74.71	18.60	30.56	
1.90	2.52	45.10	35.01	14.77	64.99	75.86	15.73	29.49	
2.00	2.59	50.16	37.60	17.21	62.40	76.93	13.38	28.38	
2.10	8.44	58.14	46.04	24.71	53.96	79.87	9.58	24.93	
2.20	2.00	61.87	48.04	26.26	51.96	80.56	9.17	24.28	
2.30	7.45	67.42	55.49	31.79	44.51	82.76	8.44	22.15	
2.60	44.51	82.76	100.00	54.48			3.30	13.76	

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM) 0.60 X 0.15		ELEMENTAL		CUM. FLOATS		RELATIVE WEIGHT % - 15.87 ASH % - 36.03		CUM. C.V.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)		
1.40	27.80	2.48	27.80	2.48	72.20	50.25	34.69	34.69	
1.50	15.97	8.90	43.77	4.82	56.23	61.99	31.80	33.64	
1.60	6.75	15.34	50.52	6.23	49.48	68.36	28.94	33.01	
1.70	3.49	23.51	54.01	7.34	45.99	71.76	25.69	32.54	
1.80	2.86	32.26	56.87	8.60	43.13	74.38	21.76	31.99	
1.90	2.51	45.66	59.38	10.16	40.62	76.15	16.29	31.33	
2.00	1.56	50.28	60.94	11.19	39.06	77.19	13.46	30.87	
2.10	3.42	55.41	64.36	13.54	35.64	79.28	10.75	29.80	
2.20	1.89	63.51	66.25	14.97	33.75	80.16	9.95	29.24	
2.30	2.89	66.05	69.14	17.10	30.86	81.48	8.85	28.38	
2.60	30.86	81.48	100.00	36.97			0.00	19.62	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - G LOWER

SAMPLE ID - 10

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % -		8.10 ASH % - 44.79	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00	53.25	20.92	53.25	20.92	46.75	70.74	27.30	27.30
45.00	8.60	38.83	61.85	23.41	38.15	77.93	19.70	26.24
60.00	3.76	53.64	65.61	25.14	34.39	80.59	13.57	25.52
90.00	3.02	64.99	68.63	26.90	31.37	82.09	8.68	24.78
120.00	3.52	76.09	72.15	29.30	27.85	82.85	5.61	23.84
300.00	27.85	82.85	100.00	44.21			0.00	17.20

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82002

SAMPLE ID 10 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.00	37.60	28.59
0.60	0.15	2.30	69.14	10.97
0.15	0.00	120.00	72.15	5.84

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82002

SAMPLE ID 10 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 15/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % <AD,AR>	---	TOTAL SULPHUR %	0.49
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	04999
RESIDUAL MOISTURE <AD,EM>	1.23	SPECIFIC GRAVITY	1.54
ASH %	20.77	FSI	---
VOLATILE MATTER %	6.85	HGI	45.0
FIXED CARBON %	71.15	CO2 %	0.33

GROSS CALORIFIC VALUE (MJ/KG) 26.82
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82002

SAMPLE ID 10 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 23/11/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.23
CARBON	%	71.82
HYDROGEN	%	2.73
SULPHUR	%	0.49
NITROGEN	%	0.95
ASH	%	20.77
OXYGEN	%	2.01

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82002

SAMPLE ID 10
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 18/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1285.0
 SOFTENING TEMP.(C) 1465.0
 HEMISPHERICAL TEMP.(C) 1500.0
 FLUID TEMP.(C) 1500.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
 SOFTENING TEMP.(C) 1335.0
 HEMISPHERICAL TEMP.(C) 1500.0
 FLUID TEMP.(C) 1500.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82002

SAMPLE ID 10
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 25/11/82

SILICON DIOXIDE %	(SI02)	58.45
ALUMINIUM OXIDE %	(AL2O3)	27.58
FERRIC OXIDE %	(FE2O3)	3.16
TITANIUM DIOXIDE %	(TI02)	1.22
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.03
CALCIUM OXIDE %	(CAO)	2.03
MAGNESIUM OXIDE %	(MGO)	1.51
SULPHUR TRIOXIDE %	(SO3)	0.47
SODIUM OXIDE %	(NA2O)	2.69
POTASSIUM OXIDE %	(K2O)	1.66

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82002

SAMPLE ID 10
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE	%	29.00
SULPHATE	%	2.00
ORGANIC	%	69.00

TOTAL 100.00

Vitrinite Reflectance Data For
Gulf Canada Resources Inc.
Sample #4862-4864
Pellet #1

OBSERVATION NUMBER	ROMAX VALUE
1	3.33
2	3.38
3	3.27
4	3.40
5	3.23
6	3.35
7	3.33
8	3.30
9	3.10
10	3.24
11	3.36
12	3.35
13	3.35
14	3.27
15	3.42
16	3.35
17	3.07
18	3.44
19	3.04
20	3.05
21	3.32
22	3.38
23	3.19
24	3.25
25	3.46

OBSERVATION NUMBER	ROMAX VALUE
26	3.27
27	3.16
28	3.19
29	3.41
30	3.30
31	3.22
32	3.31
33	3.30
34	3.41
35	3.30
36	3.42
37	3.26
38	3.22
39	3.45
40	3.31
41	3.33
42	3.23
43	3.45
44	3.44
45	3.22
46	3.32
47	3.49
48	3.18
49	3.07
50	3.25

Gulf Canada Resources Inc.
 Sample #4862-4864
 Pellet #1

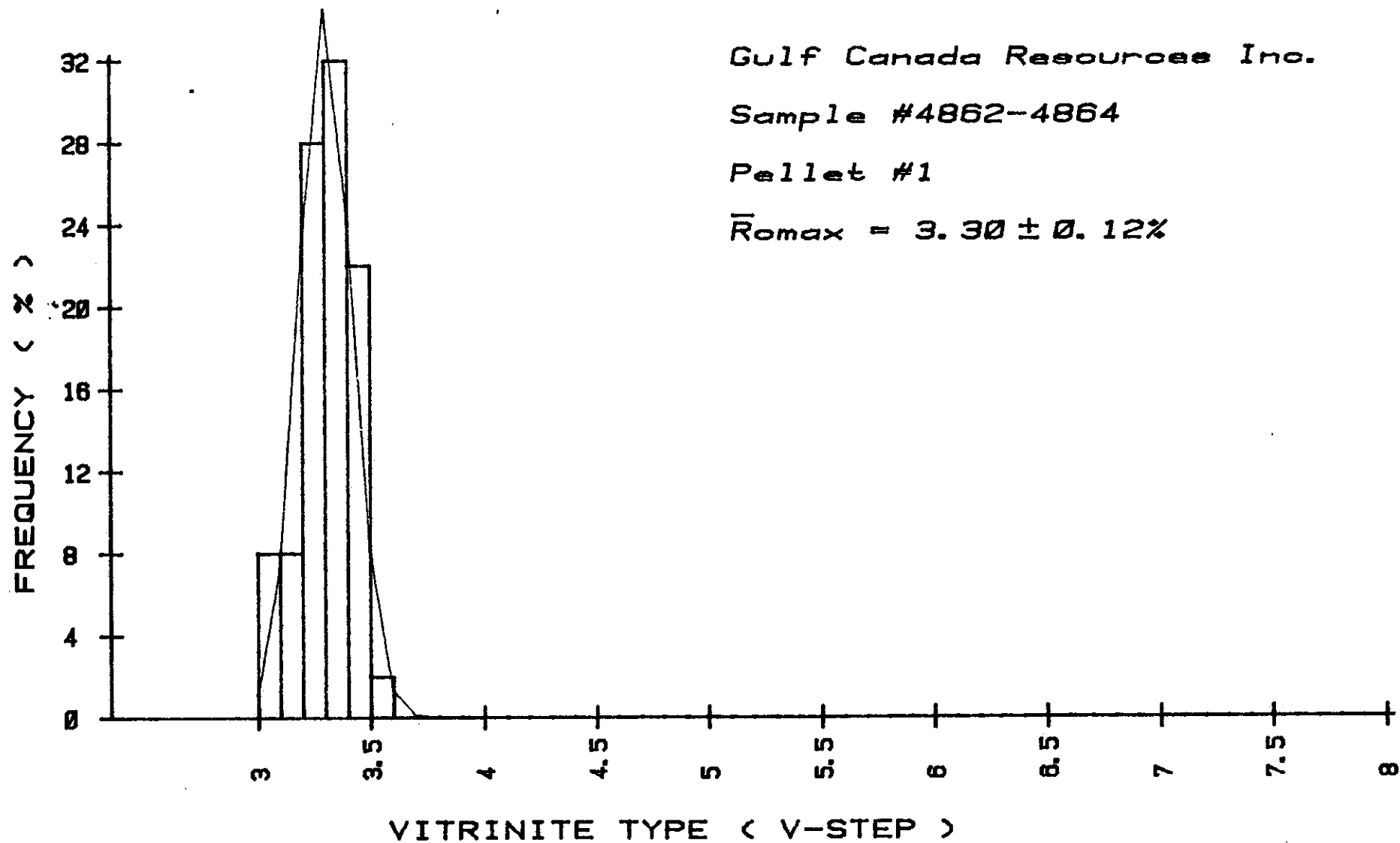
BASIC STATISTICS

NUMBER OF OBSERVATIONS 50
 MEAN MAXIMUM REFLECTANCE
 OF VITRINITE 3.30
 STANDARD ERROR OF THE MEAN 0.02
 COEFFICIENT OF VARIATION 3.50
 VARIANCE 0.0134
 STANDARD DEVIATION 0.1157
 SKEWNESS -0.4569
 KURTOSIS 2.7093

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
1	3.00	4	8.00
2	3.10	4	8.00
3	3.20	14	28.00
4	3.30	16	32.00
5	3.40	11	22.00
6	3.50	1	2.00

VITRINITE FREQUENCY DISTRIBUTION



GULF CANADA RESOURCES INC.

SAMPLE # 4862-4864

MINERAL MATTER-DRY LENS				
Calc.	Py	Qu	Sh	Coal
6	0	0	36	58
6	0	0	26	68
3	0	1	33	63
0	1	3	30	66
0	0	2	33	65

AVERAGE				
3	0.2	1.2	31.6	64

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDDH82002 SEAM - E UPPER

SAMPLE ID - 4865

WASHABILITY ID - WA1

FRACTION		ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -	
SIZE (MM)		9.53 X		0.00		CUM. SINKS		C.V.		CUM.	
S.G.TME		ELEMENTAL		CUM. FLOATS		WT% ASH%		(MJ/KG)		C.V.	
		WT%	ASH%	WT%	ASH%	WT%	ASH%				
1.70		70.35	12.95	70.35	12.95	29.65	48.44	28.89		28.89	
2.60		29.65	48.44	100.00	23.47			14.92		24.75	

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82002

SAMPLE ID 11 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 12/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 10.00
 SURFACE MOISTURE % (AD,AR) --- TOTAL SULPHUR % 0.49
 TOTAL MOISTURE % --- PHOSPHOROUS % ---
 EQUILIBRIUM MOISTURE % --- CHLORINE (PPM) 00571
 RESIDUAL MOISTURE % (AD,EM) 1.30 SPECIFIC GRAVITY 1.59
 FSI ---
 ASH % 25.04 HGI 126.0
 VOLATILE MATTER % 7.70 CO2 % 1.38
 FIXED CARBON % 65.96
 GROSS CALORIFIC VALUE (MJ/KG) 25.36
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82002

SAMPLE ID 11 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 12/10/82
 FRACTION SIZE WT% ASH% FSI CAL RM VM TS
 (MM) TO (MM) (MJ/KG)
 10.00 0.60 54.82 30.87 --- 23.06 1.18 8.30 0.42
 0.60 0.15 23.80 22.48 --- 26.73 0.83 7.09 0.49
 0.15 0.00 21.38 14.39 --- 29.65 0.98 6.82 0.63

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82002

SAMPLE ID 11
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 22/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER % 1.30
 CARBON % 67.66
 HYDROGEN % 3.25
 SULPHUR % 0.49
 NITROGEN % 0.87
 ASH % 25.04
 OXYGEN % 1.39

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82002

SAMPLE ID 11
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1260.0
 SOFTENING TEMP.(C) 1310.0
 HEMISPHERICAL TEMP.(C) 1330.0
 FLUID TEMP.(C) 1365.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
 SOFTENING TEMP.(C) 1285.0
 HEMISPHERICAL TEMP.(C) 1320.0
 FLUID TEMP.(C) 1360.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82002

SAMPLE ID 11
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE %	(SI02)	52.08
ALUMINIUM OXIDE %	(AL2O3)	23.36
FERRIC OXIDE %	(FE2O3)	3.74
TITANIUM DIOXIDE %	(TI02)	0.68
PHOSPHOROUS PENTOXIDE %	(P2O5)	2.00
CALCIUM OXIDE %	(CAO)	5.56
MAGNESIUM OXIDE %	(MGO)	2.37
SULPHUR TRIOXIDE %	(SO3)	3.30
SODIUM OXIDE %	(NA2O)	1.35
POTASSIUM OXIDE %	(K2O)	1.13

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82002

SAMPLE ID 11
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	6.00
SULPHATE	%	2.00
ORGANIC	%	92.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - E UPPER

SAMPLE ID - 11

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE(MM)	10.00 X	0.60	RELATIVE WEIGHT % - 54.82 ASH % - 30.87				
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40	0.34	5.57	0.34	5.57	99.66	28.26	33.26	33.26
1.50	22.06	9.37	22.40	9.31	77.60	33.63	31.34	31.37
1.60	33.99	16.30	56.39	13.52	43.61	47.14	28.19	29.45
1.70	11.97	27.15	68.36	15.91	31.64	54.70	23.50	28.41
1.80	5.02	34.15	73.38	17.16	26.62	58.57	20.56	27.87
1.90	6.24	39.58	79.62	18.92	20.38	64.39	17.74	27.08
2.00	6.34	47.20	85.96	21.00	14.04	72.15	14.79	26.17
2.10	3.56	55.27	89.52	22.36	10.48	77.89	11.19	25.58
2.20	0.39	63.10	89.91	22.54	10.09	78.46	9.81	25.51
2.30	1.20	66.83	91.11	23.12	8.89	80.03	8.05	25.28
2.60	8.89	80.03	100.00	28.18			3.37	23.33

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE(MM)	0.60 X	0.15	RELATIVE WEIGHT % - 23.80 ASH % - 22.48				
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40	7.61	2.62	7.61	2.62	92.39	22.73	34.55	34.55
1.50	31.25	6.02	38.86	5.35	61.14	31.27	32.48	32.89
1.60	23.18	13.68	62.04	8.46	37.96	42.01	29.55	31.64
1.70	8.89	21.90	70.93	10.15	29.07	48.16	26.03	30.94
1.80	8.36	31.39	79.29	12.39	20.71	54.93	21.62	29.95
1.90	5.04	37.48	84.33	13.89	15.67	60.54	18.70	29.28
2.00	4.43	44.89	88.76	15.44	11.24	66.71	16.03	28.62
2.10	4.38	53.22	93.14	17.21	6.86	75.32	11.53	27.82
2.20	1.03	62.63	94.17	17.71	5.83	77.56	10.45	27.63
2.30	0.91	65.64	95.08	18.17	4.92	79.77	8.74	27.45
2.60	4.92	79.77	100.00	21.20			3.44	26.26

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - E UPPER

SAMPLE ID - 11

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH									
FRACTION	SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 21.38 ASH % - 14.39			
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00		76.97	10.18	76.97	10.18	23.03	26.57	31.59	31.59
45.00		14.48	14.46	91.45	10.86	8.55	47.07	29.62	31.28
60.00		3.33	22.40	94.78	11.26	5.22	62.80	26.24	31.10
90.00		1.76	40.65	96.54	11.80	3.46	74.07	18.94	30.88
300.00		3.46	74.07	100.00	13.95			3.26	29.92

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82002

SAMPLE ID 11 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.10	89.52	49.07
0.60	0.15	2.10	93.14	22.17
0.15	0.00	300.00	100.00	21.38

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82002

SAMPLE ID 11 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 15/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %<AD,AR>	---	TOTAL SULPHUR %	0.51
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	09811
RESIDUAL MOISTURE <AD,EM>	2.86	SPECIFIC GRAVITY	1.61
ASH %	20.15	FSI	---
VOLATILE MATTER %	9.24	HGI	137.0
FIXED CARBON %	67.75	CO2 %	0.78

GROSS CALORIFIC VALUE (MJ/KG) 26.06
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82002

SAMPLE ID 11 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 23/11/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF, DB, AD) AD

WATER	%	2.86
CARBON	%	68.00
HYDROGEN	%	2.50
SULPHUR	%	0.51
NITROGEN	%	0.93
ASH	%	20.15
OXYGEN	%	5.05

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82002
=====

SAMPLE ID 11
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 19/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1280.0
SOFTENING TEMP.(C) 1375.0
HEMISPHERICAL TEMP.(C) 1435.0
FLUID TEMP.(C) 1470.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1270.0
SOFTENING TEMP.(C) 1360.0
HEMISPHERICAL TEMP.(C) 1430.0
FLUID TEMP.(C) 1445.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82002
=====

SAMPLE ID 11
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 25/11/82

SILICON DIOXIDE % (SI02) 54.57
ALUMINIUM OXIDE % (AL2O3) 31.17
FERRIC OXIDE % (FE2O3) 2.87
TITANIUM DIOXIDE % (TI02) 0.92
PHOSPHOROUS PENTOXIDE % (P2O5) 1.89
CALCIUM OXIDE % (CAO) 3.11
MAGNESIUM OXIDE % (MGO) 1.46
SULPHUR TRIOXIDE % (SO3) 1.49
SODIUM OXIDE % (NA2O) 0.93
POTASSIUM OXIDE % (K2O) 0.83

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82002
=====

SAMPLE ID 11
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE % 6.00
SULPHATE % 2.00
ORGANIC % 92.00

TOTAL 100.00

Vitrinite Reflectance Data For
Gulf Canada Resources Inc.
Sample #4865
Pellet #1

OBSERVATION RMAX
NUMBER VALUE

1 3.15
2 3.42
3 3.30
4 3.26
5 3.52
6 3.24
7 3.34
8 3.32
9 3.45
10 3.41
11 3.38
12 3.62
13 3.42
14 3.54
15 3.37
16 3.35
17 3.68
18 3.42
19 3.22
20 3.50
21 3.63
22 3.32
23 3.31
24 3.43
25 3.75

OBSERVATION RMAX
NUMBER VALUE

26 3.34
27 3.55
28 3.35
29 3.47
30 3.55
31 3.49
32 3.52
33 3.37
34 3.35
35 3.45
36 3.38
37 3.62
38 3.41
39 3.24
40 3.39
41 3.61
42 3.37
43 3.56
44 3.53
45 3.57
46 3.39
47 3.40
48 3.53
49 3.33
50 3.29

Gulf Canada Resources Inc.
Sample #4865
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS 30
MEAN MAXIMUM REFLECTANCE

OF VITRINITE% 3.43
STANDARD ERROR OF THE MEAN 0.02
COEFFICIENT OF VARIATION% 4.00
VARIANCE 0.0189
STANDARD DEVIATION 0.1373
SKEWNESS 0.7382
KURTOSIS 3.4291

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
7	3.10	1	2.00
8	3.20	3	10.00
9	3.30	18	60.00
10	3.40	12	40.00
11	3.50	7	23.33
12	3.60	5	16.67
13	3.70	1	3.33
14	3.80	1	3.33

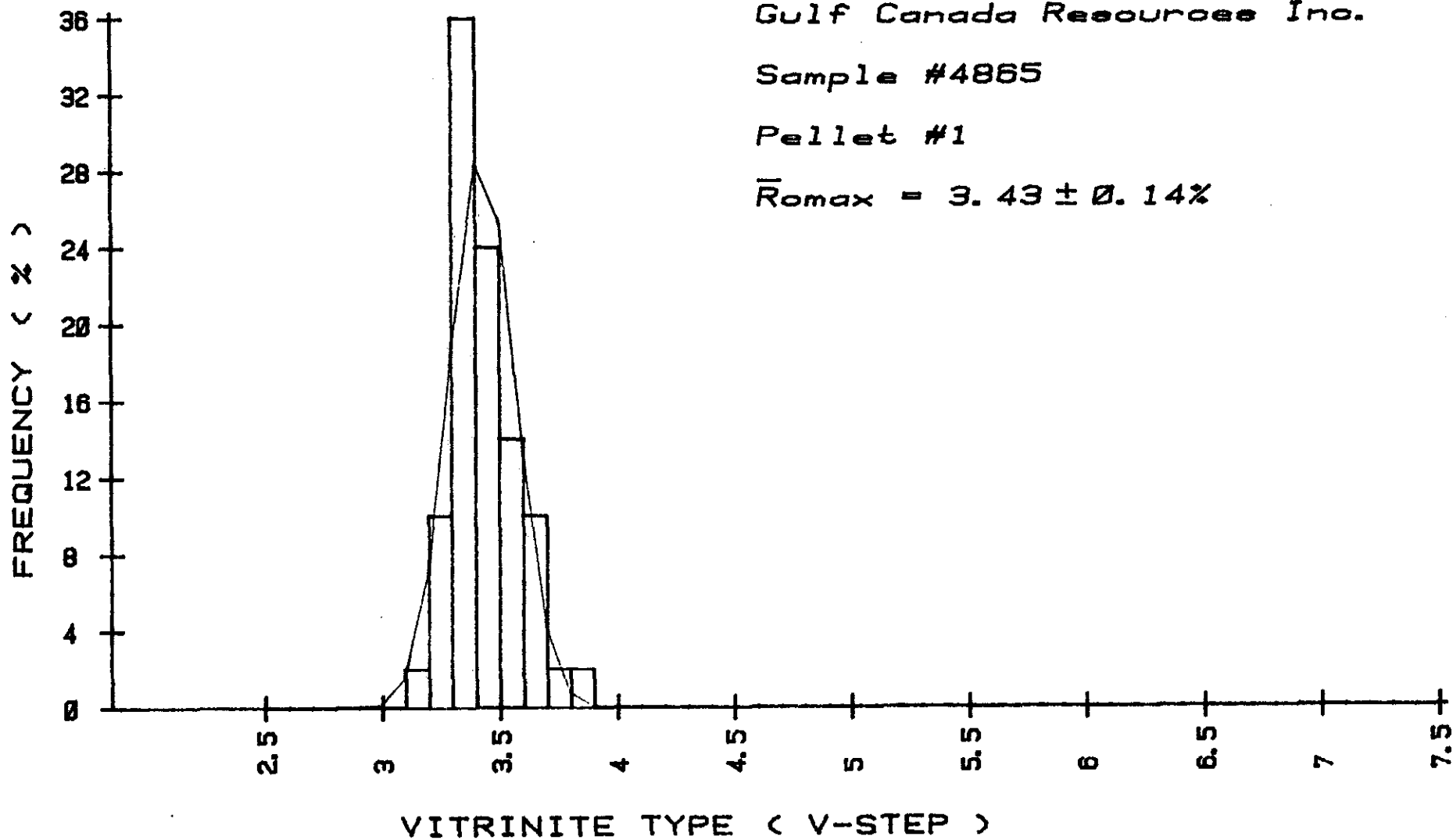
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4865

Pellet #1

$\bar{R}_{\text{omax}} = 3.43 \pm 0.14\%$



GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - E LOWER

SAMPLE ID - 4866

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
	9.53	X 0.00	WT%	ASH%	WT%	ASH%	C.V.	CUM.	C.V.	CUM.
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.		
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70	75.75	10.00	75.75	10.00	24.25	54.54	30.26	30.26		
2.60	24.25	54.54	100.00	20.80			9.41	25.20		

GCRI COAL DIVISION	HEAD	PROJ	KPN	BLK	HC	DS	DDH82002
SAMPLE ID	12	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SPLIT SAMPLE ID	HD1	DATE ANALYSED 12/10/82					
		ANALYSIS BASIS TYPE (AD,DB,AR,EM)				AD	
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM							
TOP SIZE (MM)		10.00					
SURFACE MOISTURE %<AD,AR>		---				TOTAL SULPHUR %	0.50
TOTAL MOISTURE %		---				PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %		---				CHLORINE (PPM)	00458
						SPECIFIC GRAVITY	1.59
RESIDUAL MOISTURE %<AD,EM>		1.06				FSI	---
ASH %		23.43				HGI	91.0
VOLATILE MATTER %		10.44				CO2 %	5.31
FIXED CARBON %		65.07					
GROSS CALORIFIC VALUE (MJ/KG) 25.18							
NET CALORIFIC VALUE (MJ/KG) ---							

GCRI COAL DIVISION	SIZE	PROJ	KPN	BLK	HC	DS	DDH82002
SAMPLE ID	12	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SPLIT SAMPLE ID	SZ1	DATE ANALYSED 12/10/82					
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS
MM (MM) TO (MM)				(MJ/KG)			
10.00 0.60	59.97	32.25	---	21.08	0.99	13.27	0.44
0.60 0.15	21.95	10.80	---	31.24	1.05	7.32	0.59
0.15 0.00	18.08	10.17	---	31.51	1.00	7.65	0.58

GCRI COAL DIVISION	ULTIMATE	PROJ	KPN	BLK	HC	DS	DDH82002
SAMPLE ID	12	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SAMPLE PRODUCT ID	SP1	DATE ANALYSED 20/10/82					
SPLIT SAMPLE ID	UL1						
ANALYSIS BASIS TYPE (DAF,DB,AD) AD							
WATER	%	1.06					
CARBON	%	67.59					
HYDROGEN	%	2.67					
SULPHUR	%	0.50					
NITROGEN	%	0.89					
ASH	%	23.43					
OXYGEN	%	3.86					

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82002

SAMPLE ID 12
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1195.0
 SOFTENING TEMP.(C) 1210.0
 HEMISPHERICAL TEMP.(C) 1215.0
 FLUID TEMP.(C) 1250.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1150.0
 SOFTENING TEMP.(C) 1175.0
 HEMISPHERICAL TEMP.(C) 1180.0
 FLUID TEMP.(C) 1195.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82002

SAMPLE ID 12
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE %	(SI02)	42.18
ALUMINIUM OXIDE %	(AL2O3)	13.74
FERRIC OXIDE %	(FE2O3)	11.12
TITANIUM DIOXIDE %	(TI02)	0.55
PHOSPHOROUS PENTOXIDE %	(P2O5)	2.30
CALCIUM OXIDE %	(CAO)	14.01
MAGNESIUM OXIDE %	(MGO)	4.39
SULPHUR TRIOXIDE %	(SO3)	5.33
SODIUM OXIDE %	(NA2O)	1.10
POTASSIUM OXIDE %	(K2O)	0.49

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82002

SAMPLE ID 12
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	4.00
SULPHATE	%	2.00
ORGANIC	%	94.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - E LOWER

SAMPLE ID - 12

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE(MM)	10.00 X	0.60	RELATIVE WEIGHT % - 59.97 ASH % - 32.25				
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS	C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	4.58	3.20	4.58	3.20	95.42	30.97	34.25	34.25
1.50	25.07	9.06	29.65	8.15	70.35	38.77	31.61	32.02
1.60	17.20	16.15	46.85	11.09	53.15	46.10	27.99	30.54
1.70	15.97	23.00	62.82	14.12	37.18	56.02	25.59	29.28
1.80	4.46	34.86	67.28	15.49	32.72	58.90	20.18	28.68
1.90	3.02	39.76	70.30	16.54	29.70	60.85	17.91	28.22
2.00	2.78	43.48	73.08	17.56	26.92	62.64	15.30	27.72
2.10	2.81	46.92	75.89	18.65	24.11	64.47	12.97	27.18
2.20	0.48	48.50	76.37	18.84	23.63	64.80	11.91	27.08
2.30	2.50	52.60	78.87	19.91	21.13	66.24	9.91	26.54
2.60	21.13	66.24	100.00	29.70			4.40	21.86

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE(MM)	0.60 X	0.15	RELATIVE WEIGHT % - 21.95 ASH % - 10.80				
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS	C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	35.65	2.27	35.65	2.27	64.35	13.27	34.31	34.31
1.50	40.13	5.36	75.78	3.91	24.22	26.37	32.39	33.29
1.60	13.72	13.93	89.50	5.44	10.50	42.62	29.27	32.68
1.70	3.30	23.30	92.80	6.08	7.20	51.48	25.48	32.42
1.80	2.08	30.11	94.88	6.60	5.12	60.16	22.34	32.20
1.90	0.83	37.81	95.71	6.88	4.29	64.49	18.37	32.08
2.00	0.46	43.03	96.17	7.05	3.83	67.06	16.08	32.00
2.10	0.59	48.26	96.76	7.30	3.24	70.49	13.64	31.89
2.60	3.24	70.49	100.00	9.35			0.00	30.86

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - E LOWER

SAMPLE ID - 12

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH									
FRACTION	SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 18.08 ASH % - 10.17			
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00		65.13	6.29	65.13	6.29	34.87	16.42	32.96	32.96
45.00		23.94	9.04	89.07	7.03	10.93	32.58	31.71	32.62
60.00		4.92	14.93	93.99	7.44	6.01	47.03	29.52	32.46
90.00		2.72	28.19	96.71	8.03	3.29	62.61	23.98	32.22
300.00		3.29	62.61	100.00	9.82			9.47	31.47

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDHB2002
 =====

SAMPLE ID 12 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP3

SAMPLE WEIGHT (KG) ---.---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.56	39.91	23.93
0.60	0.15	2.60	100.00	21.95
0.15	0.00	300.00	100.00	18.08

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDHB2002
 =====

SAMPLE ID 12 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.61
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	0.61	SPECIFIC GRAVITY	1.43
ASH %	10.80	FSI	---
VOLATILE MATTER %	7.02	HGI	107.0
FIXED CARBON %	81.57	CO2 %	0.57

GROSS CALORIFIC VALUE (MJ/KG) 31.31
 NET CALORIFIC VALUE (MJ/KG) ---.---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDHB2002
 =====

SAMPLE ID 12 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 06/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.61
CARBON	%	82.01
HYDROGEN	%	3.80
SULPHUR	%	0.61
NITROGEN	%	1.08
ASH	%	10.80
OXYGEN	%	1.09

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82002

SAMPLE ID 12
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 03/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1245.0
SOFTENING TEMP.(C) 1275.0
HEMISPHERICAL TEMP.(C) 1290.0
FLUID TEMP.(C) 1315.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
SOFTENING TEMP.(C) 1270.0
HEMISPHERICAL TEMP.(C) 1280.0
FLUID TEMP.(C) 1310.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82002

SAMPLE ID 12
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE % (SI02) 47.83
ALUMINIUM OXIDE % (AL2O3) 24.36
FERRIC OXIDE % (FE2O3) 4.36
TITANIUM DIOXIDE % (TI02) 0.96
PHOSPHOROUS PENTOXIDE % (P2O5) 4.16
CALCIUM OXIDE % (CAO) 7.09
MAGNESIUM OXIDE % (MGO) 1.73
SULPHUR TRIOXIDE % (SO3) 2.82
SODIUM OXIDE % (NA2O) 1.24
POTASSIUM OXIDE % (K2O) 0.88

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82002

SAMPLE ID 12
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE % 3.00
SULPHATE % 2.00
ORGANIC % 95.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82002

SAMPLE ID 12 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.30	78.87	47.30
0.60	0.15	2.60	100.00	21.95
0.15	0.00	300.00	100.00	18.08

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82002

SAMPLE ID 12 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 16/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.88
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	05210
RESIDUAL MOISTURE (AD,EM)	1.89	SPECIFIC GRAVITY	1.52
ASH %	17.24	FSI	---
VOLATILE MATTER %	8.59	HGI	84.0
FIXED CARBON %	72.28	CO2 %	2.13

GROSS CALORIFIC VALUE (MJ/KG) 27.87
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82002

SAMPLE ID 12 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 24/11/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.89
CARBON	%	72.86
HYDROGEN	%	2.45
SULPHUR	%	0.88
NITROGEN	%	0.92
ASH	%	17.24
OXYGEN	%	3.76

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82002
=====

SAMPLE ID 12
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 19/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
SOFTENING TEMP.(C) 1260.0
HEMISPHERICAL TEMP.(C) 1280.0
FLUID TEMP.(C) 1340.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1220.0
SOFTENING TEMP.(C) 1260.0
HEMISPHERICAL TEMP.(C) 1280.0
FLUID TEMP.(C) 1315.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82002
=====

SAMPLE ID 12
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 25/11/82

SILICON DIOXIDE % (SI02) 50.00
ALUMINIUM OXIDE % (AL2O3) 24.20
FERRIC OXIDE % (FE2O3) 6.66
TITANIUM DIOXIDE % (TI02) 0.94
PHOSPHOROUS PENTOXIDE % (P2O5) 2.16
CALCIUM OXIDE % (CAO) 8.13
MAGNESIUM OXIDE % (MGO) 2.83
SULPHUR TRIOXIDE % (SO3) 1.95
SODIUM OXIDE % (NA2O) 1.10
POTASSIUM OXIDE % (K2O) 0.53

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82002
=====

SAMPLE ID 12
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE % 48.00
SULPHATE % 1.00
ORGANIC % 51.00

TOTAL 100.00

Vitrinite Reflectance Data For
 Gulf Canada Resources Inc.
 Sample #4866
 Pellet #1

OBSERVATION
 NUMBER

ROMAX
 VALUE

OBSERVATION
 NUMBER

ROMAX
 VALUE

1 3.32
 2 3.55
 3 3.40
 4 3.55
 5 3.24
 6 3.27
 7 3.18
 8 3.32
 9 3.53
 10 3.37
 11 3.41
 12 3.43
 13 3.36
 14 3.40
 15 3.54
 16 3.41
 17 3.23
 18 3.55
 19 3.35
 20 3.51
 21 3.27
 22 3.46
 23 3.43
 24 3.40
 25 3.32

26 3.36
 27 3.42
 28 3.18
 29 3.17
 30 3.36
 31 3.31
 32 3.42
 33 3.51
 34 3.25
 35 3.57
 36 3.45
 37 3.36
 38 3.30
 39 3.31
 40 3.24
 41 3.56
 42 3.25
 43 3.41
 44 3.42
 45 3.34
 46 3.60
 47 3.74
 48 3.32
 49 3.35
 50 3.44

Gulf Canada Resources Inc.
 Sample #4866
 Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.39
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	3.59
VARIANCE	0.0148
STANDARD DEVIATION	0.1215
SKENNESS	0.6088
KURTOSIS	3.4569

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
7	3.10	3	6.00
8	3.20	9	18.00
9	3.30	18	36.00
10	3.40	14	28.00
11	3.50	4	12.00
12	3.60	2	4.00
13	3.70	1	2.00

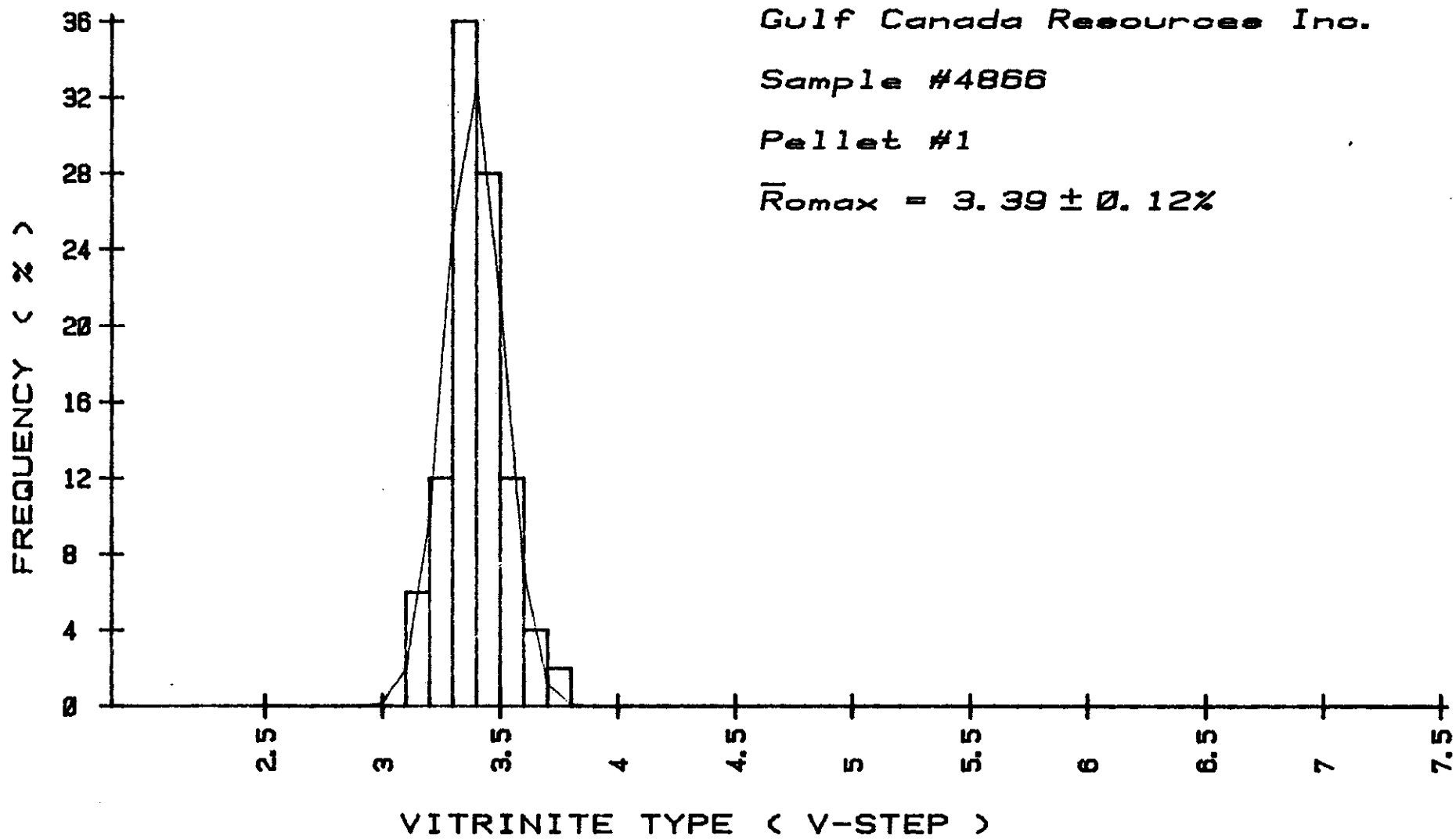
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4866

Pellet #1

$\bar{R}_{\text{omax}} = 3.39 \pm 0.12\%$



Results Of Maceral Analysis For
 Gulf Canada Resources Inc.
 #4866
 Semifusinite - KOENSLER method

COUNT #	1	2	3	4	5	6	7	8	9	10
VITRINITE	70.0	75.0	65.0	64.0	61.0	63.0	59.0	80.0	76.0	82.0
EXINITE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REACTIVE SEMIF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL REACTIVE	70.0	75.0	65.0	64.0	61.0	63.0	59.0	80.0	76.0	82.0
MACRINITE	1.0	1.0	0.0	1.0	0.0	2.0	2.0	0.0	0.0	1.0
INERT SEMIFUSI	26.0	21.0	30.0	32.0	35.0	34.0	35.0	19.0	17.0	16.0
FUSINITE	2.0	2.0	1.0	1.0	0.0	1.0	0.0	1.0	7.0	1.0
INERTODETRINIT	1.0	1.0	4.0	2.0	4.0	0.0	4.0	0.0	0.0	0.0
TOTAL INERTINI	30.0	25.0	35.0	36.0	39.0	37.0	41.0	20.0	24.0	18.0

BASIC STATISTICS	MEAN	ST.DEVIATION	VARIANCE
VITRINITE	69.5	8.3	68.3
EXINITE	0.0	0.0	0.0
REACTIVE SEMIFUSINITE	0.0	0.0	0.0
TOTAL REACTIVES	69.5	8.3	68.3
MACRINITE	0.8	0.8	0.6
INERT SEMIFUSINITE	26.5	7.7	58.9
FUSINITE	1.6	2.0	4.0
INERTODETRINITE	1.6	1.8	3.2
TOTAL INERTINITES	30.5	8.3	68.3

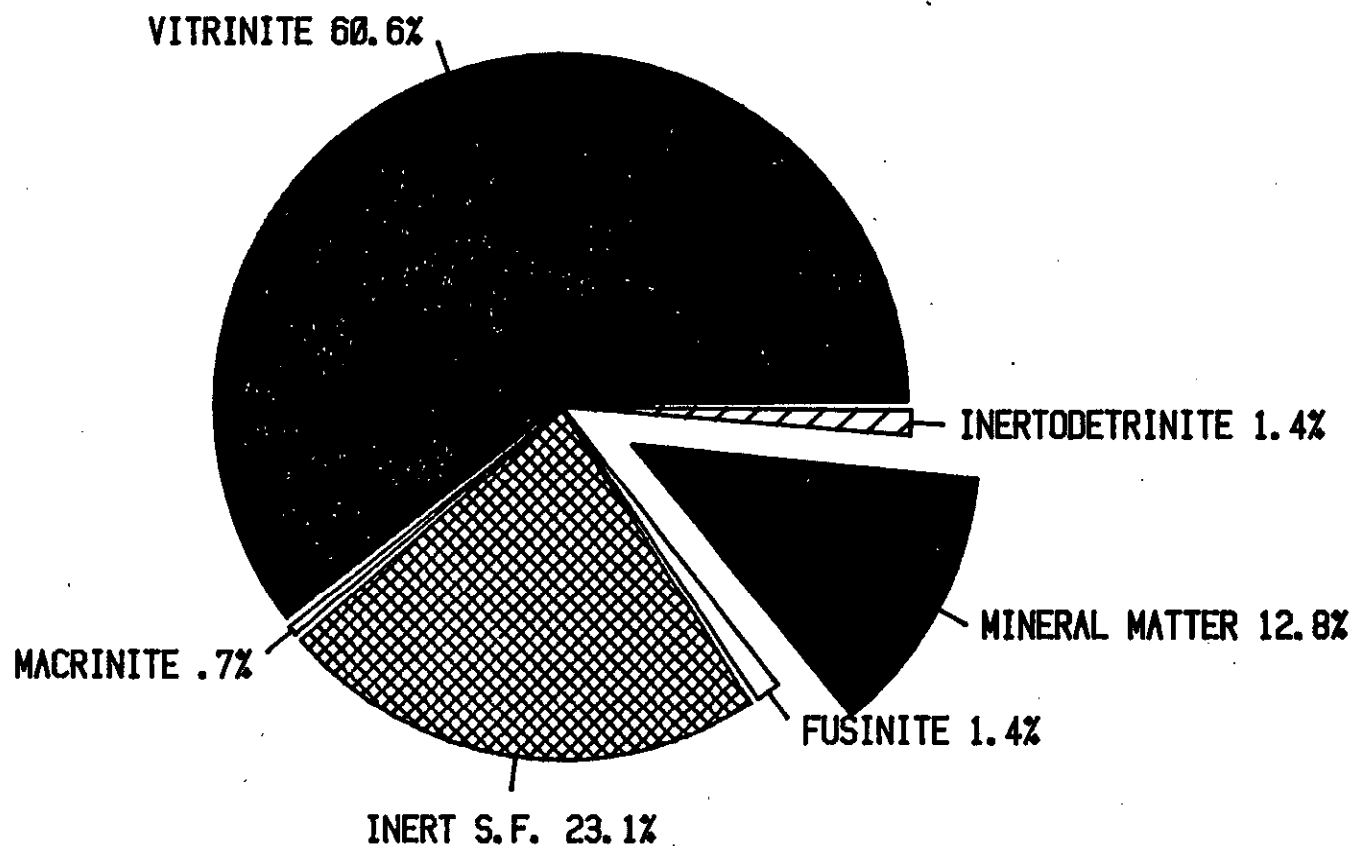
MACERAL DATA CORRECTED FOR MINERAL-MATTER CONTENT

VITRINITE	60.6
EXINITE	0.0
REACTIVE SEMIFUSINITE	0.0
TOTAL REACTIVES	60.6
MACRINITE	0.7
INERT SEMIFUSINITE	23.1
FUSINITE	1.4
INERTODETRINITE	1.4
MINERAL MATTER	12.8
TOTAL INERTS	39.4

MACERAL DISTRIBUTION

Gulf Sample #4866

Semifusinite - KOENSLER method



GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - E LOWER

SAMPLE ID - 4867

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE (MM) 9.53 x 0.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00	ASH % -
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.70	3.96	12.03	3.96	12.03	96.04	80.44	29.24	29.24		
2.60	96.04	80.44	100.00	77.73			4.68	5.65		

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT I

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - E LOWER

SAMPLE ID - 4868

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	11.55	15.60	11.55	15.60	88.45	64.88	27.96	27.96
2.60	88.45	64.88	100.00	59.19			9.12	11.30

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - E LOWER

SAMPLE ID - 4869

WASHABILITY ID - WA1

FRACTION SIZE (MM)		ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -	
9.53 X 0.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70		54.21	11.63	54.21	11.63	45.79	57.78	30.04		30.04	
2.60		45.79	57.78	100.00	32.76			12.15		21.85	

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82002

SAMPLE ID 13 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 12/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 10.00
 SURFACE MOISTURE %(AD,AR) --- TOTAL SULPHUR % 0.31
 TOTAL MOISTURE % --- PHOSPHOROUS % ---
 EQUILIBRIUM MOISTURE % --- CHLORINE (PPM) 00490
 RESIDUAL MOISTURE %(AD,EM) 1.57 SPECIFIC GRAVITY 1.88
 FSI ---
 ASH % 52.33 HGI 69.0
 VOLATILE MATTER % 7.76 CO2 % 2.31
 FIXED CARBON % 38.34
 GROSS CALORIFIC VALUE (MJ/KG) 13.70
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82002

SAMPLE ID 13 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 12/10/82
 FRACTION SIZE WT% ASH% FSI CAL RM VM TS
 (MM) TO (MM) (MJ/KG)
 10.00 0.60 74.36 61.46 --- 11.60 1.70 7.90 0.25
 0.60 0.15 14.66 32.06 --- 21.51 1.22 6.68 0.47
 0.15 0.00 10.98 27.05 --- 24.80 1.11 7.14 0.46

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82002

SAMPLE ID 13
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 20/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER % 1.57
 CARBON % 41.44
 HYDROGEN % 1.92
 SULPHUR % 0.31
 NITROGEN % 0.56
 ASH % 52.33
 OXYGEN % 1.87

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82002

SAMPLE ID 13
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1285.0
SOFTENING TEMP.(C) 1405.0
HEMISPHERICAL TEMP.(C) 1455.0
FLUID TEMP.(C) 1500.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1235.0
SOFTENING TEMP.(C) 1365.0
HEMISPHERICAL TEMP.(C) 1400.0
FLUID TEMP.(C) 1465.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82002

SAMPLE ID 13
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE %	(SI02)	58.36
ALUMINIUM OXIDE %	(AL2O3)	23.41
FERRIC OXIDE %	(FE2O3)	4.38
TITANIUM DIOXIDE %	(TI02)	0.63
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.30
CALCIUM OXIDE %	(CAO)	1.72
MAGNESIUM OXIDE %	(MGO)	2.12
SULPHUR TRIOXIDE %	(SO3)	1.20
SODIUM OXIDE %	(NA2O)	1.90
POTASSIUM OXIDE %	(K2O)	1.43

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82002

SAMPLE ID 13
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	13.00
SULPHATE	%	3.00
ORGANIC	%	84.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - E LOWER

SAMPLE ID - 13

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 10.00 X 0.60		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 74.36		ASH % - 61.46	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM.	C.V.	CUM.
1.40	2.79	3.08	2.79	3.08	97.21	61.70	34.61	34.61				
1.50	7.90	8.31	10.69	6.95	89.31	66.42	32.19	32.82				
1.60	6.26	21.05	16.95	12.15	83.05	69.84	27.09	30.70				
1.70	6.44	30.43	23.39	17.19	76.61	73.16	22.97	28.58				
1.80	7.53	39.11	30.92	22.53	69.08	76.87	19.03	26.25				
1.90	5.62	44.40	36.54	25.89	63.46	79.74	16.37	24.73				
2.00	7.60	50.51	44.14	30.13	55.86	83.72	15.53	23.15				
2.10	6.90	57.27	51.04	33.80	48.96	87.45	10.37	21.42				
2.20	0.77	63.79	51.81	34.24	48.19	87.83	10.17	21.25				
2.30	2.55	67.93	54.36	35.82	45.64	88.94	8.41	20.65				
2.60	45.64	88.94	100.00	60.07			0.00	11.23				

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 0.60 X 0.15		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 14.66		ASH % - 32.06	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM.	C.V.	CUM.
1.40	23.11	2.39	23.11	2.39	76.89	38.50	34.49	34.49				
1.50	24.36	5.39	47.47	3.93	52.53	53.85	32.67	33.56				
1.60	12.03	20.38	59.50	7.26	40.50	63.80	26.35	32.10				
1.70	4.70	24.86	64.20	8.54	35.80	68.91	25.09	31.59				
1.80	4.19	33.94	68.39	10.10	31.61	73.54	21.10	30.94				
1.90	2.93	42.88	71.32	11.45	28.68	76.67	17.54	30.39				
2.00	3.03	49.17	74.35	12.98	25.65	79.92	15.10	29.77				
2.10	3.66	56.46	78.01	15.02	21.99	83.83	12.39	28.95				
2.20	2.18	65.45	80.19	16.39	19.81	85.85	8.89	28.41				
2.30	1.53	70.09	81.72	17.40	18.28	87.17	8.05	28.03				
2.60	18.28	87.17	100.00	30.15			0.00	22.90				

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - E LOWER

SAMPLE ID - 13

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION S.G.TME	SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 10.98 ASH % - 27.05		CUM. C.V.
		ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	
30.00		77.80	14.47	77.80	14.47	22.20	61.79	28.19
45.00		7.87	34.72	85.67	16.33	14.33	76.66	21.45
60.00		2.88	58.66	88.55	17.71	11.45	81.19	12.30
90.00		1.88	74.73	90.43	18.89	9.57	82.46	4.86
120.00		0.88	78.83	91.31	19.47	8.69	82.83	3.99
300.00		8.69	82.83	100.00	24.98			0.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82002

SAMPLE ID 13 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.70	23.39	17.39
0.60	0.15	2.30	81.72	11.98
0.15	0.00	120.00	91.31	10.03

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82002

SAMPLE ID 13 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 16/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % <AD,AR>	---	TOTAL SULPHUR %	0.50
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	05943
RESIDUAL MOISTURE <AD,EM>	1.59	SPECIFIC GRAVITY	1.53
ASH %	16.88	FSI	---
VOLATILE MATTER %	7.12	HGI	86.0
FIXED CARBON %	74.41	CO2 %	0.34

GROSS CALORIFIC VALUE (MJ/KG) 27.88
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82002

SAMPLE ID 13 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 23/11/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.59
CARBON	%	77.19
HYDROGEN	%	2.84
SULPHUR	%	0.50
NITROGEN	%	0.84
ASH	%	16.88
OXYGEN	%	0.16

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82002
=====

SAMPLE ID 13
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 19/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1310.0
SOFTENING TEMP.(C) 1495.0
HEMISPHERICAL TEMP.(C) 1500.0
FLUID TEMP.(C) 1500.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1300.0
SOFTENING TEMP.(C) 1475.0
HEMISPHERICAL TEMP.(C) 1490.0
FLUID TEMP.(C) 1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82002
=====

SAMPLE ID 13
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 25/11/82

SILICON DIOXIDE % (SI02) 60.79
ALUMINIUM OXIDE % (AL2O3) 39.23
FERRIC OXIDE % (FE2O3) 2.10
TITANIUM DIOXIDE % (TI02) 1.15
PHOSPHOROUS PENTOXIDE % (P2O5) 1.15
CALCIUM OXIDE % (CAO) 1.29
MAGNESIUM OXIDE % (MGO) 0.92
SULPHUR TRIOXIDE % (SO3) 0.91
SODIUM OXIDE % (NA2O) 1.43
POTASSIUM OXIDE % (K2O) 0.90

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82002
=====

SAMPLE ID 13
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE % 4.00
SULPHATE % 2.00
ORGANIC % 94.00

TOTAL 100.00

Vitrinite Reflectance Data For
Gulf Canada Resources Inc.
Sample #4867-4869
Pellet #1

OBSERVATION NUMBER	ROMAX VALUE	OBSERVATION NUMBER	ROMAX VALUE
1	3.48	26	3.30
2	3.44	27	3.58
3	3.46	28	3.48
4	3.38	29	3.25
5	3.55	30	3.81
6	3.48	31	3.81
7	3.52	32	3.58
8	3.48	33	3.53
9	3.84	34	3.62
10	3.56	35	3.57
11	3.49	36	3.58
12	3.60	37	3.45
13	3.26	38	3.57
14	3.40	39	3.29
15	3.88	40	3.47
16	3.81	41	3.59
17	3.59	42	3.63
18	3.59	43	3.58
19	3.50	44	3.17
20	3.44	45	3.29
21	3.28	46	3.31
22	3.53	47	3.61
23	3.86	48	3.52
24	3.46	49	3.47
25	3.41	50	3.49

Gulf Canada Resources Inc.
Sample #4867-4869
Pellet #1

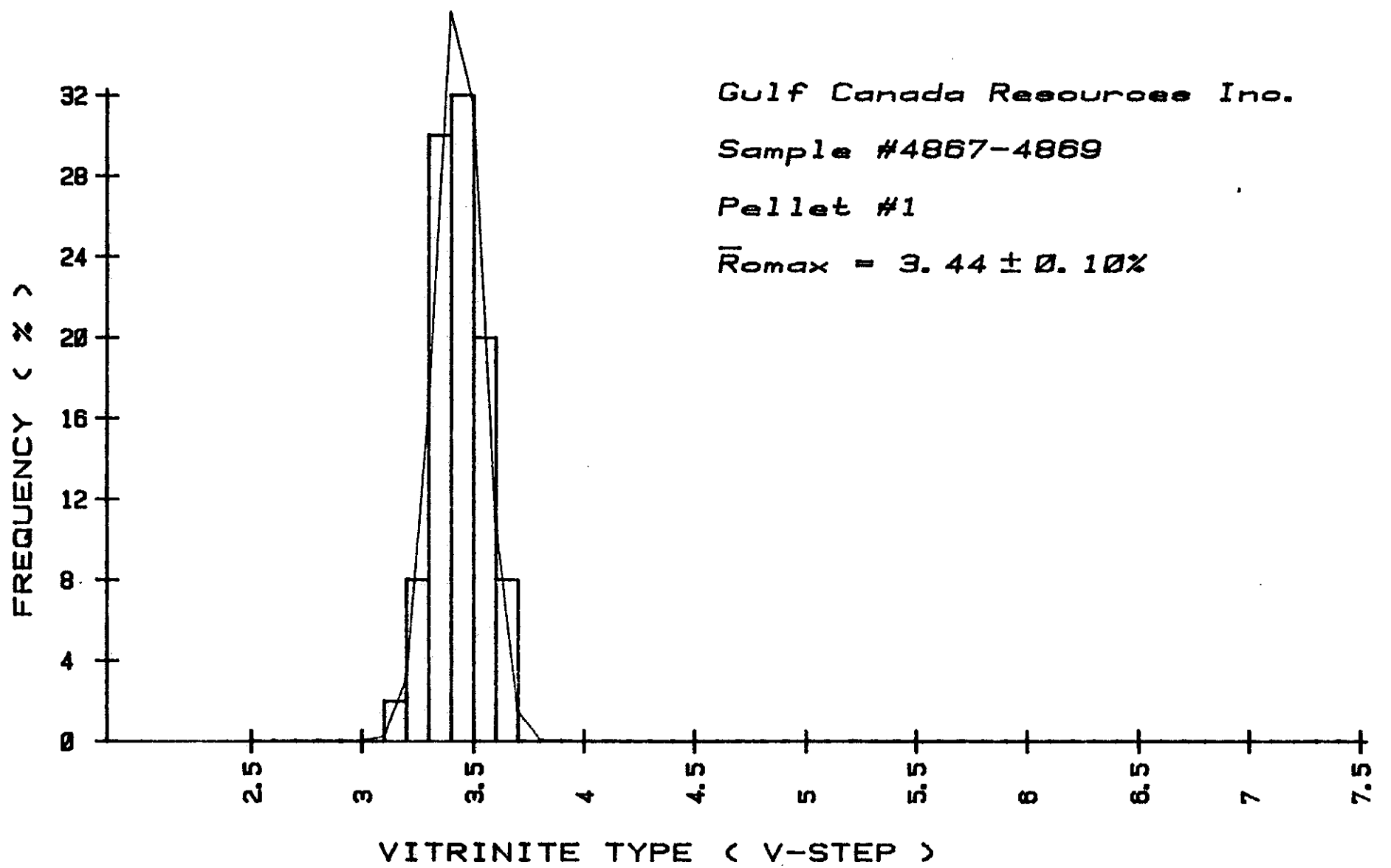
BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.46
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION	3.04
VARIANCE	0.0109
STANDARD DEVIATION	0.1043
SKEWNESS	-0.2022
KURTOSIS	2.5612

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
7	3.10	1	2.00
8	3.20	4	8.00
9	3.30	15	30.00
10	3.40	16	32.00
11	3.50	10	20.00
12	3.60	4	8.00

VITRINITE FREQUENCY DISTRIBUTION



GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - D

SAMPLE ID - 4870

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)		9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70	66.40	11.86	66.40	11.86	33.60	52.62	29.47	29.47		
2.60	33.60	52.62	100.00	25.56			11.33	23.37		

<u>GCRI COAL DIVISION</u>	<u>HEAD</u>	<u>PROJ</u>	<u>KPN</u>	<u>BLK</u>	<u>HC</u>	<u>DS</u>	<u>DDHB2002</u>
SAMPLE ID	14	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SPLIT SAMPLE ID	HD1	DATE ANALYSED		12/10/82			
		ANALYSIS BASIS TYPE (AD,DB,AR,EM)				AD	
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)		ASTM					
TOP SIZE (MM)		10.00					
SURFACE MOISTURE %<AD,AR>		---		TOTAL SULPHUR %		0.59	
TOTAL MOISTURE %		---		PHOSPHOROUS %		---	
EQUILIBRIUM MOISTURE %		---		CHLORINE (PPM)		---	
				SPECIFIC GRAVITY		1.59	
RESIDUAL MOISTURE %<AD,EM>		1.14		FSI		---	
ASH %		25.63		HGI		55.0	
VOLATILE MATTER %		9.22		CO2 %		3.82	
FIXED CARBON %		64.01					
GROSS CALORIFIC VALUE (MJ/KG)		24.85					
NET CALORIFIC VALUE (MJ/KG)		---					

<u>GCRI COAL DIVISION</u>	<u>ULTIMATE</u>	<u>PROJ</u>	<u>KPN</u>	<u>BLK</u>	<u>HC</u>	<u>DS</u>	<u>DDHB2002</u>
SAMPLE ID	14	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SAMPLE PRODUCT ID	SP1	DATE ANALYSED		20/10/82			
SPLIT SAMPLE ID	UL1	ANALYSIS BASIS TYPE (DAF,DB,AD)				AD	
WATER	%	1.14					
CARBON	%	66.90					
HYDROGEN	%	2.58					
SULPHUR	%	0.59					
NITROGEN	%	0.77					
ASH	%	25.63					
OXYGEN	%	2.39					

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82002

SAMPLE ID 14
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1215.0
SOFTENING TEMP.(C) 1230.0
HEMISPHERICAL TEMP.(C) 1245.0
FLUID TEMP.(C) 1290.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1185.0
SOFTENING TEMP.(C) 1195.0
HEMISPHERICAL TEMP.(C) 1200.0
FLUID TEMP.(C) 1250.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82002

SAMPLE ID 14
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE % (SI02) 51.37
ALUMINIUM OXIDE % (AL2O3) 16.29
FERRIC OXIDE % (FE2O3) 5.40
TITANIUM DIOXIDE % (TI02) 0.43
PHOSPHOROUS PENTOXIDE % (P2O5) 1.73
CALCIUM OXIDE % (CAO) 11.11
MAGNESIUM OXIDE % (MGO) 3.45
SULPHUR TRIOXIDE % (SO3) 4.77
SODIUM OXIDE % (NA2O) 1.01
POTASSIUM OXIDE % (K2O) 0.75

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82002

SAMPLE ID 14
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE % 34.00
SULPHATE % 2.00
ORGANIC % 64.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - C

SAMPLE ID - 4871

WASHABILITY ID - WA1

FRACTION SIZE (MM)		ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -	
S.G.TME	SIZE (MM)	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.		
		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70	9.53 X	76.23	14.69	76.23	14.69	23.77	59.30	29.10	29.10		
2.60	0.00	23.77	59.30	100.00	25.29			10.85	24.76		

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82002

SAMPLE ID 15 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 12/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.51
TOTAL MOISTURE %	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00307
		SPECIFIC GRAVITY	1.59
RESIDUAL MOISTURE % (AD,EM)	1.48	FSI	---
ASH %	25.67	HGI	43.0
VOLATILE MATTER %	7.77	CO2 %	1.96
FIXED CARBON %	65.08		
GROSS CALORIFIC VALUE (MJ/KG)	24.66		
NET CALORIFIC VALUE (MJ/KG)	---		

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82002

SAMPLE ID	15	DATA TYPE (REAL,BORO,AVER,CALC)		REAL				
SPLIT SAMPLE ID	SZ1	DATE ANALYSED		12/10/82				
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS	
FROM (MM) TO (MM)				(MJ/KG)				
10.00 0.60	80.74	23.94	---	25.67	1.25	7.54	0.52	
0.60 0.15	13.57	23.61	---	26.18	1.24	7.15	0.53	
0.15 0.00	5.69	36.10	---	21.99	1.16	7.91	0.49	

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82002

SAMPLE ID 15
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 22/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.48
CARBON	%	66.07
HYDROGEN	%	2.13
SULPHUR	%	0.51
NITROGEN	%	0.93
ASH	%	25.67
OXYGEN	%	3.21

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82002

SAMPLE ID 15
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1270.0
SOFTENING TEMP.(C) 1290.0
HEMISPHERICAL TEMP.(C) 1300.0
FLUID TEMP.(C) 1320.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1220.0
SOFTENING TEMP.(C) 1255.0
HEMISPHERICAL TEMP.(C) 1265.0
FLUID TEMP.(C) 1300.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82002

SAMPLE ID 15
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE %	(SI02)	43.98
ALUMINIUM OXIDE %	(AL2O3)	25.26
FERRIC OXIDE %	(FE2O3)	6.04
TITANIUM DIOXIDE %	(TI02)	0.81
PHOSPHOROUS PENTOXIDE %	(P2O5)	3.52
CALCIUM OXIDE %	(CAO)	7.20
MAGNESIUM OXIDE %	(MGO)	2.27
SULPHUR TRIOXIDE %	(SO3)	3.92
SODIUM OXIDE %	(NA2O)	1.35
POTASSIUM OXIDE %	(K2O)	1.02

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82002

SAMPLE ID 15
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	12.00
SULPHATE	%	2.00
ORGANIC	%	86.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - C

SAMPLE ID - 15

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE(MM)	10.00 X	0.60	RELATIVE WEIGHT % - 80.74 ASH % - 23.94				
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40	4.04	2.31	4.04	2.31	95.96	24.24	34.74	34.74
1.50	30.73	10.62	34.77	9.65	65.23	30.65	31.28	31.68
1.60	37.96	17.62	72.73	13.81	27.27	48.79	28.44	29.99
1.70	6.82	27.69	79.55	15.00	20.45	55.83	24.22	29.50
1.80	5.19	32.73	84.74	16.09	15.26	63.69	21.39	29.00
1.90	2.30	41.98	87.04	16.77	12.96	67.54	18.17	28.71
2.00	1.49	46.63	88.53	17.27	11.47	70.26	15.72	28.49
2.10	1.67	52.70	90.20	17.93	9.80	73.25	12.45	28.20
2.20	0.33	59.38	90.53	18.08	9.47	73.73	10.29	28.13
2.30	1.21	60.56	91.74	18.64	8.26	75.66	9.06	27.88
2.60	8.26	75.66	100.00	23.35			3.69	25.88

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE(MM)	0.60 X	0.15	RELATIVE WEIGHT % - 13.57 ASH % - 23.61				
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40	11.72	2.78	11.72	2.78	88.28	24.87	34.52	34.52
1.50	31.80	8.27	43.52	6.79	56.48	34.21	31.90	32.61
1.60	25.95	14.97	69.47	9.85	30.53	50.57	28.75	31.17
1.70	10.50	22.07	79.97	11.45	20.03	65.51	25.89	30.47
1.80	3.49	34.88	83.46	12.43	16.54	71.97	21.02	30.08
1.90	2.15	46.58	85.61	13.29	14.39	75.76	16.49	29.74
2.00	0.92	47.85	86.53	13.66	13.47	77.67	15.59	29.59
2.10	1.25	54.07	87.78	14.23	12.22	80.09	13.28	29.35
2.30	1.12	62.01	88.90	14.83	11.10	81.91	9.85	29.11
2.60	11.10	81.91	100.00	22.28			0.00	25.88

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - C

SAMPLE ID - 15

WASHABILITY ID - WAI

ANALYSIS TYPE - FROTH

FRACTION S.G.TME	SIZE(MM) 0.15 X		0.00		RELATIVE WEIGHT % -		5.69 ASH % - 36.10	
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
30.00	63.91	16.19	63.91	16.19	36.09	58.60	29.06	29.06
45.00	10.46	26.06	74.37	17.58	25.63	71.87	24.80	28.46
60.00	3.44	38.21	77.81	18.49	22.19	77.09	19.99	28.09
90.00	3.08	59.59	80.89	20.06	19.11	79.91	10.92	27.43
120.00	2.09	70.99	82.98	21.34	17.02	81.01	7.15	26.92
300.00	17.02	81.01	100.00	31.49			0.00	22.34

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDHS2002

SAMPLE ID 15 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP3
 SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.51	37.81	30.53
0.60	0.15	1.61	70.41	9.55

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDHS2002

SAMPLE ID 15 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.58
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	0.68	SPECIFIC GRAVITY	1.44
ASH %	10.63	FSI	---
VOLATILE MATTER %	6.07	HGI	---
FIXED CARBON %	82.62	CO2 %	0.14

GROSS CALORIFIC VALUE (MJ/KG) 30.60
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDHS2002

SAMPLE ID 15 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 06/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.68
CARBON	%	82.74
HYDROGEN	%	3.26
SULPHUR	%	0.58
NITROGEN	%	1.21
ASH	%	10.63
OXYGEN	%	0.90

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82002

SAMPLE ID 15
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 03/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1270.0
 SOFTENING TEMP.(C) 1290.0
 HEMISPHERICAL TEMP.(C) 1300.0
 FLUID TEMP.(C) 1330.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1265.0
 SOFTENING TEMP.(C) 1285.0
 HEMISPHERICAL TEMP.(C) 1295.0
 FLUID TEMP.(C) 1325.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82002

SAMPLE ID 15
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE %	(SI02)	60.79
ALUMINIUM OXIDE %	(AL2O3)	29.23
FERRIC OXIDE %	(FE2O3)	2.10
TITANIUM DIOXIDE %	(TI02)	1.15
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.15
CALCIUM OXIDE %	(CAO)	1.29
MAGNESIUM OXIDE %	(MGO)	0.92
SULPHUR TRIOXIDE %	(SO3)	0.91
SODIUM OXIDE %	(NA2O)	1.43
POTASSIUM OXIDE %	(K2O)	0.90

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82002

SAMPLE ID 15
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82002

SAMPLE ID 15 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.30	91.74	74.07
0.60	0.15	2.30	88.90	12.06
0.15	0.00	120.00	82.98	4.72

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82002

SAMPLE ID 15 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 15/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.44
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	05878
RESIDUAL MOISTURE (AD,EM)	1.90	SPECIFIC GRAVITY	1.56
ASH %	19.14	FSI	---
VOLATILE MATTER %	7.75	HGI	46.0
FIXED CARBON %	71.21	CO2 %	0.70

GROSS CALORIFIC VALUE (MJ/KG) 26.94
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82002

SAMPLE ID 15 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 24/11/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.90
CARBON	%	71.91
HYDROGEN	%	2.66
SULPHUR	%	0.44
NITROGEN	%	0.98
ASH	%	19.14
OXYGEN	%	2.97

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82002

SAMPLE ID 15
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 22/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1270.0
 SOFTENING TEMP.(C) 1285.0
 HEMISPHERICAL TEMP.(C) 1310.0
 FLUID TEMP.(C) 1330.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1255.0
 SOFTENING TEMP.(C) 1270.0
 HEMISPHERICAL TEMP.(C) 1295.0
 FLUID TEMP.(C) 1315.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82002

SAMPLE ID 15
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 08/12/82

SILICON DIOXIDE %	(SI02)	44.21
ALUMINIUM OXIDE %	(AL2O3)	30.08
FERRIC OXIDE %	(FE2O3)	4.24
TITANIUM DIOXIDE %	(TI02)	0.92
PHOSPHOROUS PENTOXIDE %	(P2O5)	4.13
CALCIUM OXIDE %	(CAO)	6.78
MAGNESIUM OXIDE %	(MGO)	1.95
SULPHUR TRIOXIDE %	(SO3)	3.38
SODIUM OXIDE %	(NA2O)	1.26
POTASSIUM OXIDE %	(K2O)	1.20

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82002

SAMPLE ID 15
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

TOTAL 100.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82002

SAMPLE ID 15 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP5

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION	YEILD/FRACTION RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.30	53.93	43.52
0.60	0.15	1.70	9.56	1.29
0.15	0.00	120.00	32.98	4.72

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82002

SAMPLE ID 15 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP5 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % <AD,AR>	---	TOTAL SULPHUR %	0.48
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS	---
TO MOISTURE %	---	CHLORINE (PPM)	---
		SPG	---
INHERENT MOISTURE <AD,EM>	1.20	FSI	---
ASH %	24.33	HGI	---
FIXED CARBON %	67.23	CO2 %	---
VOLITILE MATTER %	7.24		

GROSS CALORIFIC VALUE (MJ,KG) 25.18
 NET CALORIFIC VALUE (MJ,KG) ---

Vitrinite Reflectance Data For
Gulf Canada Resources Inc.
Sample #4871
Pellet #1

OBSERVATION NUMBER	ROMAX VALUE	OBSERVATION NUMBER	ROMAX VALUE
1	3.77	26	3.32
2	3.63	27	3.66
3	3.36	28	3.64
4	3.41	29	3.70
5	3.42	30	3.64
6	3.36	31	3.79
7	3.64	32	3.38
8	3.62	33	3.51
9	3.65	34	3.73
10	3.32	35	3.45
11	3.67	36	3.36
12	3.63	37	3.65
13	3.62	38	3.66
14	3.37	39	3.99
15	3.46	40	3.64
16	3.38	41	3.45
17	3.77	42	3.32
18	3.72	43	3.46
19	3.48	44	3.51
20	3.29	45	3.77
21	3.39	46	3.72
22	3.54	47	3.64
23	3.40	48	3.56
24	3.58	49	3.55
25	3.46	50	3.47

Gulf Canada Resources Inc.
 Sample #4871
 Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.55
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	4.27
VARIANCE	0.0233
STANDARD DEVIATION	0.1525
SKEWNESS	0.0295
KURTOSIS	2.0439

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY / (%)
8	3.20	1	2.00
9	3.30	8	16.00
10	3.40	11	22.00
11	3.50	11	22.00
12	3.60	10	20.00
13	3.70	5	10.00
15	3.70	1	2.00

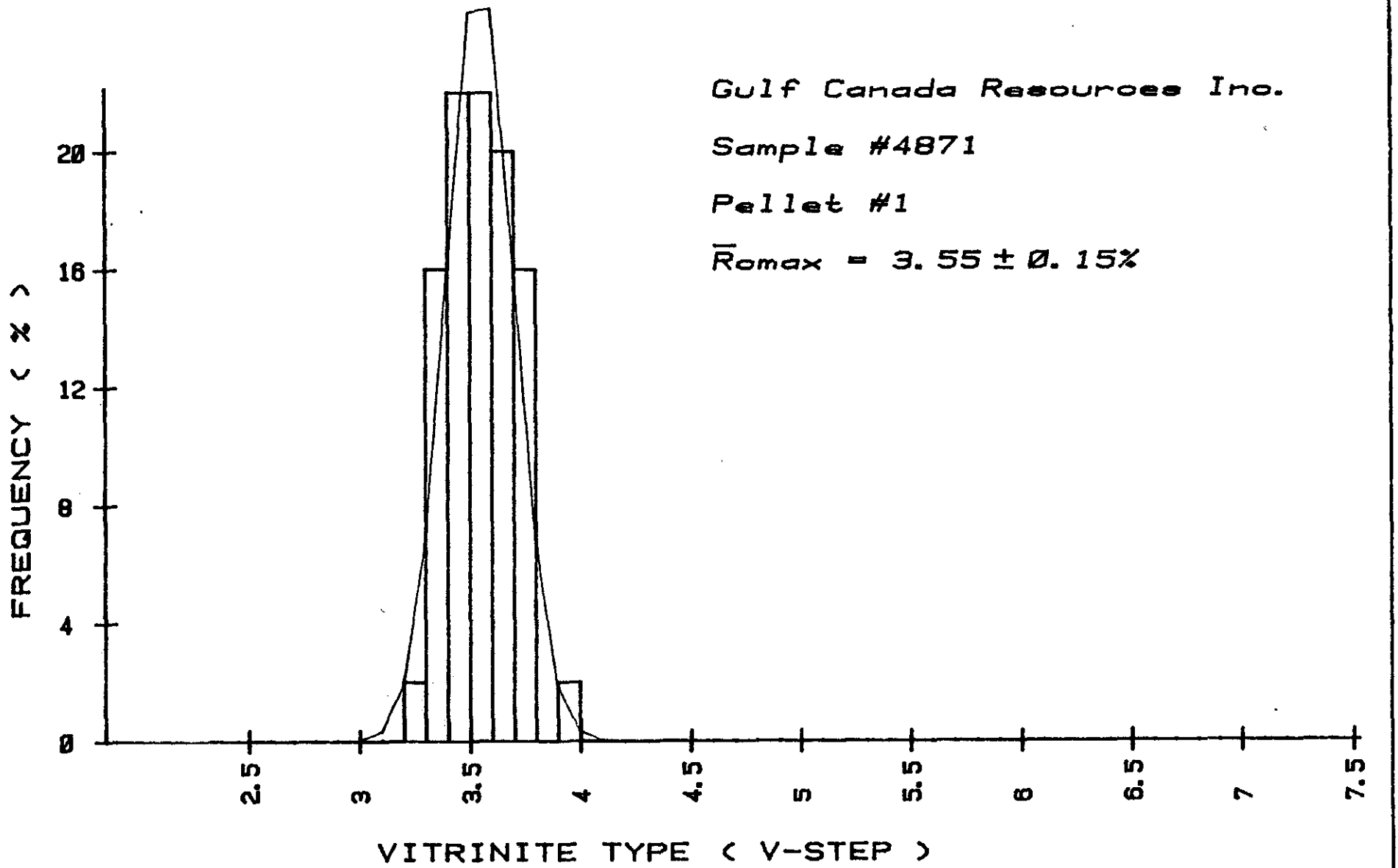
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4871

Pellet #1

$\bar{R}_{\text{omax}} = 3.55 \pm 0.15\%$



DDH82003

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WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDDH82003 SEAM - K

SAMPLE ID - 4956

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT										
FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.70		19.78	18.88	19.78	18.88	80.22	68.28	27.53	27.53	
2.60		80.22	68.28	100.00	58.51			8.17	12.00	

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - K

SAMPLE ID - 4957

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE (MM) 9.53 X 0.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00	ASH % -
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.70	15.96	17.06	15.96	17.06	84.04	77.64	27.77	27.77		
2.60	84.04	77.64	100.00	67.97			4.79	8.46		

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - K

SAMPLE ID - 4958

WASHABILITY ID - WAI

FRACTION SIZE (MM)		ANALYSIS TYPE - FLOAT		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
9.53 X 0.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)		C.V.	
1.70		56.10	17.00	56.10	17.00	43.90	56.78	27.89		27.89	
2.60		43.90	56.78	100.00	34.46			11.65		20.76	

GCRI COAL DIVISION	HEAD	PROJ	KPN	BLK	HC	DS	DDH82003
=====							
SAMPLE ID	16	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SPLIT SAMPLE ID	HD1	DATE ANALYSED		12/10/82			
		ANALYSIS BASIS TYPE (AD,DB,AR,EM)				AD	
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM							
TOP SIZE (MM)		10.00					
SURFACE MOISTURE %<AD,AR>		---		TOTAL SULPHUR %		0.60	
TOTAL MOISTURE %		---		PHOSPHOROUS %		---	
EQUILIBRIUM MOISTURE %		---		CHLORINE (PPM)		00312	
				SPECIFIC GRAVITY		1.68	
RESIDUAL MOISTURE %<AD,EM>		1.67		FSI		---	
ASH %		35.46		HGI		57.0	
VOLATILE MATTER %		7.80		CO2 %		2.21	
FIXED CARBON %		55.07					
GROSS CALORIFIC VALUE (MJ/KG)		20.93					
NET CALORIFIC VALUE (MJ/KG)		---					

GCRI COAL DIVISION	SIZE	PROJ	KPN	BLK	HC	DS	DDH82003
=====							
SAMPLE ID	16	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SPLIT SAMPLE ID	SZ1	DATE ANALYSED		12/10/82			
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS
FROM (MM) TO (MM)				(MJ/KG)			
10.00	0.60	80.19	37.78	---	20.52	1.45	8.32
0.60	0.15	12.77	26.26	---	24.15	1.27	7.65
0.15	0.00	7.04	30.31	---	22.25	0.85	8.02
							0.60
							0.74
							0.61

GCRI COAL DIVISION	ULTIMATE	PROJ	KPN	BLK	HC	DS	DDH82003
=====							
SAMPLE ID	16	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SAMPLE PRODUCT ID	SP1	DATE ANALYSED		20/10/82			
SPLIT SAMPLE ID	UL1	ANALYSIS BASIS TYPE (DAF,DB,AD)				AD	
WATER	%	1.67					
CARBON	%	57.73					
HYDROGEN	%	2.16					
SULPHUR	%	0.60					
NITROGEN	%	0.72					
ASH	%	35.46					
OXYGEN	%	1.66					

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 16
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1360.0
SOFTENING TEMP.(C) 1440.0
HEMISPHERICAL TEMP.(C) 1490.0
FLUID TEMP.(C) 1500.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1200.0
SOFTENING TEMP.(C) 1400.0
HEMISPHERICAL TEMP.(C) 1430.0
FLUID TEMP.(C) 1475.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 16
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE %	(SI02)	56.23
ALUMINIUM OXIDE %	(AL2O3)	25.44
FERRIC OXIDE %	(FE2O3)	5.26
TITANIUM DIOXIDE %	(TI02)	1.05
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.17
CALCIUM OXIDE %	(CAO)	1.51
MAGNESIUM OXIDE %	(MGO)	1.28
SULPHUR TRIOXIDE %	(SO3)	1.78
SODIUM OXIDE %	(NA2O)	1.68
POTASSIUM OXIDE %	(K2O)	1.20

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 16
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	42.00
SULPHATE	%	3.00
ORGANIC	%	55.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - K

SAMPLE ID - 16

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	10.00 X 0.60		CUM. FLOATS		RELATIVE WEIGHT % - 80.19 ASH % - 37.78		C.V.	CUM.
		ELEMENTAL	WT%	WT%	ASH%	WT%	ASH%		
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%		C.V.
1.40		5.85	3.22	5.85	3.22	94.15	37.89	33.93	33.93
1.50		14.66	10.50	20.51	8.42	79.49	42.95	31.43	32.14
1.60		18.23	19.64	38.74	13.70	61.26	49.88	27.49	29.95
1.70		13.79	27.61	52.53	17.35	47.47	56.35	23.57	28.28
1.80		5.85	35.85	58.38	19.21	41.62	59.23	20.61	27.51
1.90		4.07	39.98	62.45	20.56	37.55	61.32	18.84	26.94
2.00		5.92	48.30	68.37	22.96	31.63	63.75	15.07	25.92
2.10		9.98	54.77	78.35	27.01	21.65	67.90	12.39	24.19
2.20		1.28	55.04	79.63	27.46	20.37	68.70	10.59	23.97
2.30		5.81	61.80	85.44	29.80	14.56	71.46	9.63	23.00
2.60		14.56	71.46	100.00	35.86			4.98	20.38

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	0.60 X 0.15		CUM. FLOATS		RELATIVE WEIGHT % - 12.77 ASH % - 26.26		C.V.	CUM.
		ELEMENTAL	WT%	WT%	ASH%	WT%	ASH%		
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%		C.V.
1.40		26.40	2.99	26.40	2.99	73.60	42.34	34.12	34.12
1.50		12.84	9.32	39.24	5.06	60.76	49.32	31.67	33.32
1.60		12.72	16.29	51.96	7.81	48.04	58.07	28.46	32.13
1.70		9.83	23.40	61.79	10.29	38.21	66.99	25.20	31.03
1.80		6.26	31.39	68.05	12.23	31.95	73.96	21.88	30.19
1.90		3.00	43.14	71.05	13.54	28.95	77.16	17.86	29.66
2.00		3.17	49.74	74.22	15.08	25.78	80.53	14.84	29.03
2.10		3.76	57.64	77.98	17.13	22.02	84.44	9.95	28.11
2.20		1.35	65.17	79.33	17.95	20.67	85.70	8.50	27.78
2.30		1.28	68.98	80.61	18.76	19.39	86.80	8.12	27.47
2.60		19.39	86.80	100.00	31.95			0.00	22.14

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - K

SAMPLE ID - 16

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % - 7.04 ASH % - 30.31		C.V.	CUM.
	ELEMENTAL	WT%	CUM. FLOATS	WT%	CUM. SINKS	WT%		
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00	76.24	15.94	76.24	15.94	23.76	69.11	27.59	27.59
45.00	5.49	39.73	81.73	17.54	18.27	77.94	19.25	27.03
60.00	2.05	61.22	83.78	18.61	16.22	80.05	9.80	26.61
90.00	2.24	71.48	86.02	19.98	13.98	81.43	6.97	26.10
120.00	1.00	75.92	87.02	20.63	12.98	81.85	5.08	25.86
300.00	12.98	81.85	100.00	28.57			0.00	22.50

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003

SAMPLE ID 16 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.90	62.45	50.08
0.60	0.15	2.10	77.98	9.96
0.15	0.00	30.00	76.24	5.36

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82003

SAMPLE ID 16 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 16/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.59
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	05829
RESIDUAL MOISTURE (AD,EM)	1.81	SPECIFIC GRAVITY	1.55
ASH %	21.47	FSI	---
VOLATILE MATTER %	9.22	HGI	61.0
FIXED CARBON %	67.50	CO2 %	0.94

GROSS CALORIFIC VALUE (MJ/KG) 26.45
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 16 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.81
CARBON	%	68.05
HYDROGEN	%	2.45
SULPHUR	%	0.59
NITROGEN	%	0.92
ASH	%	21.47
OXYGEN	%	4.71

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 16
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 22/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1295.0
SOFTENING TEMP.(C) 1435.0
HEMISPHERICAL TEMP.(C) 1460.0
FLUID TEMP.(C) 1480.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
SOFTENING TEMP.(C) 1420.0
HEMISPHERICAL TEMP.(C) 1455.0
FLUID TEMP.(C) 1480.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 16
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 07/12/82

SILICON DIOXIDE %	(SI02)	62.96
ALUMINIUM OXIDE %	(AL2O3)	20.84
FERRIC OXIDE %	(FE2O3)	4.99
TITANIUM DIOXIDE %	(TI02)	0.80
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.29
CALCIUM OXIDE %	(CAO)	1.22
MAGNESIUM OXIDE %	(MGO)	1.17
SULPHUR TRIOXIDE %	(SO3)	0.94
SODIUM OXIDE %	(NA2O)	1.09
POTASSIUM OXIDE %	(K2O)	1.28

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 16
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE	%	29.00
SULPHATE	%	2.00
ORGANIC	%	69.00

TOTAL 100.00

Vitrinite Reflectance Data For
Gulf Canada Resources Inc.
Sample #4958
Pellet #1

OBSERVATION
NUMBER

ROMAX
VALUE

OBSERVATION
NUMBER

ROMAX
VALUE

1 3.44
2 3.28
3 3.44
4 3.37
5 3.46
6 3.32
7 3.25
8 3.39
9 3.27
10 3.32
11 3.35
12 3.37
13 3.36
14 3.27
15 3.36
16 3.33
17 3.32
18 3.39
19 3.25
20 3.40
21 3.42
22 3.41
23 3.22
24 3.46
25 3.52

26 3.45
27 3.35
28 3.29
29 3.39
30 3.39
31 3.35
32 3.59
33 3.18
34 3.33
35 3.23
36 3.33
37 3.29
38 3.32
39 3.30
40 3.27
41 3.34
42 3.33
43 3.34
44 3.29
45 3.28
46 3.28
47 3.25
48 3.32
49 3.25
50 3.27

Gulf Canada Resources Inc.
 Sample #4958
 Pellet #1

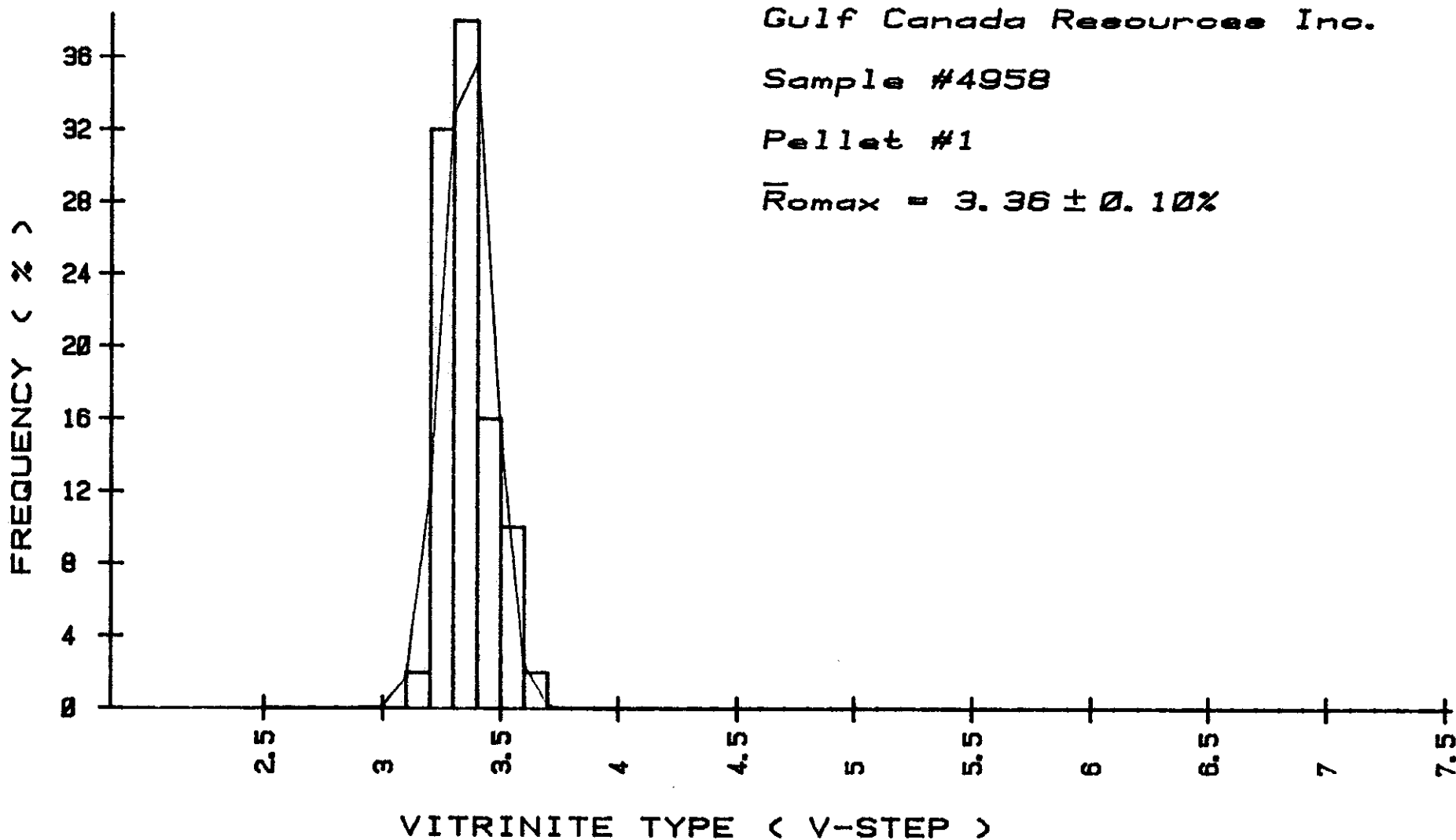
BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.36
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION	3.03
VARIANCE	0.0107
STANDARD DEVIATION	0.1034
SKEWNESS	0.8419
KURTOSIS	3.2543

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
7	3.10	1	2.00
8	3.20	10	20.00
9	3.30	19	38.00
10	3.40	8	16.00
11	3.50	5	10.00
12	3.60	1	2.00

VITRINITE FREQUENCY DISTRIBUTION



GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDDH82003 SEAM - J

SAMPLE ID - 4959

WASHABILITY ID - WA1

FRACTION	ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -		
	SIZE (MM)	9.53 X		0.00		CUM. SINKS		C.V.		CUM.	
S.G.TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		C.V.		CUM.		C.V.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.			
1.70	85.65	12.51	85.65	12.51	14.35	44.74	29.83		29.83		
2.60	14.35	44.74	100.00	17.13			17.14		28.01		

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - J

SAMPLE ID - 4960

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		38.87	14.75	38.87	14.75	61.13	65.87	29.08	29.08
2.60		61.13	65.87	100.00	46.00			7.40	15.83

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDDH82003 SEAM - J

SAMPLE ID - 4961

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		84.20	15.27	84.20	15.27	15.80	45.81	27.93	27.93
2.60		15.80	45.81	100.00	20.10			15.83	26.02

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 12/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 10.00
 SURFACE MOISTURE % (AD,AR) ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE % (AD,EM) 1.31
 ASH % 26.53
 VOLATILE MATTER % 8.64
 FIXED CARBON % 63.52
 TOTAL SULPHUR % 3.10
 PHOSPHOROUS % ---
 CHLORINE (PPM) 00277
 SPECIFIC GRAVITY 1.61
 FSI ---
 HGI 51.0
 CO2 % 3.03
 GROSS CALORIFIC VALUE (MJ/KG) 24.90
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 12/10/82

FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS
(MM) TO (MM)				(MJ/KG)			
10.00 0.60	80.70	27.54	---	24.62	1.09	8.77	3.30
0.60 0.15	13.49	18.54	---	28.36	1.06	7.66	2.17
0.15 0.00	5.81	25.30	---	24.26	0.72	8.76	2.31

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 22/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER % 1.31
 CARBON % 64.02
 HYDROGEN % 2.13
 SULPHUR % 3.10
 NITROGEN % 0.80
 ASH % 26.53
 OXYGEN % 2.11

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
SOFTENING TEMP.(C) 1270.0
HEMISPHERICAL TEMP.(C) 1280.0
FLUID TEMP.(C) 1295.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1150.0
SOFTENING TEMP.(C) 1185.0
HEMISPHERICAL TEMP.(C) 1200.0
FLUID TEMP.(C) 1210.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE % (SI02) 39.73
ALUMINIUM OXIDE % (AL2O3) 16.90
FERRIC OXIDE % (FE2O3) 15.12
TITANIUM DIOXIDE % (TI02) 0.63
PHOSPHOROUS PENTOXIDE % (P2O5) 1.55
CALCIUM OXIDE % (CAO) 7.75
MAGNESIUM OXIDE % (MGO) 3.21
SULPHUR TRIOXIDE % (SO3) 8.37
SODIUM OXIDE % (NA2O) 1.31
POTASSIUM OXIDE % (K2O) 0.49

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE % 87.00
SULPHATE % 1.00
ORGANIC % 12.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - J

SAMPLE ID - 17

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 10.00 X		0.60		RELATIVE WEIGHT % - 80.70		ASH % - 27.54	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	6.99	3.73	6.99	3.73	93.01	30.75	34.15	34.15
1.50	26.91	9.97	33.90	8.68	66.10	39.21	31.64	32.16
1.60	21.88	19.71	55.78	13.01	44.22	48.86	27.37	30.28
1.70	14.19	27.23	69.97	15.89	30.03	59.08	24.14	29.03
1.80	7.19	36.44	77.16	17.81	22.84	66.21	20.15	28.21
1.90	1.88	42.71	79.04	18.40	20.96	68.32	17.07	27.94
2.00	2.03	48.93	81.07	19.16	18.93	70.40	14.53	27.61
2.10	3.05	55.57	84.12	20.48	15.88	73.25	12.06	27.04
2.20	0.67	60.05	84.79	20.80	15.21	73.83	10.31	26.91
2.30	2.33	64.80	87.12	21.97	12.88	75.46	8.42	26.42
2.60	12.88	75.46	100.00	28.86			4.67	23.61

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 0.60 X		0.15		RELATIVE WEIGHT % - 13.49		ASH % - 18.54	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	30.37	3.12	30.37	3.12	69.63	24.15	34.24	34.24
1.50	31.35	8.93	61.72	6.07	38.28	36.62	31.72	32.96
1.60	14.52	17.19	76.24	8.19	23.76	48.49	27.99	32.01
1.70	5.27	23.08	81.51	9.15	18.49	55.73	25.39	31.59
1.80	5.35	31.27	86.86	10.51	13.14	65.69	22.38	31.02
1.90	1.51	39.68	88.37	11.01	11.63	69.06	19.78	30.83
2.00	1.05	46.32	89.42	11.43	10.58	71.32	15.56	30.65
2.10	0.93	52.08	90.35	11.85	9.65	73.18	12.64	30.46
2.30	1.79	62.84	92.14	12.84	7.86	75.53	9.44	30.05
2.60	7.86	75.53	100.00	17.76			0.00	27.69

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - J

SAMPLE ID - 17

WASHABILITY ID - WAI

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % - 5.81 ASH % - 25.30		
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG) C.V.
30.00	81.91	14.59	81.91	14.59	18.09	65.04	28.83 28.83
45.00	3.79	30.28	85.70	15.28	14.30	74.26	23.18 28.58
60.00	2.05	50.05	87.75	16.10	12.25	78.31	14.68 28.26
90.00	1.60	69.30	89.35	17.05	10.65	79.66	7.20 27.88
120.00	1.02	76.76	90.37	17.72	9.63	79.97	4.18 27.61
300.00	9.63	79.97	100.00	23.72			2.71 25.21

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP3

SAMPLE WEIGHT (KG) -----

	FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
N	10.00	0.60	1.53	40.46	32.65
	0.60	0.15	1.66	79.40	10.71

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	-----	TOTAL SULPHUR %	1.75
TOTAL MOISTURE % (AR)	-----	PHOSPHOROUS %	-----
EQUILIBRIUM MOISTURE %	-----	CHLORINE (PPM)	-----
RESIDUAL MOISTURE (AD,EM)	0.75	SPECIFIC GRAVITY	1.44
ASH %	10.71	FSI	-----
VOLATILE MATTER %	6.58	HGI	46.0
FIXED CARBON %	81.96	CO2 %	0.28

GROSS CALORIFIC VALUE (MJ/KG) 31.00
 NET CALORIFIC VALUE (MJ/KG) -----

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 06/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.75
CARBON	%	82.05
HYDROGEN	%	3.13
SULPHUR	%	1.75
NITROGEN	%	1.16
ASH	%	10.71
OXYGEN	%	0.45

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 03/12/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1245.0
SOFTENING TEMP.(C) 1285.0
HEMISPHERICAL TEMP.(C) 1300.0
FLUID TEMP.(C) 1340.0

INITIAL TEMP.(C) 1240.0
SOFTENING TEMP.(C) 1280.0
HEMISPHERICAL TEMP.(C) 1300.0
FLUID TEMP.(C) 1320.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE %	(SI02)	44.92
ALUMINIUM OXIDE %	(AL2O3)	24.15
FERRIC OXIDE %	(FE2O3)	12.53
TITANIUM DIOXIDE %	(TI02)	1.25
PHOSPHOROUS PENTOXIDE %	(P2O5)	3.90
CALCIUM OXIDE %	(CAO)	4.61
MAGNESIUM OXIDE %	(MGO)	0.30
SULPHUR TRIOXIDE %	(SO3)	0.98
SODIUM OXIDE %	(NA2O)	1.47
POTASSIUM OXIDE %	(K2O)	0.92

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE	%	63.00
SULPHATE	%	2.00
ORGANIC	%	35.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.10	84.12	67.88
0.60	0.15	2.60	100.00	13.49
0.15	0.00	90.00	89.35	5.20

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 15/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	2.02
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	06003
RESIDUAL MOISTURE (AD,EM)	1.23	SPECIFIC GRAVITY	1.55
ASH %	19.50	FSI	---
VOLATILE MATTER %	8.45	HGI	56.0
FIXED CARBON %	70.82	CO2 %	0.80

GROSS CALORIFIC VALUE (MJ/KG) 27.27
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 25/11/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.23
CARBON	%	71.08
HYDROGEN	%	2.61
SULPHUR	%	2.02
NITROGEN	%	0.94
ASH	%	19.57
OXYGEN	%	2.55

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 22/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
SOFTENING TEMP.(C) 1270.0
HEMISPHERICAL TEMP.(C) 1295.0
FLUID TEMP.(C) 1325.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
SOFTENING TEMP.(C) 1270.0
HEMISPHERICAL TEMP.(C) 1290.0
FLUID TEMP.(C) 1315.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 07/12/82

SILICON DIOXIDE %	(SI02)	50.16
ALUMINIUM OXIDE %	(AL2O3)	19.80
FERRIC OXIDE %	(FE2O3)	10.69
TITANIUM DIOXIDE %	(TI02)	0.93
PHOSPHOROUS PENTOXIDE %	(P2O5)	2.38
CALCIUM OXIDE %	(CAO)	4.95
MAGNESIUM OXIDE %	(MGO)	1.61
SULPHUR TRIOXIDE %	(SO3)	2.90
SODIUM OXIDE %	(NA2O)	1.43
POTASSIUM OXIDE %	(K2O)	0.45

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 17
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE	%	71.00
SULPHATE	%	2.00
ORGANIC	%	27.00

TOTAL 100.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003
 =====
 =====

SAMPLE ID 17 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP5

SAMPLE WEIGHT (KG) -----

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION	YEILD/FRACTION RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.70	29.51	23.81
0.60	0.15	1.70	2.11	0.28
0.15	0.00	300.00	100.00	5.81

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82003
 =====
 =====

SAMPLE ID 17 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP5 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % <AD,AR>	-----	TOTAL SULPHUR %	1.01
TOTAL MOISTURE % <AR>	-----	PHOSPHOROUS	-----
50 MOISTURE %	-----	CHLORINE (PPM)	-----
		SPG	-----
INHERENT MOISTURE <AD,EM>	1.41	FSI	-----
ASH %	23.38	HGI	-----
FIXED CARBON %	67.51	CO2 %	-----
VOLITILE MATTER %	7.70		-----

GROSS CALORIFIC VALUE (MJ,KG) 25.77
 NET CALORIFIC VALUE (MJ,KG) -----

Vitrinite Reflectance Data For
 Gulf Canada Resources Inc.
 Sample #4959-4961
 Pellet #1

OBSERVATION NUMBER	ROMAX VALUE	OBSERVATION NUMBER	ROMAX VALUE
1	3.22	26	3.08
2	3.11	27	3.28
3	3.17	28	3.24
4	3.15	29	3.32
5	3.14	30	3.28
6	3.19	31	3.32
7	3.12	32	3.28
8	3.48	33	3.18
9	3.10	34	3.14
10	3.19	35	3.20
11	3.23	36	3.23
12	3.22	37	3.32
13	3.23	38	3.18
14	3.20	39	3.20
15	3.20	40	3.13
16	3.19	41	3.23
17	3.20	42	3.23
18	3.33	43	3.15
19	3.22	44	3.09
20	3.28	45	3.27
21	3.27	46	3.12
22	3.17	47	3.17
23	3.13	48	3.33
24	3.18	49	3.27
25	3.10	50	3.15

Gulf Canada Resources Inc.
 Sample #4959-4961
 Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS 50
 MEAN MAXIMUM REFLECTANCE
 OF VITRINITE% 3.21
 STANDARD ERROR OF THE MEAN 0.01
 COEFFICIENT OF VARIATION% 2.52
 VARIANCE 0.0074
 STANDARD DEVIATION 0.0860
 SKEWNESS 1.27e2
 KURTOSIS 3.3313

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
6	3.00	2	4.00
7	3.10	21	42.00
8	3.20	21	42.00
9	3.30	4	8.00
10	3.40	1	2.00
11	3.50	1	2.00

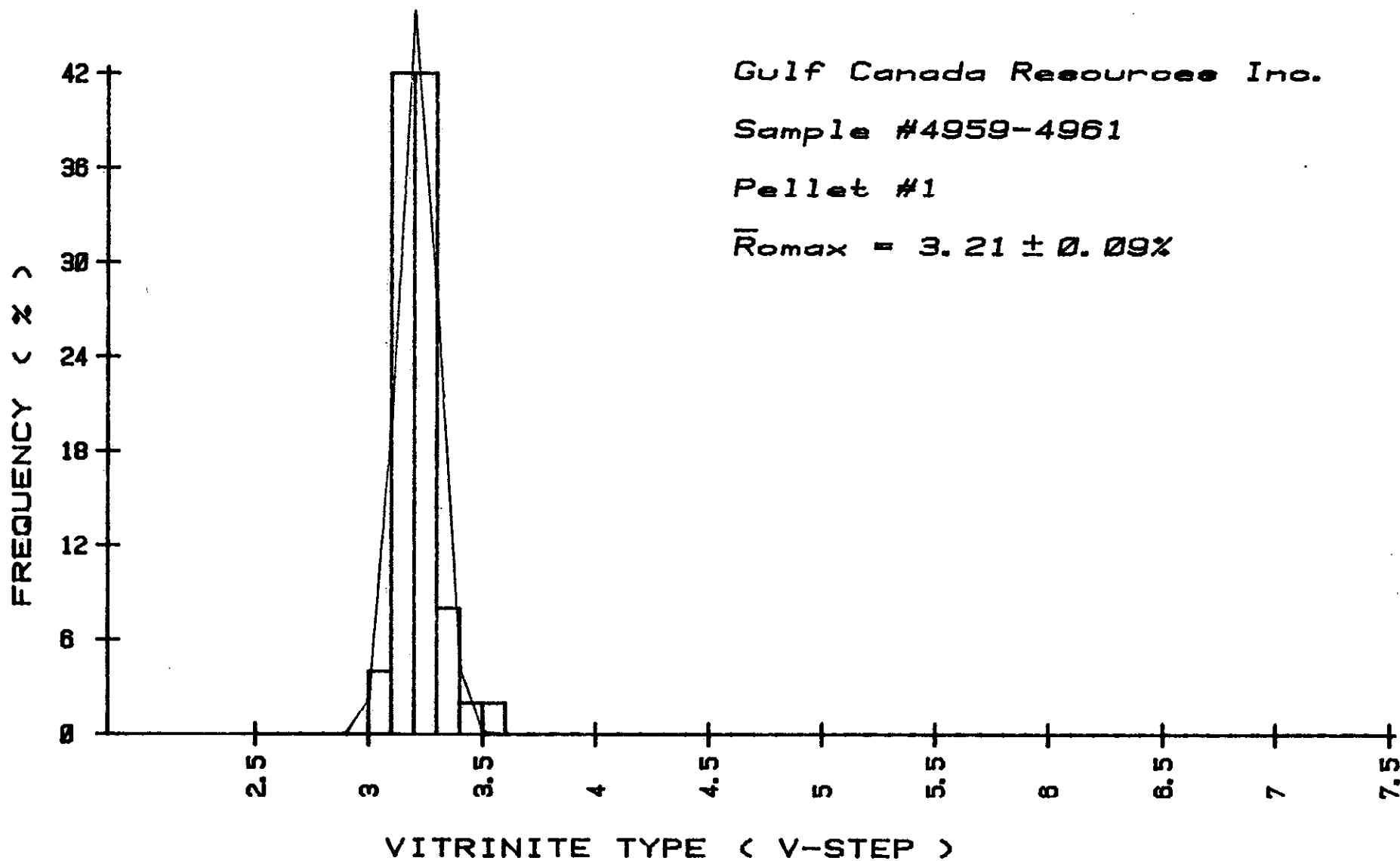
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4959-4961

Pellet #1

$\bar{R}_{\text{omax}} = 3.21 \pm 0.09\%$



GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDDH82003 SEAM - I

SAMPLE ID - 4962

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT											
FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		C.V.
1.70		64.72	11.79	64.72	11.79	35.28	49.80	30.45		30.45	
2.60		35.28	49.80	100.00	25.20			12.49		24.11	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - I

SAMPLE ID - 4963

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT											
FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)		C.V.	
1.70		17.02	19.95	17.02	19.95	82.98	56.50	27.99		27.99	
2.60		82.98	56.50	100.00	50.28			13.07		15.61	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - 1

SAMPLE ID - 4964

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	72.04	15.46	72.04	15.46	27.96	53.20	28.89	28.89
2.60	27.96	53.20	100.00	26.01			13.05	24.46

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - 1

SAMPLE ID - 4965

WASHABILITY ID - WA1

FRACTION		ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -	
SIZE (MM)		9.53 X		0.00		CUM. SINKS		C.V.		CUM.	
S.G.TME		ELEMENTAL		CUM. FLOATS		WT% ASH%		(MJ/KG)		C.V.	
		WT%	ASH%	WT%	ASH%	WT%	ASH%				
1.70		6.20	18.85	6.20	18.85	93.80	75.87	27.02		27.02	
2.60		93.80	75.87	100.00	72.33			5.64		6.97	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - 1

SAMPLE ID - 4966

WASHABILITY ID - WA1

FRACTION		ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00			
SIZE (MM)		9.53 X		0.00		CUM. SINKS		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V. CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		89.81	11.39	89.81	11.39	10.19	43.71	28.90	28.90
2.60		10.19	43.71	100.00	14.68			13.90	27.37

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82003

SAMPLE ID 18 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 12/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %<AD,AR>	---	TOTAL SULPHUR %	1.00
TOTAL MOISTURE %	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00066
		SPECIFIC GRAVITY	1.65
RESIDUAL MOISTURE %<AD,EM>	1.50	FSI	---
ASH %	34.27	HGI	61.0
VOLATILE MATTER %	7.82	CO2 %	1.92
FIXED CARBON %	56.41		
GROSS CALORIFIC VALUE (MJ/KG)	21.60		
NET CALORIFIC VALUE (MJ/KG)	---		

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82003

SAMPLE ID	18							
SPLIT SAMPLE ID	SZ1							
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS	
UM (MM) TO (MM)				(MJ/KG)				
10.00 0.60	75.60	36.23	---	21.18	1.12	8.45	1.21	
0.60 0.15	15.26	30.19	---	23.55	1.35	7.33	0.69	
0.15 0.00	9.14	25.70	---	25.69	0.77	8.68	0.68	

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 18
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 22/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.50
CARBON	%	58.06
HYDROGEN	%	2.16
SULPHUR	%	1.00
NITROGEN	%	0.86
ASH	%	34.27
OXYGEN	%	2.15

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 18
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1295.0
 SOFTENING TEMP.(C) 1330.0
 HEMISPHERICAL TEMP.(C) 1380.0
 FLUID TEMP.(C) 1425.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
 SOFTENING TEMP.(C) 1310.0
 HEMISPHERICAL TEMP.(C) 1355.0
 FLUID TEMP.(C) 1360.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 18
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 09/11/82

SILICON DIOXIDE %	(SI02)	57.40
ALUMINIUM OXIDE %	(AL2O3)	22.63
FERRIC OXIDE %	(FE2O3)	4.54
TITANIUM DIOXIDE %	(TI02)	0.42
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.75
CALCIUM OXIDE %	(CAO)	3.23
MAGNESIUM OXIDE %	(MGO)	1.68
SULPHUR TRIOXIDE %	(SO3)	3.10
SODIUM OXIDE %	(NA2O)	1.35
POTASSIUM OXIDE %	(K2O)	0.94

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 18
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	51.00
SULPHATE	%	2.00
ORGANIC	%	47.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - 1

SAMPLE ID - 18

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	10.00 X	0.60	RELATIVE WEIGHT % - 75.60 ASH % - 36.23					
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	6.41	3.31	6.41	3.31	93.59	35.96	34.28	34.28	
1.50	16.26	10.72	22.67	8.62	77.33	41.27	30.89	31.85	
1.60	22.81	18.21	45.48	13.43	54.52	50.91	27.98	29.91	
1.70	16.89	24.79	62.37	16.51	37.63	62.64	25.11	28.61	
1.80	5.64	33.73	68.01	17.94	31.99	67.74	21.52	28.02	
1.90	3.94	42.45	71.95	19.28	28.05	71.29	16.81	27.41	
2.00	2.48	47.63	74.43	20.22	25.57	73.58	14.67	26.98	
2.10	4.15	55.46	78.58	22.08	21.42	77.09	11.16	26.15	
2.20	1.11	55.98	79.69	22.56	20.31	78.25	10.86	25.93	
2.30	2.85	62.31	82.54	23.93	17.46	80.85	9.26	25.36	
2.60	17.46	80.85	100.00	33.87			3.00	21.45	

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	0.60 X	0.15	RELATIVE WEIGHT % - 15.26 ASH % - 30.19					
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	24.04	3.13	24.04	3.13	75.96	37.36	34.37	34.37	
1.50	16.92	8.35	40.96	5.29	59.04	45.68	31.77	33.30	
1.60	19.21	14.21	60.17	8.14	39.83	60.85	29.11	31.96	
1.70	8.06	23.13	68.23	9.91	31.77	70.42	25.39	31.18	
1.80	3.95	32.55	72.18	11.15	27.82	75.80	21.43	30.65	
1.90	1.71	40.55	73.89	11.83	26.11	78.11	18.75	30.37	
2.00	2.16	46.82	76.05	12.82	23.95	80.93	16.31	29.97	
2.10	1.61	55.21	77.66	13.70	22.34	82.78	12.13	29.60	
2.20	1.15	63.31	78.81	14.42	21.19	83.84	10.57	29.33	
2.30	1.25	68.68	80.06	15.27	19.94	84.79	8.18	29.00	
2.60	19.94	84.79	100.00	29.13			0.00	23.22	

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - I

SAMPLE ID - 18

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH									
FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 9.14 ASH % - 25.70				
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
30.00	72.79	11.95	72.79	11.95	27.21	57.70	30.43	30.43	
45.00	9.75	26.45	82.54	13.66	17.46	75.15	24.95	29.78	
60.00	3.26	44.32	85.80	14.83	14.20	82.23	17.44	29.31	
90.00	1.52	70.45	87.32	15.80	12.68	83.64	7.38	28.93	
120.00	1.44	79.20	88.76	16.82	11.24	84.21	3.79	28.52	
300.00	11.24	84.21	100.00	24.40			0.00	25.32	

=====

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003

=====

SAMPLE ID 18 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN

SAMPLE PRODUCT ID SP3

SAMPLE WEIGHT (KG) -----

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.53	29.06	21.97
0.60	0.15	1.70	68.23	10.41

=====

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82003

=====

SAMPLE ID 18 DATA TYPE (REAL,BORO,AVER,CALC) REAL

SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82

SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD

NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	-----	TOTAL SULPHUR %	0.50
TOTAL MOISTURE % (AR)	-----	PHOSPHOROUS %	-----
EQUILIBRIUM MOISTURE %	-----	CHLORINE (PPM)	-----
RESIDUAL MOISTURE (AD,EM)	0.93	SPECIFIC GRAVITY	1.45
ASH %	10.70	FSI	-----
VOLATILE MATTER %	7.30	HGI	61.0
FIXED CARBON %	81.07	CO2 %	0.25

GROSS CALORIFIC VALUE (MJ/KG) 30.66

NET CALORIFIC VALUE (MJ/KG) -----

=====

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

=====

SAMPLE ID 18 DATA TYPE (REAL,BORO,AVER,CALC) REAL

SAMPLE PRODUCT ID SP3 DATE ANALYSED 08/12/82

SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF, DB, AD) AD

WATER	%	0.93
CARBON	%	81.74
HYDROGEN	%	3.03
SULPHUR	%	0.50
NITROGEN	%	1.25
ASH	%	10.70
OXYGEN	%	1.85

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 18
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 03/12/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
 SOFTENING TEMP.(C) 1330.0
 HEMISPHERICAL TEMP.(C) 1355.0
 FLUID TEMP.(C) 1440.0

INITIAL TEMP.(C) 1230.0
 SOFTENING TEMP.(C) 1320.0
 HEMISPHERICAL TEMP.(C) 1340.0
 FLUID TEMP.(C) 1430.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 18
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE %	(SI02)	59.51
ALUMINIUM OXIDE %	(AL2O3)	22.08
FERRIC OXIDE %	(FE2O3)	2.45
TITANIUM DIOXIDE %	(TI02)	0.97
PHOSPHOROUS PENTOXIDE %	(P2O5)	2.69
CALCIUM OXIDE %	(CAO)	4.05
MAGNESIUM OXIDE %	(MGO)	0.30
SULPHUR TRIOXIDE %	(SO3)	1.29
SODIUM OXIDE %	(NA2O)	1.09
POTASSIUM OXIDE %	(K2O)	0.78

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 18
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE	%	20.00
SULPHATE	%	2.00
ORGANIC	%	78.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003

SAMPLE ID 18 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.00	74.43	56.27
0.60	0.15	2.10	77.66	11.85
0.15	0.00	300.00	100.00	9.14

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82003

SAMPLE ID 18 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 16/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.65
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	06645
RESIDUAL MOISTURE (AD,EM)	0.55	SPECIFIC GRAVITY	1.55
ASH %	21.11	FSI	---
VOLATILE MATTER %	9.92	HGI	64.0
FIXED CARBON %	68.42	CO2 %	0.93

GROSS CALORIFIC VALUE (MJ/KG) 27.38
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 18 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 24/11/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.55
CARBON	%	69.63
HYDROGEN	%	2.68
SULPHUR	%	0.65
NITROGEN	%	1.02
ASH	%	21.11
OXYGEN	%	4.36

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 18
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 22/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1220.0
 SOFTENING TEMP.(C) 1310.0
 HEMISPHERICAL TEMP.(C) 1335.0
 FLUID TEMP.(C) 1390.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1215.0
 SOFTENING TEMP.(C) 1305.0
 HEMISPHERICAL TEMP.(C) 1330.0
 FLUID TEMP.(C) 1390.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 18
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 07/12/82

SILICON DIOXIDE %	(SI02)	61.04
ALUMINIUM OXIDE %	(AL2O3)	20.30
FERRIC OXIDE %	(FE2O3)	3.23
TITANIUM DIOXIDE %	(TI02)	0.63
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.41
CALCIUM OXIDE %	(CAO)	3.86
MAGNESIUM OXIDE %	(MGO)	1.51
SULPHUR TRIOXIDE %	(SO3)	1.51
SODIUM OXIDE %	(NA2O)	1.09
POTASSIUM OXIDE %	(K2O)	0.90

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 18
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE	%	31.00
SULPHATE	%	2.00
ORGANIC	%	67.00

TOTAL 100.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003
 =====
 =====

SAMPLE ID 18 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP5

SAMPLE WEIGHT (KG) ----

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION	YEILD/FRACTION RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.80	38.95	29.45
0.60	0.15	1.80	3.95	0.60
0.15	0.00	300.00	100.00	9.14

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82003
 =====
 =====

SAMPLE ID 18 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP5 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	----	TOTAL SULPHUR %	0.23
TOTAL MOISTURE % (AR)	----	PHOSPHOROUS	----
50 MOISTURE %	----	CHLORINE (PPM)	----
		SPG	----
INHERENT MOISTURE (AD,EM)	1.18	FSI	----
ASH %	23.99	HGI	----
FIXED CARBON %	67.10	CO2 %	----
VOLITILE MATTER %	7.73		

GROSS CALORIFIC VALUE (MJ,KG) 25.61
 NET CALORIFIC VALUE (MJ,KG) ----

Vitrinite Reflectance Data For
 Gulf Canada Resources Inc.
 Sample #4964-4966
 Pellet #1

OBSERVATION NUMBER	ROMAX VALUE	OBSERVATION NUMBER	ROMAX VALUE
1	3.17	26	3.39
2	3.27	27	3.64
3	3.24	28	3.15
4	3.47	29	3.25
5	3.34	30	3.18
6	3.27	31	3.34
7	3.20	32	3.32
8	3.16	33	3.23
9	3.23	34	3.28
10	3.16	35	3.26
11	3.47	36	3.43
12	3.45	37	3.13
13	3.26	38	3.29
14	3.03	39	3.50
15	3.12	40	3.29
16	3.35	41	3.16
17	3.11	42	3.39
18	3.23	43	3.20
19	3.27	44	3.27
20	3.27	45	3.00
21	3.23	46	3.25
22	3.19	47	3.23
23	3.11	48	3.34
24	3.35	49	3.13
25	3.26	50	3.32

Gulf Canada Resources Inc.
 Sample #4964-4966
 Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS 50
 MEAN MAXIMUM REFLECTANCE
 OF VITRINITE 3.27
 STANDARD ERROR OF THE MEAN 0.02
 COEFFICIENT OF VARIATION% 3.39
 VARIANCE 0.0123
 STANDARD DEVIATION 0.1110
 SKEWNESS 0.5967
 KURTOSIS 4.1553

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
6	3.00	1	2.00
7	3.10	11	22.00
8	3.20	20	40.00
9	3.30	12	24.00
10	3.40	5	10.00
12	3.60	1	2.00

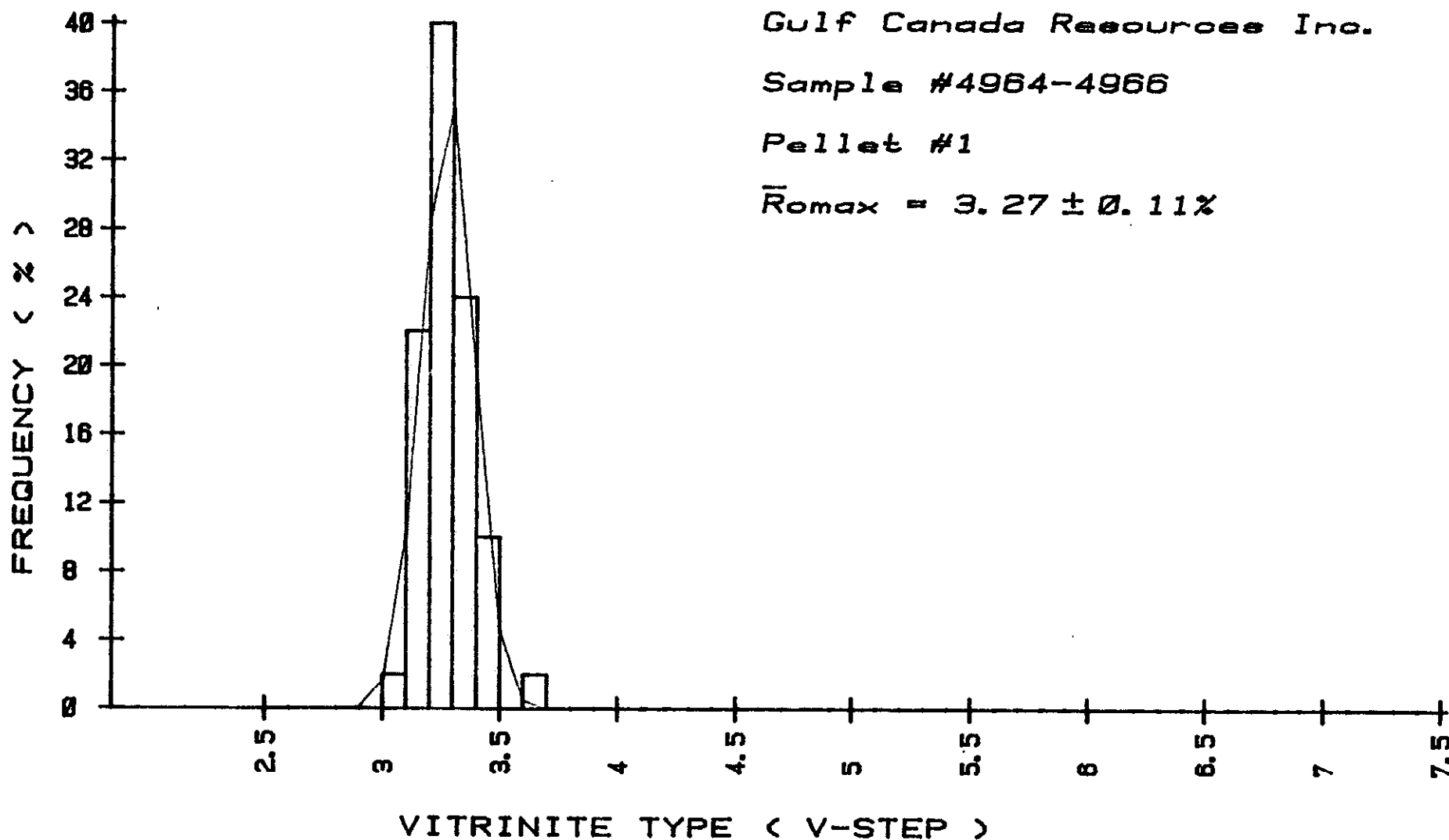
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4964-4966

Pellet #1

$\bar{R}_{\text{omax}} = 3.27 \pm 0.11\%$



GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDDH82003 SEAM - H

SAMPLE ID - 4967

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT											
FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		C.V.
1.70		63.89	13.49	63.89	13.49	36.11	55.42	29.42		29.42	
2.60		36.11	55.42	100.00	28.63			11.59		22.98	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - H

SAMPLE ID - 4968

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		WT%	ASH%	WT%	ASH%	C.V.	CUM.	C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)		C.V.	
1.70		46.97	17.90	46.97	17.90	53.03	58.32	27.86		27.86	
2.60		53.03	58.32	100.00	39.33			11.14		18.99	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - H

SAMPLE ID - 4969

WASHABILITY ID - WA1

FRACTION	ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00			
	SIZE (MM)	9.53 X		0.00		CUM. SINKS		ASH % -
S.G.TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	34.03	13.02	34.03	13.02	65.97	64.57	30.20	30.20
2.60	65.97	64.57	100.00	47.03			9.97	16.85

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82003

SAMPLE ID 19 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 14/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 10.00
 SURFACE MOISTURE %(AD,AR) --- TOTAL SULPHUR % 1.26
 TOTAL MOISTURE % --- PHOSPHOROUS % ---
 EQUILIBRIUM MOISTURE % --- CHLORINE (PPM) 00274
 RESIDUAL MOISTURE %(AD,EM) 1.39 SPECIFIC GRAVITY 1.72
 FSI ---
 ASH % 38.87 HGI 52.0
 VOLATILE MATTER % 9.31 CO2 % 3.39
 FIXED CARBON % 50.43
 GROSS CALORIFIC VALUE (MJ/KG) 19.67
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 19 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 14/10/82
 FRACTION SIZE WT% ASH% FSI CAL RM VM TS
 (MM) TO (MM) (MJ/KG)
 10.00 0.60 78.93 39.70 --- 19.32 1.09 10.06 1.29
 0.60 0.15 14.45 32.26 --- 22.77 1.14 8.41 1.08
 0.15 0.00 6.62 35.04 --- 20.86 1.03 8.92 1.02

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 19
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 22/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER % 1.39
 CARBON % 54.31
 HYDROGEN % 2.00
 SULPHUR % 1.26
 NITROGEN % 0.72
 ASH % 38.87
 OXYGEN % 1.45

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 19
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1240.0	INITIAL TEMP.(C)	1185.0
SOFTENING TEMP.(C)	1275.0	SOFTENING TEMP.(C)	1250.0
HEMISPHERICAL TEMP.(C)	1305.0	HEMISPHERICAL TEMP.(C)	1285.0
FLUID TEMP.(C)	1340.0	FLUID TEMP.(C)	1300.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 19
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	53.02
ALUMINIUM OXIDE %	(AL2O3)	20.16
FERRIC OXIDE %	(FE2O3)	7.03
TITANIUM DIOXIDE %	(TI02)	0.63
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.67
CALCIUM OXIDE %	(CAO)	4.60
MAGNESIUM OXIDE %	(MGO)	2.71
SULPHUR TRIOXIDE %	(SO3)	4.20
SODIUM OXIDE %	(NA2O)	1.35
POTASSIUM OXIDE %	(K2O)	1.05

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 19
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	68.00
SULPHATE	%	2.00
ORGANIC	%	30.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - H

SAMPLE ID - 19

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE(MM)	10.00 X	0.60		RELATIVE WEIGHT % - 78.93 ASH % - 39.70			
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	7.43	3.75	7.43	3.75	92.57	41.04	34.10	34.10
1.50	8.22	10.19	15.65	7.13	84.35	44.04	31.60	32.79
1.60	18.08	17.37	33.73	12.62	66.27	51.32	28.42	30.45
1.70	15.09	28.76	48.82	17.61	51.18	57.97	23.62	28.34
1.80	8.28	36.88	57.10	20.40	42.90	62.05	19.89	27.11
1.90	6.32	43.50	63.42	22.70	36.58	65.25	17.46	26.15
2.00	5.32	47.65	68.74	24.64	31.26	68.25	14.44	25.24
2.10	5.60	54.92	74.34	26.92	25.66	71.15	12.17	24.26
2.20	4.14	59.66	78.48	28.64	21.52	73.36	9.76	23.49
2.30	3.36	63.61	81.84	30.08	18.16	75.17	8.44	22.88
2.60	18.16	75.17	100.00	38.27			3.26	19.31

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE(MM)	0.60 X	0.15		RELATIVE WEIGHT % - 14.45 ASH % - 32.26			
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	22.44	2.95	22.44	2.95	77.56	39.59	34.38	34.38
1.50	23.11	8.43	45.55	5.73	54.45	52.81	30.90	32.61
1.60	11.84	18.37	57.39	8.34	42.61	62.38	27.81	31.62
1.70	4.86	25.82	62.25	9.70	37.75	67.09	24.56	31.07
1.80	5.54	33.78	67.79	11.67	32.21	72.81	21.23	30.27
1.90	2.57	41.54	70.36	12.76	29.64	75.53	17.02	29.78
2.00	2.22	47.13	72.58	13.81	27.42	77.82	16.07	29.36
2.10	2.22	53.92	74.80	15.00	25.20	79.93	12.84	28.87
2.20	2.09	61.40	76.89	16.26	23.11	81.61	10.23	28.37
2.30	1.56	65.95	78.45	17.25	21.55	82.74	8.38	27.97
2.60	21.55	82.74	100.00	31.36			0.00	21.94

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - H

SAMPLE ID - 19

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH									
FRACTION	SIZE (MM)	0.15 X	0.00	RELATIVE WEIGHT % - 6.62 ASH % - 35.04					
S.G.TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		C.V.	CUM.		
	WT% ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
30.00	75.32 19.80	75.32	19.80	24.68	76.06	27.56	27.56		
45.00	4.84 52.59	80.16	21.78	19.84	81.79	13.98	26.74		
60.00	1.86 72.19	82.02	22.92	17.98	82.78	4.87	26.24		
90.00	2.69 78.55	84.71	24.69	15.29	83.53	3.95	25.54		
300.00	15.29 83.53	100.00	33.69			0.00	21.63		

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDHB2003

SAMPLE ID 19 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.80	57.10	45.07
0.60	0.15	2.10	74.80	10.81
0.15	0.00	90.00	84.71	5.60

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDHB2003

SAMPLE ID 19 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 16/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % <AD,AR>	---	TOTAL SULPHUR %	1.19
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE <AD,EM>	0.64	SPECIFIC GRAVITY	1.54
ASH %	19.94	FSI	---
VOLATILE MATTER %	8.76	HGI	58.0
FIXED CARBON %	70.66	CO2 %	0.78

GROSS CALORIFIC VALUE (MJ/KG) 27.24
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDHB2003

SAMPLE ID 19 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 23/11/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.64
CARBON	%	71.09
HYDROGEN	%	2.57
SULPHUR	%	1.19
NITROGEN	%	1.01
ASH	%	19.94
OXYGEN	%	3.56

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 19
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 22/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
SOFTENING TEMP.(C) 1290.0
HEMISPHERICAL TEMP.(C) 1340.0
FLUID TEMP.(C) 1380.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1225.0
SOFTENING TEMP.(C) 1280.0
HEMISPHERICAL TEMP.(C) 1325.0
FLUID TEMP.(C) 1360.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 19
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 07/12/82

SILICON DIOXIDE % (SI02) 57.70
ALUMINIUM OXIDE % (AL2O3) 19.33
FERRIC OXIDE % (FE2O3) 6.69
TITANIUM DIOXIDE % (TI02) 0.86
PHOSPHOROUS PENTOXIDE % (P2O5) 1.73
CALCIUM OXIDE % (CAO) 3.72
MAGNESIUM OXIDE % (MGO) 1.80
SULPHUR TRIOXIDE % (SO3) 2.15
SODIUM OXIDE % (NA2O) 1.01
POTASSIUM OXIDE % (K2O) 0.98

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 19
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE % 56.00
SULPHATE % 2.00
ORGANIC % 42.00

TOTAL 100.00

Vitrinite Reflectance Data For
 Gulf Canada Resources Inc.
 Sample #4967-4969
 Pellet #1

OBSERVATION NUMBER	R _{MAX} VALUE	OBSERVATION NUMBER	R _{MAX} VALUE
1	3.34	26	3.37
2	3.49	27	3.36
3	3.39	28	3.43
4	3.31	29	3.44
5	3.21	30	3.29
6	3.19	31	3.22
7	3.49	32	3.33
8	3.27	33	3.13
9	3.31	34	3.28
10	3.18	35	3.18
11	3.25	36	3.35
12	3.40	37	3.23
13	3.28	38	3.28
14	3.22	39	3.26
15	3.27	40	3.49
16	3.26	41	3.11
17	3.23	42	3.38
18	3.27	43	3.15
19	3.16	44	3.26
20	3.23	45	3.41
21	3.26	46	3.17
22	3.35	47	3.32
23	3.33	48	3.11
24	3.36	49	3.19
25	3.32	50	3.36

Gulf Canada Resources Inc.
Sample #4967-4969
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS 50
MEAN MAXIMUM REFLECTANCE
OF VITRENITE% 3.29
STANDARD ERROR OF THE MEAN 0.01
COEFFICIENT OF VARIATION% 3.03
VARIANCE 0.0100
STANDARD DEVIATION 0.0999
SKEWNESS 0.3866
KURTOSIS 2.3566

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
7	3.10	10	20.00
8	3.20	19	38.00
9	3.30	13	26.00
10	3.40	8	16.00

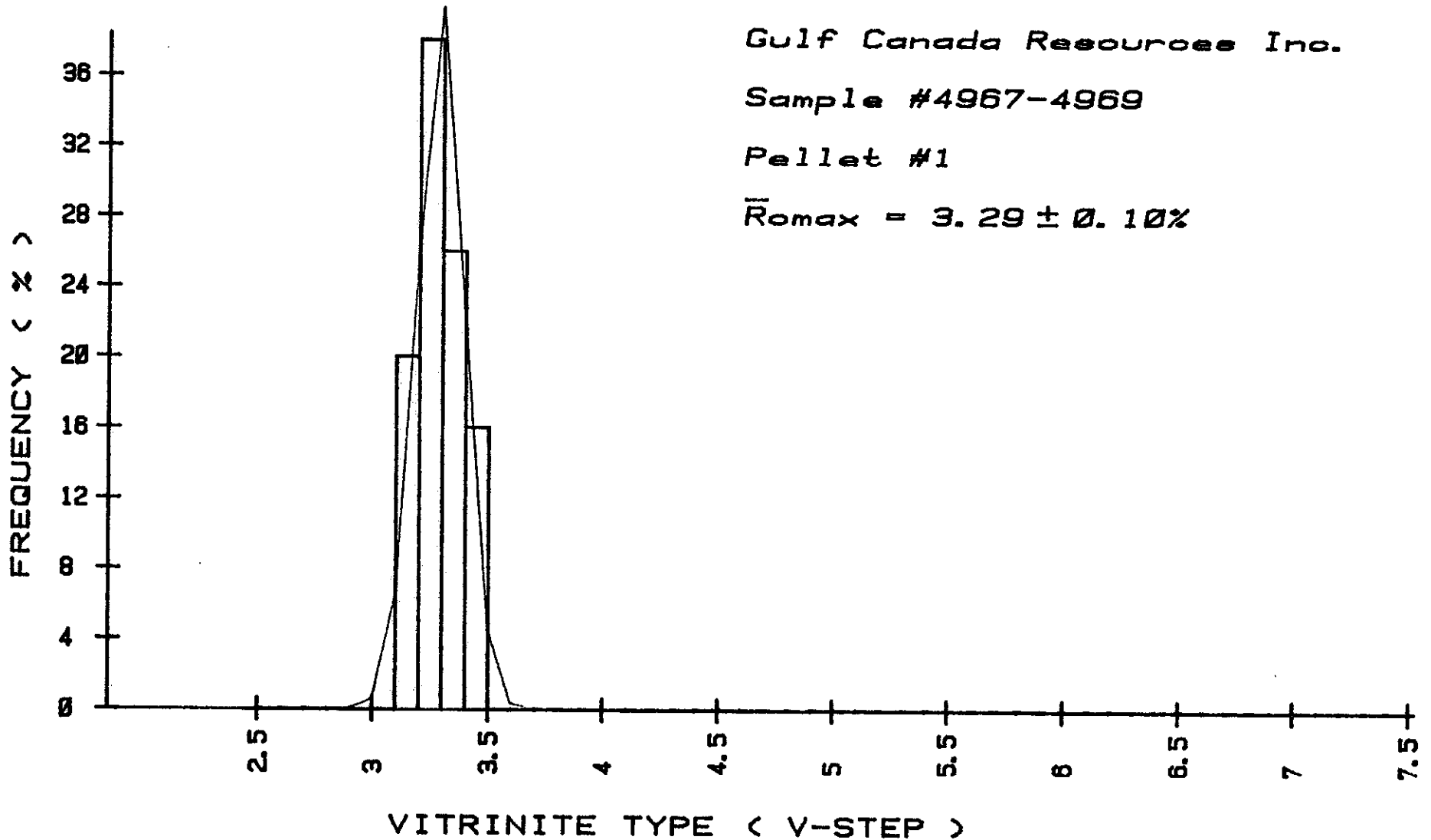
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4967-4969

Pellet #1

$\bar{R}_{\text{omax}} = 3.29 \pm 0.10\%$



GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDDH82003 SEAM - G

SAMPLE ID - 4970

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X 0.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
		WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V.	CUM.	C.V.	CUM.
S.G.TME										(MJ/KG)			
1.70		71.23	15.63	71.23	15.63	28.77	47.96	28.47	28.47				
2.60		28.77	47.96	100.00	24.93			14.49	24.45				

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDDH82003 SEAM - G

SAMPLE ID - 4971

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
	9.53	X	0.00		WT%	ASH%	WT%	ASH%	C.V.	CUM.	C.V.	
S.G.TME	WT%	ASH%							(MJ/KG)			
1.70	4.28	18.25			4.28	18.25	95.72	73.70	28.66		28.66	
2.60	95.72	73.70			100.00	71.33			5.51		6.50	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDDH82003 SEAM - G

SAMPLE ID - 4972

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	68.59	16.25	68.59	16.25	31.41	63.79	29.07	29.07
2.60	31.41	63.79	100.00	31.18			9.17	22.82

GCRI COAL DIVISION		HEAD	PROJ	KPN	BLK	HC	DS	DDH82003	
SAMPLE ID		20							
SPLIT SAMPLE ID		HD1							
			DATA TYPE (REAL,BORO,AVER,CALC)				REAL		
			DATE ANALYSED 14/10/82						
			ANALYSIS BASIS TYPE (AD,DB,AR,EM)				AD		
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)			ASTM						
TOP SIZE (MM)			10.00						
SURFACE MOISTURE %<AD,AR>			---						
TOTAL MOISTURE %			---						
EQUILIBRIUM MOISTURE %			---						
RESIDUAL MOISTURE %<AD,EM>			1.41						
ASH %			33.19						
VOLATILE MATTER %			8.04						
FIXED CARBON %			57.36						
GROSS CALORIFIC VALUE (MJ/KG)			21.66						
NET CALORIFIC VALUE (MJ/KG)			---						
			TOTAL SULPHUR %				0.48		
			PHOSPHOROUS %				---		
			CHLORINE (PPM)				00558		
			SPECIFIC GRAVITY				1.64		
			FSI				---		
			HGI				45.0		
			CO2 %				2.53		

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	HC	DS	DDH82003	
SAMPLE ID		20							
SPLIT SAMPLE ID		SZ1							
			DATA TYPE (REAL,BORO,AVER,CALC)				REAL		
			DATE ANALYSED 14/10/82						
FRACTION SIZE		WT%	ASH%	FSI	CAL	RM	VM	TS	
FROM (MM) TO (MM)					(MJ/KG)				
10.00	0.60	86.12	32.86	---	22.55	1.24	7.95	0.48	
0.60	0.15	9.54	31.34	---	23.11	1.22	7.83	0.49	
0.15	0.00	4.34	38.49	---	17.10	1.00	8.01	0.43	

GCRI COAL DIVISION		ULTIMATE	PROJ	KPN	BLK	HC	DS	DDH82003	
SAMPLE ID		20							
SAMPLE PRODUCT ID		SP1							
SPLIT SAMPLE ID		UL1							
			DATA TYPE (REAL,BORO,AVER,CALC)				REAL		
			DATE ANALYSED 22/10/82						
ANALYSIS BASIS TYPE (DAF,DB,AD)			AD						
WATER	%	1.41							
CARBON	%	60.77							
HYDROGEN	%	2.25							
SULPHUR	%	0.48							
NITROGEN	%	0.76							
ASH	%	33.19							
OXYGEN	%	1.14							

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 20
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1240.0	INITIAL TEMP.(C)	1200.0
SOFTENING TEMP.(C)	1280.0	SOFTENING TEMP.(C)	1260.0
HEMISPHERICAL TEMP.(C)	1305.0	HEMISPHERICAL TEMP.(C)	1300.0
FLUID TEMP.(C)	1330.0	FLUID TEMP.(C)	1325.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 20
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	55.50
ALUMINIUM OXIDE %	(AL2O3)	23.45
FERRIC OXIDE %	(FE2O3)	4.48
TITANIUM DIOXIDE %	(TI02)	0.84
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.69
CALCIUM OXIDE %	(CAO)	4.20
MAGNESIUM OXIDE %	(MGO)	2.19
SULPHUR TRIOXIDE %	(SO3)	2.70
SODIUM OXIDE %	(NA2O)	1.52
POTASSIUM OXIDE %	(K2O)	0.68

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 20
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	8.00
SULPHATE	%	4.00
ORGANIC	%	88.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - G

SAMPLE ID - 20

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	10.00 X	0.60	ELEMENTAL		CUM. FLOATS		RELATIVE WEIGHT % - 86.12 ASH % - 32.86	
S.G.TME	WT%	ASH%	WT%	ASH%	CUM. WT%	SINKS ASH%	C.V. (MJ/KG)	CUM. C.V.	
1.40	6.16	3.08	6.16	3.08	93.84	34.88	34.62	34.62	
1.50	17.26	11.14	23.42	9.02	76.58	40.23	31.33	32.20	
1.60	29.45	19.08	52.87	14.62	47.13	53.45	28.12	29.93	
1.70	12.24	30.96	65.11	17.69	34.89	61.34	22.99	28.62	
1.80	6.83	39.44	71.94	19.76	28.06	66.67	19.23	27.73	
1.90	3.21	42.69	75.15	20.74	24.85	69.76	17.02	27.27	
2.00	2.32	47.89	77.47	21.55	22.53	72.02	14.15	26.88	
2.10	1.81	51.90	79.28	22.24	20.72	73.77	12.07	26.54	
2.20	1.80	57.67	81.08	23.03	18.92	75.31	10.60	26.19	
2.30	1.73	57.77	82.81	23.76	17.19	77.07	8.90	25.83	
2.60	17.19	77.07	100.00	32.92			2.66	21.84	

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	0.60 X	0.15	ELEMENTAL		CUM. FLOATS		RELATIVE WEIGHT % - 9.54 ASH % - 31.34	
S.G.TME	WT%	ASH%	WT%	ASH%	CUM. WT%	SINKS ASH%	C.V. (MJ/KG)	CUM. C.V.	
1.40	18.73	8.96	18.73	8.96	81.27	44.62	31.60	31.60	
1.50	23.81	11.33	42.54	10.29	57.46	58.41	30.40	30.93	
1.60	9.56	18.76	52.10	11.84	47.90	66.32	27.86	30.37	
1.70	5.96	26.22	58.06	13.32	41.94	72.02	24.37	29.75	
1.80	4.75	35.59	62.81	15.00	37.19	76.68	20.52	29.05	
1.90	1.80	44.71	64.61	15.83	35.39	78.30	16.70	28.71	
2.00	1.41	49.31	66.02	16.54	33.98	79.51	14.79	28.41	
2.10	2.03	56.04	68.05	17.72	31.95	81.00	10.39	27.87	
2.20	2.39	63.76	70.44	19.28	29.56	82.39	9.76	27.26	
2.30	1.94	68.16	72.38	20.59	27.62	83.39	8.37	26.75	
2.60	27.62	83.39	100.00	37.94			0.00	19.36	

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - G

SAMPLE ID - 20

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION	SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 4.34		ASH % - 38.49	
		ELEMENTAL	CUM. FLOATS	CUM. SINKS	C.V.	CUM.	C.V.		
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00		75.07	21.66	75.07	21.66	24.93	78.98	26.99	26.99
45.00		4.39	65.06	79.46	24.06	20.54	81.96	7.65	25.92
60.00		2.43	71.97	81.89	25.48	18.11	83.30	7.63	25.38
90.00		1.40	78.96	83.29	26.38	16.71	83.66	3.86	25.02
120.00		1.45	82.02	84.74	27.33	15.26	83.82	2.45	24.63
300.00		15.26	83.82	100.00	35.95			0.00	20.87

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDHS2003

SAMPLE ID 20 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.80	71.94	61.95
0.60	0.15	2.10	68.05	6.49
0.15	0.00	30.00	75.07	3.26

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDHS2003

SAMPLE ID 20 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 16/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.51
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	04801
RESIDUAL MOISTURE (AD,EM)	1.34	SPECIFIC GRAVITY	1.51
ASH %	18.36	FSI	---
VOLATILE MATTER %	7.70	HGI	43.0
FIXED CARBON %	72.60	CO2 %	0.59

GROSS CALORIFIC VALUE (MJ/KG) 28.00
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDHS2003

SAMPLE ID 20 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 23/11/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.34
CARBON	%	72.91
HYDROGEN	%	2.69
SULPHUR	%	0.51
NITROGEN	%	0.95
ASH	%	18.36
OXYGEN	%	3.24

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 20
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 22/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1210.0
SOFTENING TEMP.(C) 1390.0
HEMISPHERICAL TEMP.(C) 1415.0
FLUID TEMP.(C) 1450.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1190.0
SOFTENING TEMP.(C) 1370.0
HEMISPHERICAL TEMP.(C) 1400.0
FLUID TEMP.(C) 1435.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 20
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 07/12/82

SILICON DIOXIDE % (SI02) 66.96
ALUMINIUM OXIDE % (AL2O3) 18.07
FERRIC OXIDE % (FE2O3) 2.46
TITANIUM DIOXIDE % (TI02) 0.81
PHOSPHOROUS PENTOXIDE % (P2O5) 1.05
CALCIUM OXIDE % (CAO) 1.90
MAGNESIUM OXIDE % (MGO) 1.12
SULPHUR TRIOXIDE % (SO3) 1.11
SODIUM OXIDE % (NA2O) 1.26
POTASSIUM OXIDE % (K2O) 0.60

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 20
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE % 4.00
SULPHATE % 2.00
ORGANIC % 94.00

TOTAL 100.00

Vitrinite Reflectance Data For
Gulf Canada Resources Inc.
Sample #4970-4972
Pellet #1

OBSERVATION
NUMBER

ROMAX
VALUE

OBSERVATION
NUMBER

ROMAX
VALUE

1 3.15
2 3.01
3 3.09
4 3.60
5 3.20
6 3.35
7 3.01
8 3.38
9 3.10
10 3.49
11 3.19
12 3.33
13 3.49
14 3.53
15 3.20
16 3.20
17 3.14
18 3.11
19 3.17
20 3.20
21 3.25
22 3.15
23 3.30
24 3.45
25 3.24

26 3.27
27 3.22
28 3.21
29 3.33
30 3.29
31 3.15
32 3.30
33 3.21
34 3.41
35 3.44
36 3.54
37 3.25
38 3.22
39 3.25
40 3.26
41 3.29
42 3.24
43 3.25
44 3.31
45 3.37
46 3.31
47 3.47
48 3.32
49 3.26
50 3.30

Gulf Canada Resources Inc.
 Sample #4970-4972
 Pellet #1

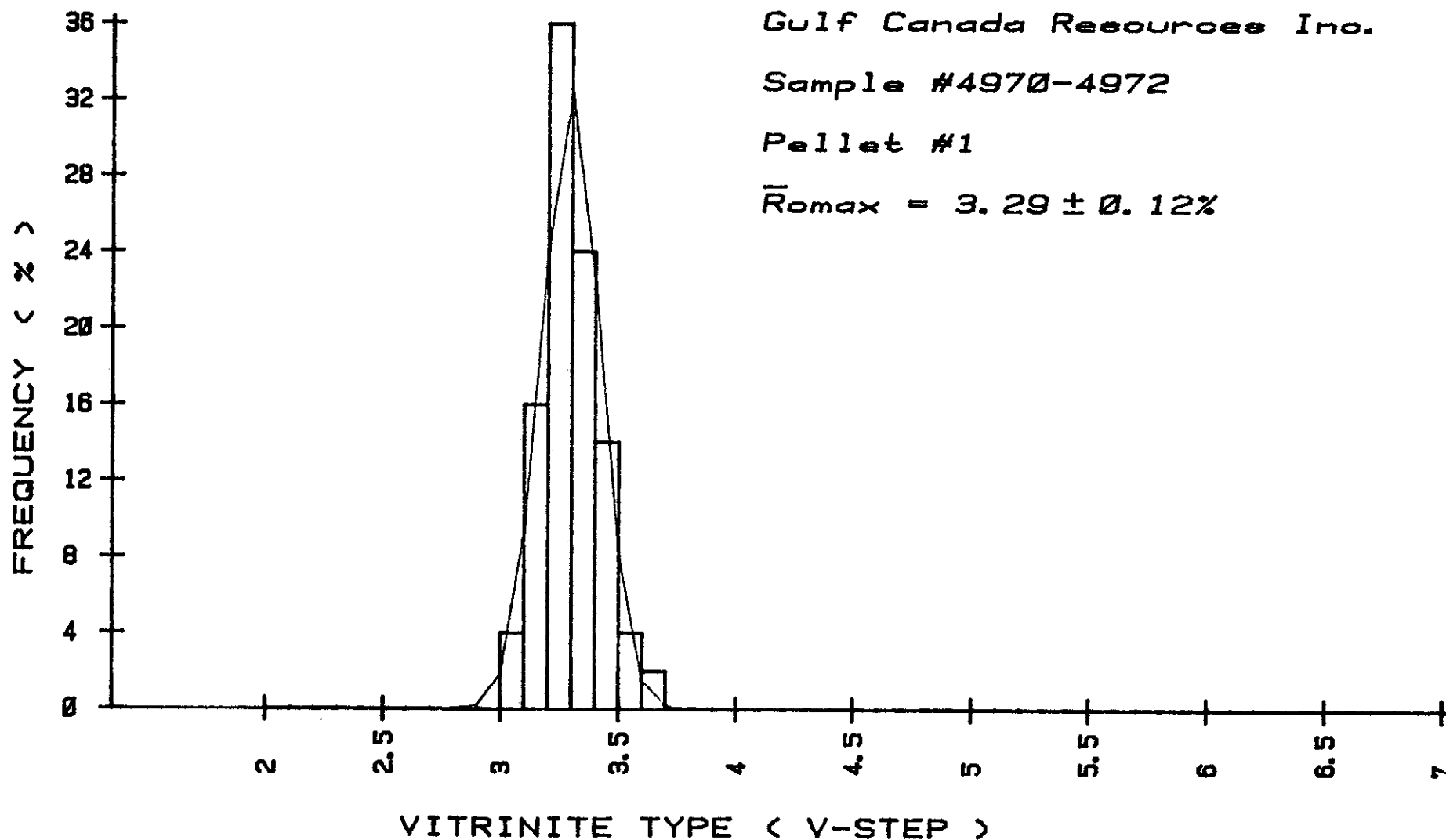
BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.29
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	3.74
VARIANCE	0.0152
STANDARD DEVIATION	0.1231
SKENNESS	0.3024
KURTOSIS	2.8670

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
11	3.00	2	4.00
12	3.10	6	12.00
13	3.20	18	36.00
14	3.30	12	24.00
15	3.40	7	14.00
16	3.50	2	4.00
17	3.60	1	2.00

VITRINITE FREQUENCY DISTRIBUTION



GULF CANADA RESOURCES INC.

SAMPLE # 4970-4972

MINERAL MATTER-DRY LENS				
Calc.	Py	Qu	Sh	Coal.
6	0	1	8	85
8	0	0	18	74
18	0	0	11	71
17	0	2	7	74
8	0	1	9	82

AVERAGE				
11.4	0	0.8	10.6	77.2

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDH82003 SEAM - G

SAMPLE ID - 4973

WASHABILITY ID - WAI

FRACTION S.G.TME	ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -	
	SIZE (MM) 9.53 x		0.00		CUM. SINKS		C.V.		CUM.	
	ELEMENTAL		CUM. FLOATS		WT% ASH%		(MJ/KG)		C.V.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70	11.74	14.98	11.74	14.98	88.26	78.91	29.70		29.70	
2.60	88.26	78.91	100.00	71.40			4.47		7.43	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - G

SAMPLE ID - 4974

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
.1.70		60.31	13.30	60.31	13.30	39.69	56.52	30.28	30.28
2.60		39.69	56.52	100.00	30.45			12.34	23.16

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 14/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 10.00
 SURFACE MOISTURE % (AD,AR) ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE % (AD,EM) 1.72
 ASH % 48.51
 VOLATILE MATTER % 8.54
 FIXED CARBON % 41.23
 TOTAL SULPHUR % 0.62
 PHOSPHOROUS % ---
 CHLORINE (PPM) 00363
 SPECIFIC GRAVITY 1.87
 FSI ---
 HGI 46.0
 CO2 % 3.68
 GROSS CALORIFIC VALUE (MJ/KG) 15.86
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 14/10/82

FRACTION SIZE	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00 0.60	88.04	46.90	---	15.92	1.18	8.65	0.69
0.60 0.15	8.65	39.78	---	19.71	1.05	8.12	0.58
0.15 0.00	3.31	47.33	---	12.51	0.93	8.75	0.45

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP1
 SPLIT SAMPLE ID UL1 DATE ANALYSED 22/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.72
CARBON	%	42.46
HYDROGEN	%	1.58
SULPHUR	%	0.62
NITROGEN	%	0.61
ASH	%	48.51
OXYGEN	%	4.50

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
 SOFTENING TEMP.(C) 1275.0
 HEMISPHERICAL TEMP.(C) 1315.0
 FLUID TEMP.(C) 1335.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1180.0
 SOFTENING TEMP.(C) 1250.0
 HEMISPHERICAL TEMP.(C) 1275.0
 FLUID TEMP.(C) 1320.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	58.34
ALUMINIUM OXIDE %	(AL2O3)	17.14
FERRIC OXIDE %	(FE2O3)	7.59
TITANIUM DIOXIDE %	(TI02)	0.62
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.01
CALCIUM OXIDE %	(CAO)	2.90
MAGNESIUM OXIDE %	(MGO)	2.39
SULPHUR TRIOXIDE %	(SO3)	2.04
SODIUM OXIDE %	(NA2O)	1.05
POTASSIUM OXIDE %	(K2O)	1.51

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	52.00
SULPHATE	%	2.00
ORGANIC	%	46.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - G

SAMPLE ID - 21

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE (MM)	10.00 X	0.60	RELATIVE WEIGHT % - 88.04		ASH % - 46.90		
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS	C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	12.41	4.04	12.41	4.04	87.59	55.11	33.93	33.93
1.50	9.40	10.49	21.81	6.82	78.19	60.48	31.34	32.81
1.60	10.90	19.18	32.71	10.94	67.29	67.17	27.75	31.13
1.70	6.04	30.24	38.75	13.95	61.25	70.81	23.07	29.87
1.80	3.76	37.12	42.51	16.00	57.49	73.01	19.30	28.94
1.90	2.13	44.64	44.64	17.36	55.36	74.10	16.23	28.33
2.00	3.96	48.17	48.60	19.87	51.40	76.10	15.52	27.29
2.10	5.00	54.47	53.60	23.10	46.40	78.43	12.97	25.95
2.20	2.46	60.29	56.06	24.73	43.94	79.45	10.62	25.28
2.30	2.87	66.41	58.93	26.76	41.07	80.36	8.69	24.47
2.60	41.07	80.36	100.00	48.78			3.31	15.78

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE (MM)	0.60 X	0.15	RELATIVE WEIGHT % - 8.65		ASH % - 39.78		
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS	C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	38.31	2.00	38.31	2.00	61.69	49.26	34.84	34.84
1.50	12.02	9.31	50.33	3.75	49.67	58.93	31.36	34.01
1.60	6.09	17.79	56.42	5.26	43.58	64.68	27.71	33.33
1.70	5.82	26.04	62.24	7.20	37.76	70.64	24.84	32.54
1.80	3.94	38.46	66.18	9.07	33.82	74.38	18.89	31.72
1.90	2.60	44.96	68.78	10.42	31.22	76.83	17.34	31.18
2.00	2.70	51.53	71.48	11.98	28.52	79.23	14.89	30.56
2.10	1.68	54.46	73.16	12.95	26.84	80.78	12.89	30.16
2.30	2.80	62.92	75.96	14.79	24.04	82.86	9.48	29.40
2.60	24.04	82.86	100.00	31.16			0.00	22.33

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - G

SAMPLE ID - 21

WASHABILITY ID - WAI

FRACTION	ANALYSIS TYPE - FROTH		SIZE(MM)		RELATIVE WEIGHT % -		3.31 ASH % - 47.33	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
30.00	53.62	22.68	53.62	22.68	46.38	71.18	26.52	26.52
45.00	13.00	50.63	66.62	28.13	33.38	79.18	13.63	24.00
60.00	3.70	67.47	70.32	30.20	29.68	80.64	8.72	23.20
90.00	4.13	72.53	74.45	32.55	25.55	81.96	6.78	22.29
120.00	5.30	80.60	79.75	35.74	20.25	82.31	3.50	21.04
300.00	20.25	82.31	100.00	45.17			0.00	16.78

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP3

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.58	30.20	26.59
0.60	0.15	1.86	67.74	5.86

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.58
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	0.77	SPECIFIC GRAVITY	1.45
ASH %	10.57	FSI	---
VOLATILE MATTER %	6.94	HGI	---
FIXED CARBON %	81.72	CO2 %	0.36

GROSS CALORIFIC VALUE (MJ/KG) 31.05
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.77
CARBON	%	82.07
HYDROGEN	%	2.88
SULPHUR	%	0.58
NITROGEN	%	1.10
ASH	%	10.57
OXYGEN	%	2.03

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 03/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1210.0
 SOFTENING TEMP.(C) 1335.0
 HEMISPHERICAL TEMP.(C) 1380.0
 FLUID TEMP.(C) 1440.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1210.0
 SOFTENING TEMP.(C) 1325.0
 HEMISPHERICAL TEMP.(C) 1360.0
 FLUID TEMP.(C) 1430.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE %	(SI02)	63.35
ALUMINIUM OXIDE %	(AL2O3)	19.23
FERRIC OXIDE %	(FE2O3)	3.23
TITANIUM DIOXIDE %	(TI02)	1.24
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.07
CALCIUM OXIDE %	(CAO)	1.26
MAGNESIUM OXIDE %	(MGO)	1.10
SULPHUR TRIOXIDE %	(SO3)	1.24
SODIUM OXIDE %	(NA2O)	1.10
POTASSIUM OXIDE %	(K2O)	1.21

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE	%	16.00
SULPHATE	%	2.00
ORGANIC	%	82.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ----

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.10	53.60	47.19
0.60	0.15	2.10	73.16	6.33
0.15	0.00	120.00	79.75	2.64

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 16/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	----	TOTAL SULPHUR %	0.59
TOTAL MOISTURE % (AR)	----	PHOSPHOROUS %	----
EQUILIBRIUM MOISTURE %	----	CHLORINE (PPM)	03758
RESIDUAL MOISTURE (AD,EM)	1.48	SPECIFIC GRAVITY	1.59
ASH %	23.96	FSI	----
VOLATILE MATTER %	8.91	HGI	41.0
FIXED CARBON %	65.65	CO2 %	1.07

GROSS CALORIFIC VALUE (MJ/KG) 25.13
 NET CALORIFIC VALUE (MJ/KG) ----

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 23/11/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.48
CARBON	%	65.87
HYDROGEN	%	2.42
SULPHUR	%	0.59
NITROGEN	%	0.95
ASH	%	23.96
OXYGEN	%	4.73

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 23/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1205.0
 SOFTENING TEMP.(C) 1340.0
 HEMISPHERICAL TEMP.(C) 1360.0
 FLUID TEMP.(C) 1390.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1170.0
 SOFTENING TEMP.(C) 1330.0
 HEMISPHERICAL TEMP.(C) 1355.0
 FLUID TEMP.(C) 1380.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 07/12/82

SILICON DIOXIDE %	(SI02)	63.23
ALUMINIUM OXIDE %	(AL2O3)	18.78
FERRIC OXIDE %	(FE2O3)	4.72
TITANIUM DIOXIDE %	(TI02)	0.76
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.63
CALCIUM OXIDE %	(CAO)	1.83
MAGNESIUM OXIDE %	(MGO)	1.22
SULPHUR TRIOXIDE %	(SO3)	1.42
SODIUM OXIDE %	(NA2O)	1.01
POTASSIUM OXIDE %	(K2O)	1.73

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 21
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE	%	22.00
SULPHATE	%	2.00
ORGANIC	%	76.00

TOTAL 100.00

Vitrinite Reflectance Data For
 Gulf Canada Resources Inc.
 Sample #4973-4974
 Pellet #1

OBSERVATION NUMBER	ROMAX VALUE	OBSERVATION NUMBER	ROMAX VALUE
1	3.52	25	3.31
2	3.34	27	3.59
3	3.35	28	3.25
4	3.29	29	3.25
5	3.41	30	3.35
6	3.33	31	3.20
7	3.29	32	3.24
8	3.27	33	3.26
9	3.40	34	3.31
10	3.57	35	3.35
11	3.58	36	3.22
12	3.31	37	3.32
13	3.31	38	3.30
14	3.36	39	3.33
15	3.35	40	3.28
16	3.43	41	3.22
17	3.57	42	3.45
18	3.45	43	3.30
19	3.47	44	3.34
20	3.40	45	3.27
21	3.32	46	3.26
22	3.26	47	3.18
23	3.57	48	3.21
24	3.25	49	3.27
25	3.30	50	3.51

Gulf Canada Resources Inc.
 Sample #4973-4974
 Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.33
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION	2.41
VARIANCE	0.0062
STANDARD DEVIATION	0.0204
SKEWNESS	1.1476
KURTOSIS	4.8816

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
8	3.20	10	20.00
9	3.30	23	46.00
10	3.40	7	14.00
11	3.50	1	2.00
12	3.60	1	2.00

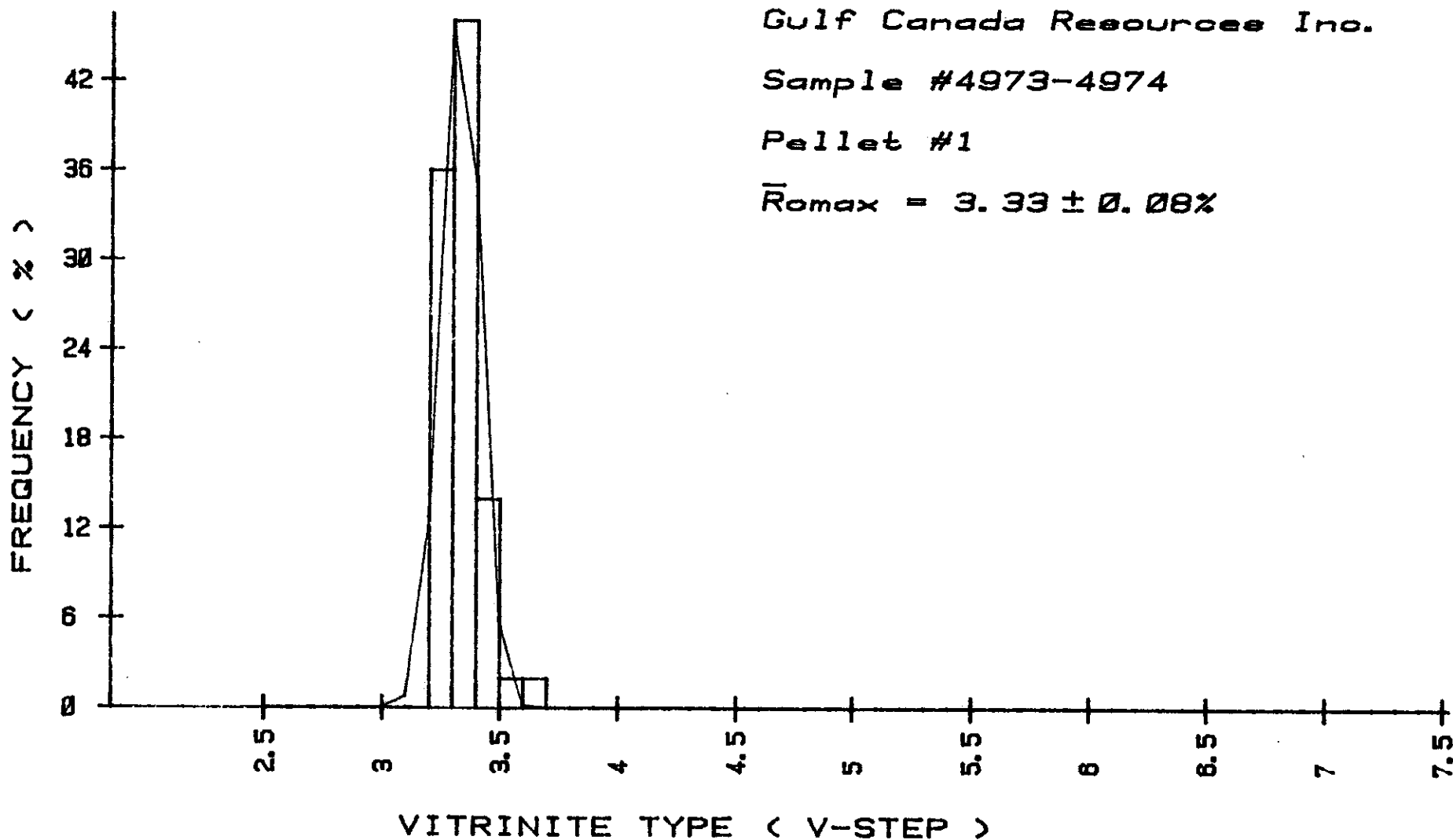
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4973-4974

Pellet #1

$\bar{R}_{\text{omax}} = 3.33 \pm 0.08\%$



GULF CANADA RESOURCES INC.

SAMPLE # 4973-4974

MINERAL MATTER—DRY LENS				
Calc.	Py	Qu	Sh	Coal.
15	0	3	23	59
10	0	0	25	65
15	1	4	19	61
16	0	3	11	70
12	0	2	12	74

AVERAGE				
13.6	0.2	2.4	18	65.8

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDDH82003 SEAM - F

SAMPLE ID - 4975

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00 ASH % -			
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	62.41	13.20	62.41	13.20	37.59	55.24	30.30	30.30
2.60	37.59	55.24	100.00	29.00			10.41	22.82

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDDH82003 SEAM - F

SAMPLE ID - 4976

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		34.16	17.49	34.16	17.49	65.84	67.09	28.67	28.67
2.60		65.84	67.09	100.00	50.15			5.40	13.35

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDDH82003 SEAM - F

SAMPLE ID - 4977

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	58.80	16.69	58.80	16.69	41.20	52.98	28.50	28.50
2.60	41.20	52.98	100.00	31.64			13.19	22.19

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 14/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 10.00
 SURFACE MOISTURE %<AD,AR> ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE %<AD,EM> 1.45
 ASH % 37.18
 VOLATILE MATTER % 10.56
 FIXED CARBON % 50.81
 TOTAL SULPHUR % 0.39
 PHOSPHOROUS % ---
 CHLORINE (PPM) 00302
 SPECIFIC GRAVITY 1.72
 FSI ---
 HGI 48.0
 CO2 % 4.95
 GROSS CALORIFIC VALUE (MJ/KG) 20.72
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 14/10/82
 FRACTION SIZE WT% ASH% FSI CAL RM VM TS
 (MM) TO (MM) (MJ/KG)
 10.00 0.60 79.34 37.89 --- 19.86 1.09 11.59 0.38
 0.60 0.15 13.86 31.94 --- 22.40 1.07 9.34 0.46
 0.15 0.00 6.80 36.83 --- 20.68 1.01 8.68 0.31

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 27/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER % 1.45
 CARBON % 56.02
 HYDROGEN % 2.07
 SULPHUR % 0.39
 NITROGEN % 0.72
 ASH % 37.18
 OXYGEN % 2.17

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE *****		REDUCING ATMOSPHERE *****	
INITIAL TEMP.(C)	1250.0	INITIAL TEMP.(C)	1165.0
SOFTENING TEMP.(C)	1265.0	SOFTENING TEMP.(C)	1190.0
HEMISPHERICAL TEMP.(C)	1285.0	HEMISPHERICAL TEMP.(C)	1225.0
FLUID TEMP.(C)	1310.0	FLUID TEMP.(C)	1245.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	49.58
ALUMINIUM OXIDE %	(AL2O3)	21.25
FERRIC OXIDE %	(FE2O3)	10.38
TITANIUM DIOXIDE %	(TI02)	0.78
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.62
CALCIUM OXIDE %	(CAO)	5.08
MAGNESIUM OXIDE %	(MGO)	2.77
SULPHUR TRIOXIDE %	(SO3)	2.67
SODIUM OXIDE %	(NA2O)	1.47
POTASSIUM OXIDE %	(K2O)	0.83

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	13.00
SULPHATE	%	3.00
ORGANIC	%	84.00
TOTAL		100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - F

SAMPLE ID - 22

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	10.00 X 0.60		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 79.34 ASH % - 39.44	
		ELEMENTAL	ASH%	WT%	ASH%	WT%	ASH%	C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40		7.30	3.09	7.30	3.09	92.70	37.33	34.64	34.64
1.50		19.19	9.64	26.49	7.83	73.51	44.56	31.79	32.58
1.60		18.20	18.34	44.69	12.11	55.31	53.19	28.14	30.77
1.70		9.34	28.86	54.03	15.01	45.97	58.14	23.54	29.52
1.80		5.17	36.06	59.20	16.84	40.80	60.94	20.06	28.69
1.90		5.06	42.04	64.26	18.83	35.74	63.62	16.97	27.77
2.00		5.21	45.10	69.47	20.80	30.53	66.78	15.49	26.85
2.10		3.84	50.73	73.31	22.36	26.69	69.09	12.37	26.09
2.20		3.58	54.98	76.89	23.88	23.11	71.27	11.42	25.41
2.30		2.85	63.69	79.74	25.31	20.26	72.34	8.15	24.79
2.60		20.26	72.34	100.00	34.83			3.09	20.39

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	0.60 X 0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 13.86 ASH % - 31.94	
		ELEMENTAL	ASH%	WT%	ASH%	WT%	ASH%	C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40		14.25	2.34	14.25	2.34	85.75	35.61	34.55	34.55
1.50		22.60	8.01	36.85	5.82	63.15	45.49	32.24	33.13
1.60		12.18	17.30	49.03	8.67	50.97	52.22	28.40	31.96
1.70		10.60	23.80	59.63	11.36	40.37	59.69	25.97	30.89
1.80		8.60	36.12	68.23	14.48	31.77	66.07	20.59	29.59
1.90		3.53	43.24	71.76	15.90	28.24	68.92	17.54	29.00
2.00		3.46	48.87	75.22	17.41	24.78	71.72	14.03	28.31
2.10		2.64	53.49	77.86	18.64	22.14	73.89	12.42	27.77
2.20		1.82	60.70	79.68	19.60	20.32	75.07	9.80	27.36
2.30		1.28	63.66	80.96	20.29	19.04	75.84	8.79	27.07
2.60		19.04	75.84	100.00	30.87			0.00	21.92

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - F

SAMPLE ID - 22

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % -		6.80 ASH % - 36.83	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG) C.V.	C.V.
30.00	71.05	25.84	71.05	25.84	28.95	57.61	25.13	25.13
45.00	8.56	39.70	79.61	27.33	20.39	65.13	19.84	24.56
60.00	6.06	60.31	85.67	29.66	14.33	67.17	11.01	23.60
90.00	2.80	61.90	88.47	30.68	11.53	68.45	10.38	23.18
120.00	2.63	67.18	91.10	31.74	8.90	68.82	8.12	22.75
300.00	8.90	68.82	100.00	35.04			7.24	21.37

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP3

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.55	35.59	28.24
0.60	0.15	1.65	54.33	7.53

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	---
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	0.69	SPECIFIC GRAVITY	1.44
ASH %	10.90	FSI	---
VOLATILE MATTER %	6.50	HGI	35.0
FIXED CARBON %	81.91	CO2 %	0.37

GROSS CALORIFIC VALUE (MJ/KG) 30.84
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.69
CARBON	%	82.07
HYDROGEN	%	3.15
SULPHUR	%	0.43
NITROGEN	%	1.06
ASH	%	10.90
OXYGEN	%	1.70

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003
 =====

SAMPLE ID 22
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 08/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1200.0
 SOFTENING TEMP.(C) 1320.0
 HEMISPHERICAL TEMP.(C) 1355.0
 FLUID TEMP.(C) 1400.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1180.0
 SOFTENING TEMP.(C) 1320.0
 HEMISPHERICAL TEMP.(C) 1355.0
 FLUID TEMP.(C) 1380.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003
 =====

SAMPLE ID 22
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE %	(SI02)	58.67
ALUMINIUM OXIDE %	(AL2O3)	22.80
FERRIC OXIDE %	(FE2O3)	3.80
TITANIUM DIOXIDE %	(TI02)	1.33
PHOSPHOROUS PENTOXIDE %	(P2O5)	2.49
CALCIUM OXIDE %	(CAO)	2.90
MAGNESIUM OXIDE %	(MGO)	0.33
SULPHUR TRIOXIDE %	(SO3)	0.72
SODIUM OXIDE %	(NA2O)	1.39
POTASSIUM OXIDE %	(K2O)	0.75

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003
 =====

SAMPLE ID 22
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.90	64.26	50.98
0.60	0.15	2.10	80.96	10.79
0.15	0.00	90.00	88.47	6.02

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 15/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.44
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	06292
RESIDUAL MOISTURE (AD,EM)	1.46	SPECIFIC GRAVITY	1.58
ASH %	20.99	FSI	---
VOLATILE MATTER %	10.54	HGI	46.0
FIXED CARBON %	67.01	CO2 %	1.06

GROSS CALORIFIC VALUE (MJ/KG) 26.60
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 23/11/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.46
CARBON	%	69.44
HYDROGEN	%	2.75
SULPHUR	%	0.44
NITROGEN	%	0.86
ASH	%	20.99
OXYGEN	%	4.06

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 23/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
SOFTENING TEMP.(C) 1345.0
HEMISPHERICAL TEMP.(C) 1360.0
FLUID TEMP.(C) 1370.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1215.0
SOFTENING TEMP.(C) 1335.0
HEMISPHERICAL TEMP.(C) 1355.0
FLUID TEMP.(C) 1365.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 07/12/82

SILICON DIOXIDE %	(SI02)	59.26
ALUMINIUM OXIDE %	(AL2O3)	21.49
FERRIC OXIDE %	(FE2O3)	4.76
TITANIUM DIOXIDE %	(TI02)	0.92
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.27
CALCIUM OXIDE %	(CAO)	2.91
MAGNESIUM OXIDE %	(MGO)	1.27
SULPHUR TRIOXIDE %	(SO3)	1.29
SODIUM OXIDE %	(NA2O)	1.35
POTASSIUM OXIDE %	(K2O)	0.90

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE	%	25.00
SULPHATE	%	2.00
ORGANIC	%	73.00

TOTAL 100.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP5

SAMPLE WEIGHT (KG) -----

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION	YEILD/FRACTION RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.70	18.44	14.63
0.60	0.15	1.70	5.30	0.73
0.15	0.00	30.00	71.05	4.83

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82003

SAMPLE ID 22 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP5 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %<AD,AR>	-----	TOTAL SULPHUR %	0.44
TOTAL MOISTURE % <AR>	-----	PHOSPHOROUS	-----
FD MOISTURE %	-----	CHLORINE (PPM)	-----
INHERENT MOISTURE <AD,EM>	1.08	SPG	-----
ASH %	24.53	FSI	-----
FIXED CARBON %	67.16	HGI	-----
VOLITILE MATTER %	7.23	CO2 %	-----

GROSS CALORIFIC VALUE (MJ,KG) 25.59
 NET CALORIFIC VALUE (MJ,KG) -----

Vitrinite Reflectance Data For
Gulf Canada Resources Inc.
Sample #4975-4977
Pellet #1

OBSERVATION NUMBER	ROMAX VALUE
1	3.22
2	3.19
3	3.23
4	3.16
5	3.17
6	3.17
7	3.11
8	3.25
9	3.30
10	3.31
11	3.29
12	3.10
13	3.22
14	3.23
15	3.23
16	3.31
17	3.15
18	3.30
19	3.14
20	3.11
21	3.13
22	3.34
23	3.02
24	3.12
25	3.37

OBSERVATION NUMBER	ROMAX VALUE
26	3.21
27	3.43
28	3.23
29	3.10
30	3.17
31	3.18
32	2.94
33	3.10
34	3.24
35	3.22
36	3.47
37	3.25
38	3.16
39	3.17
40	3.22
41	3.24
42	3.39
43	3.18
44	3.16
45	3.25
46	3.24
47	3.24
48	3.19
49	3.16
50	3.23

Gulf Canada Resources Inc.
Sample #4975-4977
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.21
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION	3.04
VARIANCE	0.0096
STANDARD DEVIATION	0.0978
SKWENESS	0.0769
KURTOSIS	3.7234

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
10	2.90	1	2.00
11	3.00	1	2.00
12	3.10	20	40.00
13	3.20	15	30.00
14	3.30	8	16.00
15	3.40	2	4.00

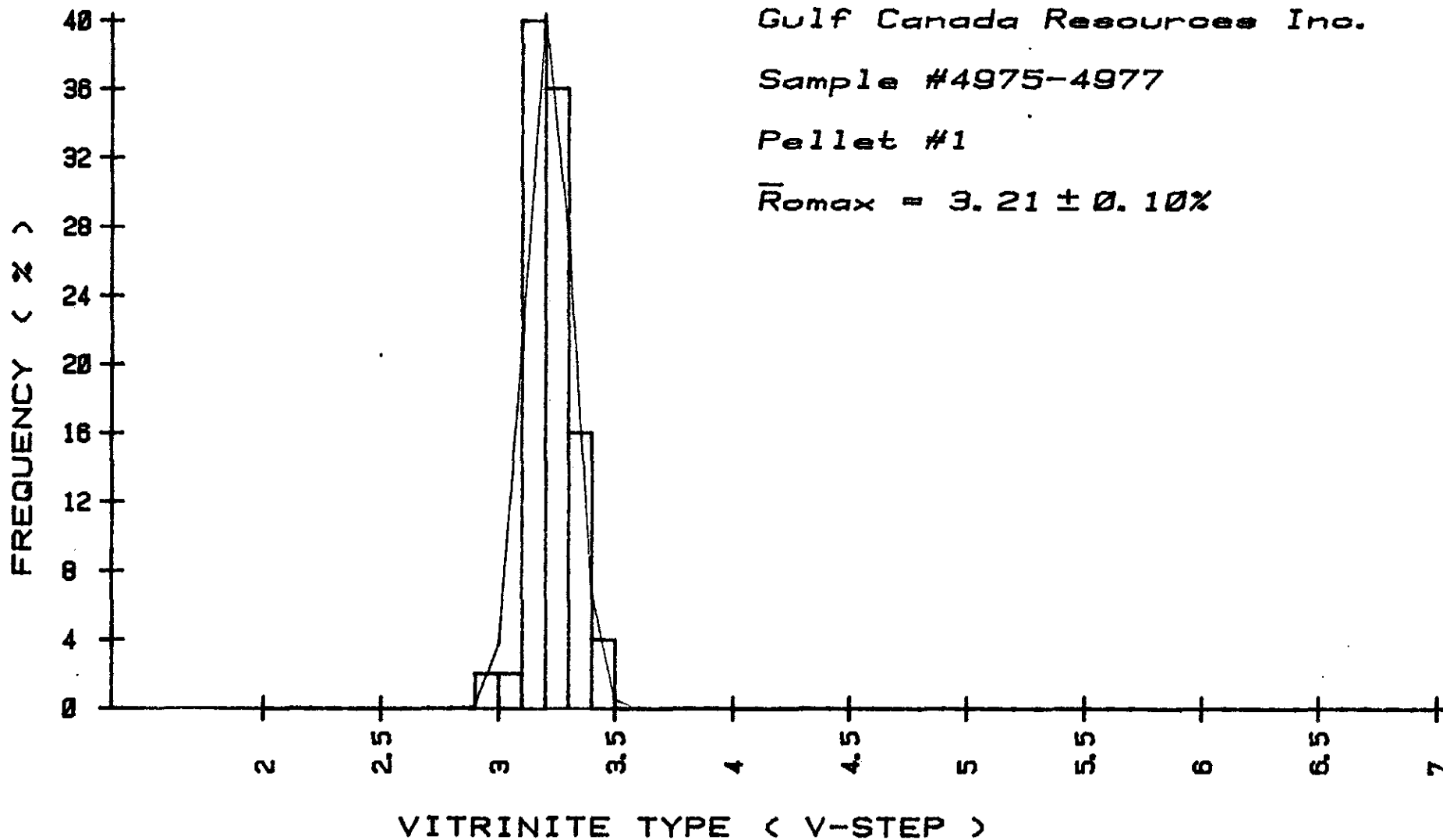
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4975-4977

Pellet #1

$\bar{R}_{\text{omax}} = 3.21 \pm 0.10\%$



GULF CANADA RESOURCES INC.

SAMPLE # 4975-4977

MINERAL MATTER—DRY LENS				
Calc.	Py	Qu	Sh	Coal
18	0	3	3	76
14	0	3	3	80
11	0	3	3	83
16	0	0	9	75
31	0	3	6	60

AVERAGE				
18	6	2.4	4.8	74.8

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - E UPPER

SAMPLE ID - 4978

WASHABILITY ID - WAI

FRACTION	ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -	
	SIZE (MM)	9.53 X		0.00		CUM. SINKS		C.V.	CUM.	C.V.
S.G.TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		C.V.		(MJ/KG)		C.V.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)			
1.70	60.67	13.64	60.67	13.64	39.33	60.28	29.36			29.36
2.60	39.33	60.28	100.00	31.98			8.21			21.04

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 14/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 10.00
 SURFACE MOISTURE %<AD,AR> ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE %<AD,EM> 1.37
 ASH % 33.87
 VOLATILE MATTER % 10.94
 FIXED CARBON % 53.82
 TOTAL SULPHUR % 0.41
 PHOSPHOROUS % ---
 CHLORINE (PPM) 00664
 SPECIFIC GRAVITY 1.68
 FSI ---
 HGI 47.0
 CO2 % 5.75
 GROSS CALORIFIC VALUE (MJ/KG) 21.23
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 14/10/82
 FRACTION SIZE WT% ASH% FSI CAL RM VM TS
 (MM) TO (MM) (MJ/KG)
 10.00 0.60 76.78 35.60 --- 20.31 1.14 11.64 0.40
 0.60 0.15 15.34 23.56 --- 26.17 1.10 8.74 0.47
 0.15 0.00 7.88 31.78 --- 21.38 1.07 8.97 0.48

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 27/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER % 1.37
 CARBON % 57.27
 HYDROGEN % 2.01
 SULPHUR % 0.41
 NITROGEN % 0.80
 ASH % 33.87
 OXYGEN % 4.27

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1205.0
 SOFTENING TEMP.(C) 1225.0
 HEMISPHERICAL TEMP.(C) 1235.0
 FLUID TEMP.(C) 1255.0

INITIAL TEMP.(C) 1180.0
 SOFTENING TEMP.(C) 1200.0
 HEMISPHERICAL TEMP.(C) 1215.0
 FLUID TEMP.(C) 1230.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	52.43
ALUMINIUM OXIDE %	(AL2O3)	14.30
FERRIC OXIDE %	(FE2O3)	8.85
TITANIUM DIOXIDE %	(TI02)	0.55
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.80
CALCIUM OXIDE %	(CAO)	10.21
MAGNESIUM OXIDE %	(MGO)	4.19
SULPHUR TRIOXIDE %	(SO3)	2.77
SODIUM OXIDE %	(NA2O)	0.88
POTASSIUM OXIDE %	(K2O)	0.56

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	10.00
SULPHATE	%	5.00
ORGANIC	%	85.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - E UPPER

SAMPLE ID - 23

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	10.00 X	0.60	RELATIVE WEIGHT % - 76.78 ASH % - 35.60					
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	8.73	4.53	8.73	4.53	91.27	37.94	33.77	33.77	
1.50	17.87	10.45	26.60	8.51	73.40	44.64	31.63	32.33	
1.60	22.71	17.65	49.31	12.72	50.69	56.73	28.29	30.47	
1.70	5.07	28.88	54.38	14.22	45.62	59.82	23.38	29.81	
1.80	4.83	36.19	59.21	16.02	40.79	62.62	20.10	29.02	
1.90	3.02	42.04	62.23	17.28	37.77	64.27	17.45	28.46	
2.00	2.89	48.60	65.12	18.67	34.88	65.57	14.84	27.85	
2.10	2.43	52.03	67.55	19.87	32.45	66.58	12.45	27.30	
2.20	3.55	59.29	71.10	21.84	28.90	67.48	10.12	26.44	
2.30	2.20	63.80	73.30	23.10	26.70	67.78	8.74	25.91	
2.60	26.70	67.78	100.00	35.03			3.96	20.05	

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	0.60 X	0.15	RELATIVE WEIGHT % - 15.34 ASH % - 23.56					
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	26.94	3.09	26.94	3.09	73.06	29.76	34.28	34.28	
1.50	31.50	8.85	58.44	6.19	41.56	45.60	31.76	32.92	
1.60	12.89	16.57	71.33	8.07	28.67	58.65	27.93	32.02	
1.70	4.78	25.61	76.11	9.17	23.89	65.27	24.35	31.54	
1.80	3.50	34.33	79.61	10.28	20.39	70.58	21.13	31.08	
1.90	1.69	41.88	81.30	10.93	18.70	73.17	17.88	30.81	
2.00	1.35	47.94	82.65	11.54	17.35	75.13	15.32	30.55	
2.10	1.36	53.93	84.01	12.22	15.99	76.94	13.07	30.27	
2.20	1.18	59.43	85.19	12.88	14.81	78.33	10.47	30.00	
2.30	0.93	64.16	86.12	13.43	13.88	79.28	8.97	29.77	
2.60	13.88	79.28	100.00	22.57			0.00	25.64	

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - E UPPER

SAMPLE ID - 23

WASHABILITY ID - WAI

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 7.88 ASH % - 31.78			
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
30.00	73.33	16.15	73.33	16.15	26.67	70.39	28.71	28.71
45.00	3.88	37.11	77.21	17.20	22.79	76.06	20.36	28.29
60.00	1.91	54.81	79.12	18.11	20.88	78.00	12.59	27.91
90.00	2.87	69.64	81.99	19.91	18.01	79.34	7.21	27.19
120.00	1.92	74.53	83.91	21.16	16.09	79.91	5.14	26.68
300.00	16.09	79.91	100.00	30.62			0.00	22.39

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP3

SAMPLE WEIGHT (KG) ----

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.53	33.41	25.65
0.60	0.15	1.70	76.11	11.68

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	----	TOTAL SULPHUR %	0.37
TOTAL MOISTURE % (AR)	----	PHOSPHOROUS %	----
EQUILIBRIUM MOISTURE %	----	CHLORINE (PPM)	----
RESIDUAL MOISTURE (AD,EM)	0.89	SPECIFIC GRAVITY	1.45
ASH %	10.37	FSI	----
VOLATILE MATTER %	7.50	HGI	----
FIXED CARBON %	81.24	CO2 %	0.28

GROSS CALORIFIC VALUE (MJ/KG) 31.00
 NET CALORIFIC VALUE (MJ/KG) ----

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.89
CARBON	%	81.46
HYDROGEN	%	3.14
SULPHUR	%	0.37
NITROGEN	%	1.19
ASH	%	10.37
OXYGEN	%	2.58

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 08/12/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1150.0
 SOFTENING TEMP.(C) 1425.0
 HEMISPHERICAL TEMP.(C) 1445.0
 FLUID TEMP.(C) 1485.0

INITIAL TEMP.(C) 1130.0
 SOFTENING TEMP.(C) 1410.0
 HEMISPHERICAL TEMP.(C) 1430.0
 FLUID TEMP.(C) 1485.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE %	(SI02)	59.30
ALUMINIUM OXIDE %	(AL2O3)	25.44
FERRIC OXIDE %	(FE2O3)	1.90
TITANIUM DIOXIDE %	(TI02)	1.11
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.52
CALCIUM OXIDE %	(CAO)	1.85
MAGNESIUM OXIDE %	(MGO)	0.38
SULPHUR TRIOXIDE %	(SO3)	1.22
SODIUM OXIDE %	(NA2O)	1.56
POTASSIUM OXIDE %	(K2O)	0.90

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE	%	3.00
SULPHATE	%	3.00
ORGANIC	%	94.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.10	67.55	51.86
0.60	0.15	2.30	86.12	13.20
0.15	0.00	120.00	83.91	6.60

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 16/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.46
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	07502
RESIDUAL MOISTURE (AD,EM)	1.96	SPECIFIC GRAVITY	1.57
ASH %	19.44	FSI	---
VOLATILE MATTER %	10.27	HGI	---
FIXED CARBON %	68.33	CO2 %	1.11

GROSS CALORIFIC VALUE (MJ/KG) 26.58
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.96
CARBON	%	73.54
HYDROGEN	%	2.86
SULPHUR	%	0.46
NITROGEN	%	0.86
ASH	%	19.44
OXYGEN	%	0.88

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 23/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
 SOFTENING TEMP.(C) 1290.0
 HEMISPHERICAL TEMP.(C) 1310.0
 FLUID TEMP.(C) 1345.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1235.0
 SOFTENING TEMP.(C) 1285.0
 HEMISPHERICAL TEMP.(C) 1300.0
 FLUID TEMP.(C) 1335.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 09/12/82

SILICON DIOXIDE % (SI02) 60.24
 ALUMINIUM OXIDE % (AL2O3) 19.91
 FERRIC OXIDE % (FE2O3) 2.96
 TITANIUM DIOXIDE % (TI02) 0.80
 PHOSPHOROUS PENTOXIDE % (P2O5) 1.38
 CALCIUM OXIDE % (CAO) 4.67
 MAGNESIUM OXIDE % (MGO) 1.70
 SULPHUR TRIOXIDE % (SO3) 1.33
 SODIUM OXIDE % (NA2O) 1.18
 POTASSIUM OXIDE % (K2O) 0.75

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 23
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 02/12/82

PYRITE % 4.00
 SULPHATE % 2.00
 ORGANIC % 94.00

TOTAL 100.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDHS2003

SAMPLE ID 23 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP5

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION	YEILD/FRACTION RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.80	25.80	19.81
0.60	0.15	1.80	3.50	0.54
0.15	0.00	120.00	83.91	6.61

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDHS2003

SAMPLE ID 23 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP5 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.44
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS	---
TD MOISTURE %	---	CHLORINE (PPM)	---
		SPG	---
INHERENT MOISTURE (AD,EM)	1.09	FSI	---
ASH %	23.33	HGI	---
FIXED CARBON %	67.44	CO2 %	---
VOLITILE MATTER %	8.14		

GROSS CALORIFIC VALUE (MJ,KG) 25.55
 NET CALORIFIC VALUE (MJ,KG) ---

Vitrinite Reflectance Data For
 Gulf Canada Resources Inc.
 Sample #4978
 Pellet #1

OBSERVATION
 NUMBER

ROMAX
 VALUE

OBSERVATION
 NUMBER

ROMAX
 VALUE

1 0.37
 2 0.45
 3 0.64
 4 0.50
 5 0.60
 6 0.50
 7 0.46
 8 0.50
 9 0.53
 10 0.59
 11 0.51
 12 0.53
 13 0.46
 14 0.53
 15 0.56
 16 0.53
 17 0.56
 18 0.44
 19 0.46
 20 0.41
 21 0.46
 22 0.57
 23 0.58
 24 0.47
 25 0.55

26 0.55
 27 0.65
 28 0.59
 29 0.57
 30 0.59
 31 0.51
 32 0.40
 33 0.59
 34 0.59
 35 0.58
 36 0.58
 37 0.48
 38 0.44
 39 0.57
 40 0.48
 41 0.57
 42 0.58
 43 0.51
 44 0.58
 45 0.58
 46 0.58
 47 0.51
 48 0.49
 49 0.57
 50 0.57

Gulf Canada Resources Inc.
 Sample #4978
 Pellet #1

BASIC STATISTICS

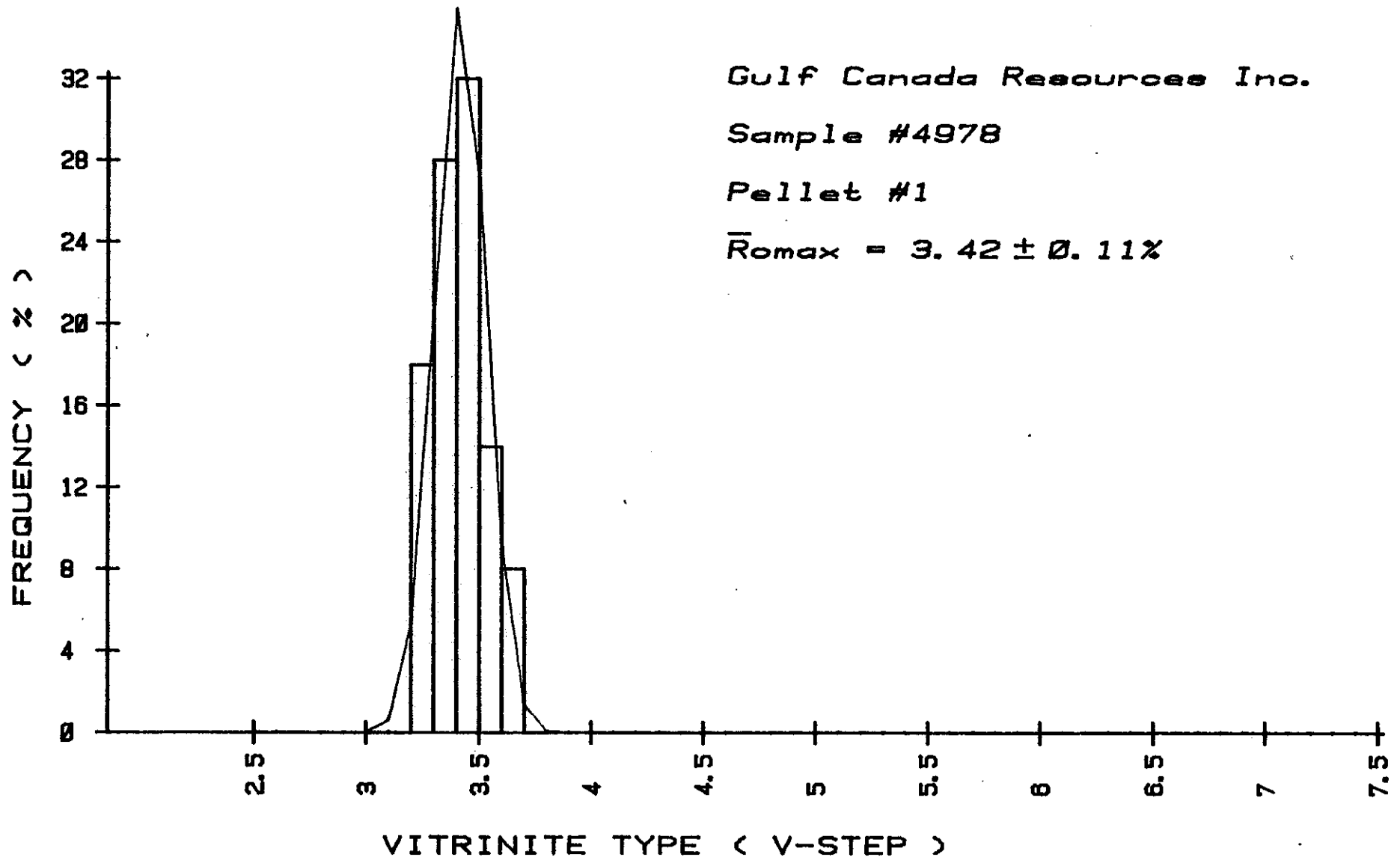
NUMBER OF OBSERVATIONS	30
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.42
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	3.24
VARIANCE	0.0129
STANDARD DEVIATION	0.1112
SKEWNESS	0.3408
KURTOSIS	2.3892

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
8	3.20	9	18.00
9	3.30	14	28.00
10	3.40	16	32.00
11	3.50	7	14.00
12	3.60	4	8.00

VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.
Sample #4978
Pellet #1
 $\bar{R}_{\text{omax}} = 3.42 \pm 0.11\%$



GULF CANADA RESOURCES INC.

SAMPLE # 4978

MINERAL MATTER - DRY LENS				
Calc.	Py	Qu	Sh	Coal.
10	0	1	3	86
10	0	5	8	77
7	0	6	6	81
11	0	2	4	83
13	0	3	6	78

AVERAGE				
10.2	0	3.4	5.4	81.0

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - E LOWER

SAMPLE ID - 4979

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		70.18	11.73	70.18	11.73	29.82	49.42	30.53	30.53
2.60		29.82	49.42	100.00	22.97			12.35	25.11

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82003

SAMPLE ID 24 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 14/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %<AD,AR>	---	TOTAL SULPHUR %	0.47
TOTAL MOISTURE %	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00536
		SPECIFIC GRAVITY	1.59
RESIDUAL MOISTURE %<AD,EM>	1.23	FSI	---
ASH %	23.11	HGI	50.0
VOLATILE MATTER %	10.98	CO2 %	5.15
FIXED CARBON %	64.68		
GROSS CALORIFIC VALUE (MJ/KG)	25.67		
NET CALORIFIC VALUE (MJ/KG)	---		

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82003

SAMPLE ID	24	DATA TYPE (REAL,BORO,AVER,CALC)		REAL				
SPLIT SAMPLE ID	SZ1	DATE ANALYSED		14/10/82				
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS	
FROM (MM) TO (MM)				(MJ/KG)				
10.00 0.60	83.16	25.00	---	24.87	0.97	11.59	0.48	
0.60 0.15	11.66	17.32	---	28.35	0.83	8.92	0.55	
0.15 0.00	5.18	24.68	---	25.88	0.69	9.43	0.46	

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 24
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 22/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.23
CARBON	%	68.55
HYDROGEN	%	2.19
SULPHUR	%	0.47
NITROGEN	%	0.76
ASH	%	23.11
OXYGEN	%	3.69

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003
=====

SAMPLE ID 24
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1200.0
SOFTENING TEMP.(C) 1210.0
HEMISPHERICAL TEMP.(C) 1215.0
FLUID TEMP.(C) 1225.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1130.0
SOFTENING TEMP.(C) 1160.0
HEMISPHERICAL TEMP.(C) 1170.0
FLUID TEMP.(C) 1180.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003
=====

SAMPLE ID 24
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE % (SI02) 39.60
ALUMINIUM OXIDE % (AL2O3) 16.08
FERRIC OXIDE % (FE2O3) 14.03
TITANIUM DIOXIDE % (TI02) 0.58
PHOSPHOROUS PENTOXIDE % (P2O5) 1.83
CALCIUM OXIDE % (CAO) 11.81
MAGNESIUM OXIDE % (MGO) 4.63
SULPHUR TRIOXIDE % (SO3) 4.57
SODIUM OXIDE % (NA2O) 0.80
POTASSIUM OXIDE % (K2O) 0.83

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003
=====

SAMPLE ID 24
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE % 11.00
SULPHATE % 2.00
ORGANIC % 87.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - E LOWER

SAMPLE ID - 24

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT % - 83.16 ASH % - 25.00			
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	20.99	3.18	20.99	3.18	79.01	29.47	34.27	34.27	
1.50	16.73	9.86	37.72	6.14	62.28	34.74	31.37	32.98	
1.60	17.84	16.17	55.56	9.36	44.44	42.19	28.96	31.69	
1.70	10.57	26.97	66.13	12.18	33.87	46.94	23.46	30.38	
1.80	4.84	32.21	70.97	13.54	29.03	49.39	20.57	29.71	
1.90	5.07	37.59	76.04	15.15	23.96	51.89	17.90	28.92	
2.00	4.86	41.96	80.90	16.76	19.10	54.42	15.38	28.11	
2.10	4.57	45.32	85.47	18.28	14.53	57.28	12.84	27.29	
2.20	2.83	46.61	88.30	19.19	11.70	59.86	11.65	26.79	
2.30	1.29	47.86	89.59	19.61	10.41	61.35	10.13	26.55	
2.60	10.41	61.35	100.00	23.95			4.77	24.28	

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	0.60 X		0.15		RELATIVE WEIGHT % - 11.66 ASH % - 17.32			
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	49.51	2.56	49.51	2.56	50.49	29.88	34.45	34.45	
1.50	20.38	8.96	69.89	4.43	30.11	44.05	31.88	33.70	
1.60	8.61	17.95	78.50	5.91	21.50	54.50	27.93	33.07	
1.70	2.77	25.90	81.27	6.59	18.73	58.73	24.54	32.78	
1.80	2.87	33.39	84.14	7.51	15.86	63.31	21.34	32.39	
1.90	1.49	42.11	85.63	8.11	14.37	65.51	17.37	32.13	
2.00	1.18	44.92	86.81	8.61	13.19	67.35	16.18	31.91	
2.10	1.22	49.38	88.03	9.17	11.97	69.19	13.99	31.66	
2.30	1.80	56.29	89.83	10.12	10.17	71.47	10.11	31.23	
2.60	10.17	71.47	100.00	16.36			0.00	28.05	

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - E LOWER

SAMPLE ID - 24

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION	SIZE (MM)		0.15 X		0.00		RELATIVE WEIGHT % -		5.18 ASH % - 24.68	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
30.00	79.61	12.84	79.61	12.84	20.39	64.32	30.52	30.52		
45.00	7.18	37.58	86.79	14.89	13.21	78.86	20.05	29.65		
60.00	1.56	62.69	88.35	15.73	11.65	81.02	9.43	29.30		
300.00	11.65	81.02	100.00	23.34			0.00	25.88		

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003

SAMPLE ID 24 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP3

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.62	57.89	48.14
0.60	0.15	2.19	88.82	10.36

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82003

SAMPLE ID 24 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %<AD,AR>	---	TOTAL SULPHUR %	---
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE <AD,EM>	0.63	SPECIFIC GRAVITY	1.44
ASH %	10.70	FSI	---
VOLATILE MATTER %	8.41	HGI	43.0
FIXED CARBON %	80.26	CO2 %	---

GROSS CALORIFIC VALUE (MJ/KG) 30.65
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 24 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.63
CARBON	%	80.44
HYDROGEN	%	3.09
SULPHUR	%	0.43
NITROGEN	%	1.03
ASH	%	10.70
OXYGEN	%	3.68

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH82003

SAMPLE ID 24
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 08/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1180.0
SOFTENING TEMP.(C) 1235.0
HEMISPHERICAL TEMP.(C) 1245.0
FLUID TEMP.(C) 1270.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1170.0
SOFTENING TEMP.(C) 1230.0
HEMISPHERICAL TEMP.(C) 1245.0
FLUID TEMP.(C) 1260.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH82003

SAMPLE ID 24
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE % (SI02) 46.75
ALUMINIUM OXIDE % (AL2O3) 20.30
FERRIC OXIDE % (FE2O3) 9.53
TITANIUM DIOXIDE % (TI02) 1.05
PHOSPHOROUS PENTOXIDE % (P2O5) 3.62
CALCIUM OXIDE % (CAO) 7.51
MAGNESIUM OXIDE % (MGO) 1.70
SULPHUR TRIOXIDE % (SO3) 3.06
SODIUM OXIDE % (NA2O) 1.70
POTASSIUM OXIDE % (K2O) 0.68

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH82003

SAMPLE ID 24
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE % 5.00
SULPHATE % 2.00
ORGANIC % 93.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003

SAMPLE ID 24 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ----

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.30	89.59	74.50
0.60	0.15	2.60	100.00	11.66
0.15	0.00	300.00	100.00	5.18

GCRI COAL DIVISION COALCOMP PROJ KPN BLK HC DS DDH82003

SAMPLE ID 24 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP4 DATE ANALYSED 16/11/82
SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	----	TOTAL SULPHUR %	0.47
TOTAL MOISTURE % (AR)	----	PHOSPHOROUS %	-----
EQUILIBRIUM MOISTURE %	----	CHLORINE (PPM)	03000
RESIDUAL MOISTURE (AD,EM)	0.77	SPECIFIC GRAVITY	1.60
ASH %	21.15	FSI	----
VOLATILE MATTER %	11.07	HGI	48.0
FIXED CARBON %	67.01	CO2 %	4.39

GROSS CALORIFIC VALUE (MJ/KG) 25.78
NET CALORIFIC VALUE (MJ/KG) ----

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH82003

SAMPLE ID 24 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP4 DATE ANALYSED 24/11/82
SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.77
CARBON	%	69.39
HYDROGEN	%	2.41
SULPHUR	%	0.47
NITROGEN	%	0.81
ASH	%	21.07
OXYGEN	%	5.08

Vitrinite Reflectance Data For
Gulf Canada Resources Inc.
Sample #4979
Pellet #1

OBSERVATION
NUMBER

R_{MAX}
VALUE

OBSERVATION
NUMBER

R_{MAX}
VALUE

1 3.39
2 3.36
3 3.36
4 3.35
5 3.44
6 3.32
7 3.42
8 3.36
9 3.43
10 3.36
11 3.34
12 3.29
13 3.47
14 3.46
15 3.38
16 3.34
17 3.33
18 3.38
19 3.48
20 3.45
21 3.37
22 3.38
23 3.38
24 3.32
25 3.30

26 3.37
27 3.40
28 3.60
29 3.60
30 3.48
31 3.27
32 3.47
33 3.38
34 3.45
35 3.37
36 3.48
37 3.24
38 3.32
39 3.40
40 3.50
41 3.36
42 3.32
43 3.44
44 3.33
45 3.60
46 3.32
47 3.38
48 3.41
49 3.37
50 3.44

Gulf Canada Resources Inc.
 Sample #4979
 Pellet #1

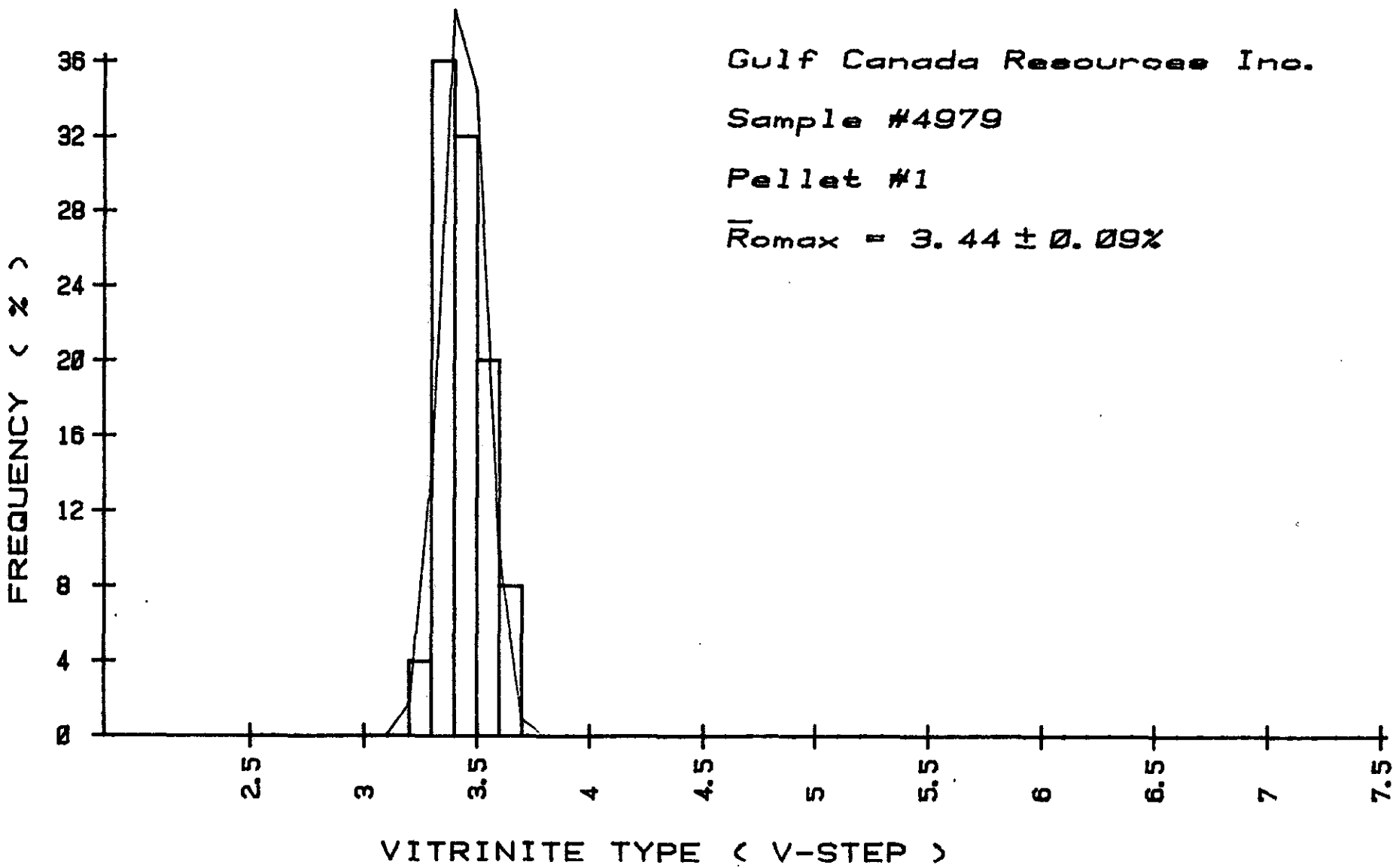
BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.44
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION	2.74
VARIANCE	0.0089
STANDARD DEVIATION	0.0944
SKEWNESS	0.3259
KURTOSIS	2.4794

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
8	3.20	2	4.00
9	3.30	18	36.00
10	3.40	16	32.00
11	3.50	10	20.00
12	3.60	4	8.00

VITRINITE FREQUENCY DISTRIBUTION



Results Of Maceral Analysis For
 Gulf Canada Resources Inc.
 #4979
 Semifusinite - KOENSLER method

COUNT #	1	2	3	4	5	6	7	8	9	10
VITRINITE	76.0	70.0	77.0	62.0	63.0	67.0	69.0	70.0	79.0	70.0
EXINITE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REACTIVE SEMIF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL REACTIVE	76.0	70.0	77.0	62.0	63.0	67.0	69.0	70.0	79.0	70.0
MACRINITE	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0
INERT SEMIFUSI	20.0	26.0	21.0	33.0	31.0	27.0	28.0	29.0	20.0	24.0
FUSINITE	3.0	1.0	2.0	2.0	6.0	3.0	2.0	1.0	1.0	6.0
INERTODETRINIT	1.0	3.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0
TOTAL INERTINI	24.0	30.0	23.0	38.0	37.0	33.0	31.0	30.0	21.0	30.0

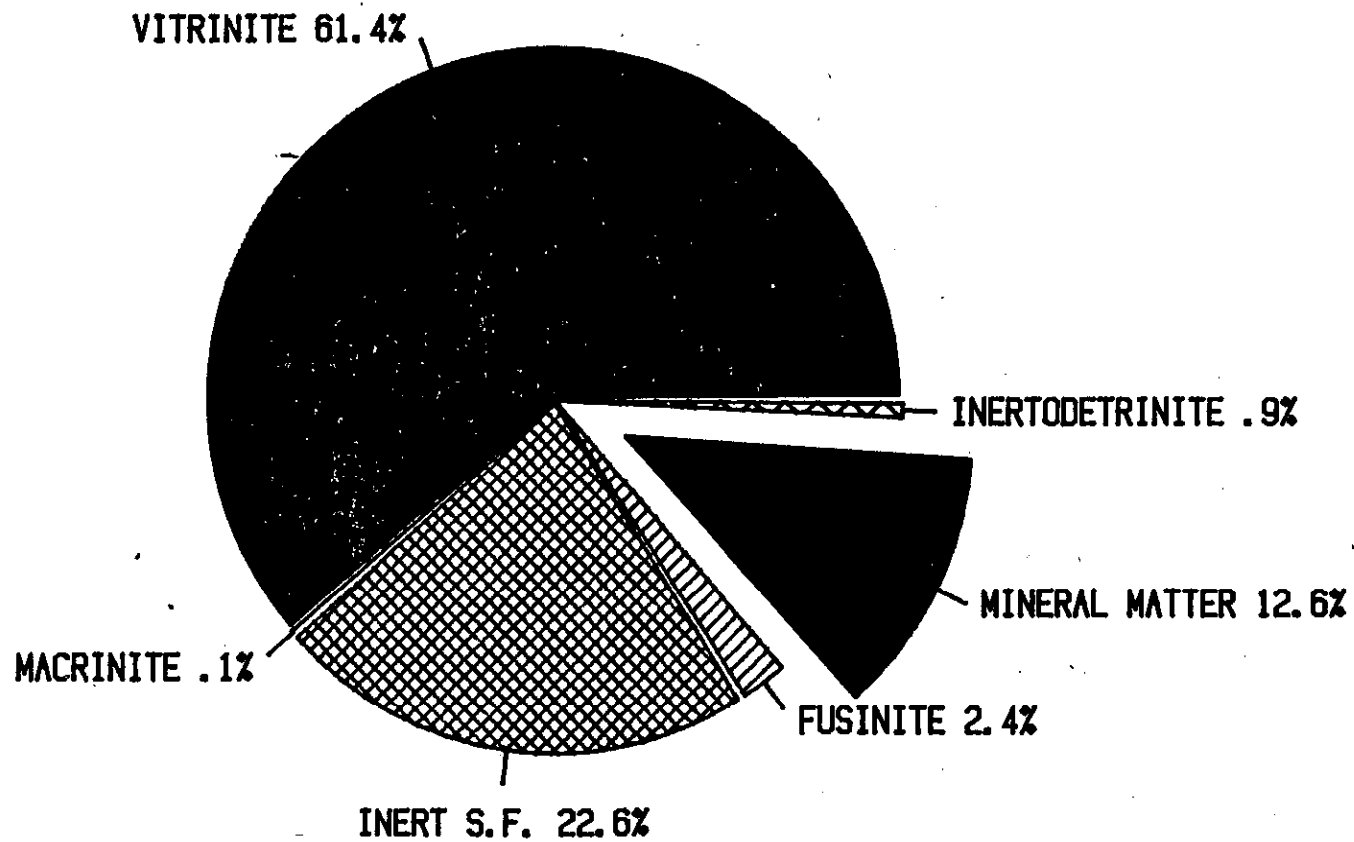
BASIC STATISTICS	MEAN	ST.DEVIATION	VARIANCE
VITRINITE	70.3	5.7	32.0
EXINITE	0.0	0.0	0.0
REACTIVE SEMIFUSINITE	0.0	0.0	0.0
TOTAL REACTIVES	70.3	5.7	32.0
MACRINITE	0.1	0.3	0.1
INERT SEMIFUSINITE	25.9	4.6	21.0
FUSINITE	2.7	1.9	3.6
INERTODETRINITE	1.0	1.4	2.0
TOTAL INERTINITES	29.7	5.7	32.0

MACERAL DATA CORRECTED FOR MINERAL-MATTER CONTENT

VITRINITE	61.4
EXINITE	0.0
REACTIVE SEMIFUSINITE	0.0
TOTAL REACTIVES	61.4
MACRINITE	0.1
INERT SEMIFUSINITE	22.6
FUSINITE	2.4
INERTODETRINITE	0.9
MINERAL MATTER	12.6
TOTAL INERTS	38.6

MACERAL DISTRIBUTION

Gulf Sample #4979
Semifusinite - KOENSLER method



GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82004 SEAM - G

SAMPLE ID - 3508

WASHABILITY ID - WA1

FRACTION	ANALYSIS TYPE - FLOAT		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
	SIZE (MM)	9.53 X	0.00	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V.	CUM.	C.V.
S.G.TME									(MJ/KG)			
1.70	38.27	11.50	38.27	11.50	61.73	62.45	30.29	30.29				
2.60	61.73	62.45	100.00	42.95			8.34	16.74				

GCRI COAL DIVISION	HEAD	PROJ	KPN	BLK	BC	DS	DDH82004		
=====	=====	=====	=====	=====	=====	=====	=====		
SAMPLE ID	25	DATA TYPE (REAL,BORO,AVER,CALC)					REAL		
SPLIT SAMPLE ID	HD1	DATE ANALYSED 14/10/82							
		ANALYSIS BASIS TYPE (AD,DB,AR,EM)					AD		
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)		ASTM							
TOP SIZE (MM)		10.00							
SURFACE MOISTURE %<AD,AR>		---			TOTAL SULPHUR %	0.68			
TOTAL MOISTURE %		---			PHOSPHOROUS %	---			
EQUILIBRIUM MOISTURE %		---			CHLORINE (PPM)	00583			
					SPECIFIC GRAVITY	1.85			
RESIDUAL MOISTURE %<AD,EM>		1.63			FSI	---			
ASH %		42.48			HGI	51.0			
VOLATILE MATTER %		12.65			CO2 %	6.74			
FIXED CARBON %		43.24							
GROSS CALORIFIC VALUE (MJ/KG)		15.59							
NET CALORIFIC VALUE (MJ/KG)		---							

GCRI COAL DIVISION	ULTIMATE	PROJ	KPN	BLK	BC	DS	DDH82004	
=====	=====	=====	=====	=====	=====	=====	=====	
SAMPLE ID	25	DATA TYPE (REAL,BORO,AVER,CALC)					REAL	
SAMPLE PRODUCT ID	SP1	DATE ANALYSED 27/10/82						
SPLIT SAMPLE ID	UL1							
ANALYSIS BASIS TYPE (DAF,DB,AD)		AD						
WATER	%	1.63						
CARBON	%	47.81						
HYDROGEN	%	1.77						
SULPHUR	%	0.68						
NITROGEN	%	0.54						
ASH	%	42.48						
OXYGEN	%	5.09						

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDHS2004

SAMPLE ID 25
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
 SOFTENING TEMP.(C) 1255.0
 HEMISPHERICAL TEMP.(C) 1265.0
 FLUID TEMP.(C) 1275.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1140.0
 SOFTENING TEMP.(C) 1200.0
 HEMISPHERICAL TEMP.(C) 1215.0
 FLUID TEMP.(C) 1235.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDHS2004

SAMPLE ID 25
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	42.94
ALUMINIUM OXIDE %	(AL2O3)	21.49
FERRIC OXIDE %	(FE2O3)	10.73
TITANIUM DIOXIDE %	(TI02)	0.77
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.78
CALCIUM OXIDE %	(CAO)	9.15
MAGNESIUM OXIDE %	(MGO)	4.43
SULPHUR TRIOXIDE %	(SO3)	2.87
SODIUM OXIDE %	(NA2O)	1.43
POTASSIUM OXIDE %	(K2O)	0.72

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDHS2004

SAMPLE ID 25
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	63.00
SULPHATE	%	4.00
ORGANIC	%	33.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82004 SEAM - E

SAMPLE ID - 3509

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 x 0.00		RELATIVE WEIGHT % - 100.00				ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		72.01	17.41	72.01	17.41	27.99	51.52	27.79	27.79
2.60		27.99	51.52	100.00	26.96			13.78	23.87

GCRI COAL DIVISION HEAD PROJ KPN BLK BC DS DDH82004

SAMPLE ID 26 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 14/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.56
TOTAL MOISTURE %	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00216
		SPECIFIC GRAVITY	1.61
RESIDUAL MOISTURE % (AD,EM)	1.34	FSI	---
ASH %	27.16	HGI	61.0
VOLATILE MATTER %	7.94	CO2 %	2.25
FIXED CARBON %	63.56		
GROSS CALORIFIC VALUE (MJ/KG)	24.93		
NET CALORIFIC VALUE (MJ/KG)	---		

GCRI COAL DIVISION SIZE PROJ KPN BLK BC DS DDH82004

SAMPLE ID		26	DATA TYPE (REAL,BORO,AVER,CALC)					REAL
SPLIT SAMPLE ID		SZ1	DATE ANALYSED					14/10/82
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS	
FROM (MM)	TO (MM)			(MJ/KG)				
10.00	0.60	73.54	29.00	---	23.67	1.07	8.23	0.56
0.60	0.15	16.93	20.75	---	27.11	1.06	7.41	0.58
0.15	0.00	9.53	25.12	---	24.89	0.95	7.54	0.49

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDH82004

SAMPLE ID 26
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 27/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.34
CARBON	%	65.51
HYDROGEN	%	2.23
SULPHUR	%	0.56
NITROGEN	%	0.80
ASH	%	27.16
OXYGEN	%	2.40

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82004

SAMPLE ID 26
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1190.0
 SOFTENING TEMP.(C) 1220.0
 HEMISPHERICAL TEMP.(C) 1235.0
 FLUID TEMP.(C) 1255.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1185.0
 SOFTENING TEMP.(C) 1220.0
 HEMISPHERICAL TEMP.(C) 1230.0
 FLUID TEMP.(C) 1255.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82004

SAMPLE ID 26
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	51.53
ALUMINIUM OXIDE %	(AL2O3)	17.92
FERRIC OXIDE %	(FE2O3)	7.72
TITANIUM DIOXIDE %	(TI02)	0.66
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.87
CALCIUM OXIDE %	(CAO)	7.25
MAGNESIUM OXIDE %	(MGO)	2.68
SULPHUR TRIOXIDE %	(SO3)	3.71
SODIUM OXIDE %	(NA2O)	1.05
POTASSIUM OXIDE %	(K2O)	0.79

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82004

SAMPLE ID 26
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE	%	30.00
SULPHATE	%	4.00
ORGANIC	%	66.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82004 SEAM - E

SAMPLE ID - 26

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE (MM) 10.00 X		0.60		RELATIVE WEIGHT % - 73.54 ASH % - 29.00		C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
1.40	3.90	4.31	3.90	4.31	96.10	30.12	33.94	33.94
1.50	17.15	11.07	21.05	9.82	78.95	34.26	31.15	31.67
1.60	31.08	17.38	52.13	14.33	47.87	45.21	28.33	29.68
1.70	13.41	27.16	65.54	16.95	34.46	52.24	24.04	28.52
1.80	9.30	34.96	74.84	19.19	25.16	58.62	20.39	27.51
1.90	5.03	41.48	79.87	20.59	20.13	62.91	17.56	26.89
2.00	2.69	42.85	82.56	21.32	17.44	66.00	16.25	26.54
2.10	2.56	47.10	85.12	22.09	14.88	69.25	13.62	26.15
2.20	2.76	50.72	87.88	22.99	12.12	73.48	11.45	25.69
2.30	2.39	59.29	90.27	23.95	9.73	76.96	9.27	25.25
2.60	9.73	76.96	100.00	29.11			4.55	23.24

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE (MM) 0.60 X		0.15		RELATIVE WEIGHT % - 16.93 ASH % - 20.75		C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
1.40	8.49	2.44	8.49	2.44	91.51	20.59	34.67	34.67
1.50	39.95	7.93	48.44	6.97	51.56	30.39	32.17	32.61
1.60	21.92	16.09	70.36	9.81	29.64	40.97	28.58	31.35
1.70	9.95	22.90	80.31	11.43	19.69	50.10	24.95	30.56
1.80	6.70	31.95	87.01	13.01	12.99	59.47	21.54	29.87
1.90	2.20	40.11	89.21	13.68	10.79	63.41	18.67	29.59
2.00	1.42	45.28	90.63	14.17	9.37	66.16	16.18	29.38
2.10	1.28	50.74	91.91	14.68	8.09	68.60	13.83	29.16
2.30	1.53	56.29	93.44	15.37	6.56	71.47	10.64	28.86
2.60	6.56	71.47	100.00	19.05			0.00	26.97

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1.

PAGE -

DATA SOURCE - KPNBCDDH82004 SEAM - E

SAMPLE ID - 26

WASHABILITY ID - WAI

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 9.53 ASH % - 25.12		C.V.	CUM.
	ELEMENTAL		CUM. FLOATS		CUM. SINKS			
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00	81.52	14.32	81.52	14.32	18.48	70.37	29.77	29.77
45.00	3.39	27.78	84.91	14.86	15.09	79.94	24.44	29.56
60.00	1.48	45.95	86.39	15.39	13.61	83.63	17.25	29.35
90.00	1.32	64.88	87.71	16.13	12.29	85.65	9.57	29.05
120.00	1.53	77.89	89.24	17.19	10.76	86.75	6.35	28.66
300.00	10.76	86.75	100.00	24.68			0.00	25.58

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK BC DS DDH82004

SAMPLE ID 26 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.90	79.87	58.74
0.60	0.15	2.10	91.91	15.56
0.15	0.00	120.00	89.24	8.50

GCRI COAL DIVISION COALCOMP PROJ KPN BLK BC DS DDH82004

SAMPLE ID 26 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 16/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.48
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	06837
RESIDUAL MOISTURE (AD,EM)	0.83	SPECIFIC GRAVITY	1.58
ASH %	20.28	FSI	---
VOLATILE MATTER %	9.30	HGI	61.0
FIXED CARBON %	69.59	CO2 %	0.70

GROSS CALORIFIC VALUE (MJ/KG) 26.80
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDH82004

SAMPLE ID 26 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 24/11/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.83
CARBON	%	71.71
HYDROGEN	%	3.00
SULPHUR	%	0.48
NITROGEN	%	0.88
ASH	%	20.28
OXYGEN	%	2.82

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82004

SAMPLE ID 26
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 25/11/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1220.0	INITIAL TEMP.(C)	1210.0
SOFTENING TEMP.(C)	1270.0	SOFTENING TEMP.(C)	1265.0
HEMISPHERICAL TEMP.(C)	1300.0	HEMISPHERICAL TEMP.(C)	1290.0
FLUID TEMP.(C)	1340.0	FLUID TEMP.(C)	1330.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82004

SAMPLE ID 26
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 09/12/82

SILICON DIOXIDE %	(SI02)	52.35
ALUMINIUM OXIDE %	(AL2O3)	23.35
FERRIC OXIDE %	(FE2O3)	5.42
TITANIUM DIOXIDE %	(TI02)	0.74
PHOSPHOROUS PENTOXIDE %	(P2O5)	2.59
CALCIUM OXIDE %	(CAO)	4.74
MAGNESIUM OXIDE %	(MGO)	2.04
SULPHUR TRIOXIDE %	(SO3)	1.69
SODIUM OXIDE %	(NA2O)	0.67
POTASSIUM OXIDE %	(K2O)	1.20

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82004

SAMPLE ID 26
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE	%	8.00
SULPHATE	%	2.00
ORGANIC	%	90.00

TOTAL 100.00

Vitrinite Reflectance Data For
Gulf Canada Resources Inc.
Sample #3509
Pellet #1

OBSERVATION NUMBER	ROMAX VALUE	OBSERVATION NUMBER	ROMAX VALUE
1	3.47	26	3.50
2	3.62	27	3.77
3	3.78	28	3.34
4	3.46	29	3.71
5	3.50	30	3.46
6	3.44	31	3.61
7	3.56	32	3.74
8	3.33	33	3.50
9	3.33	34	3.53
10	3.57	35	3.75
11	3.64	36	3.32
12	3.80	37	3.46
13	3.47	38	3.49
14	3.62	39	3.43
15	3.62	40	3.76
16	3.59	41	3.66
17	3.33	42	3.58
18	3.70	43	3.46
19	3.53	44	3.65
20	3.57	45	3.52
21	3.42	46	3.53
22	3.65	47	3.57
23	3.57	48	3.44
24	3.62	49	3.56
25	3.38	50	3.71

Gulf Canada Resources Inc.
Sample #3509
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.56
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	3.51
VARIANCE	0.0156
STANDARD DEVIATION	0.1249
SKEWNESS	0.0052
KURTOSIS	2.3969

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
9	3.30	5	10.00
10	3.40	11	22.00
11	3.50	15	30.00
12	3.60	10	20.00
13	3.70	8	16.00
14	3.80	1	2.00

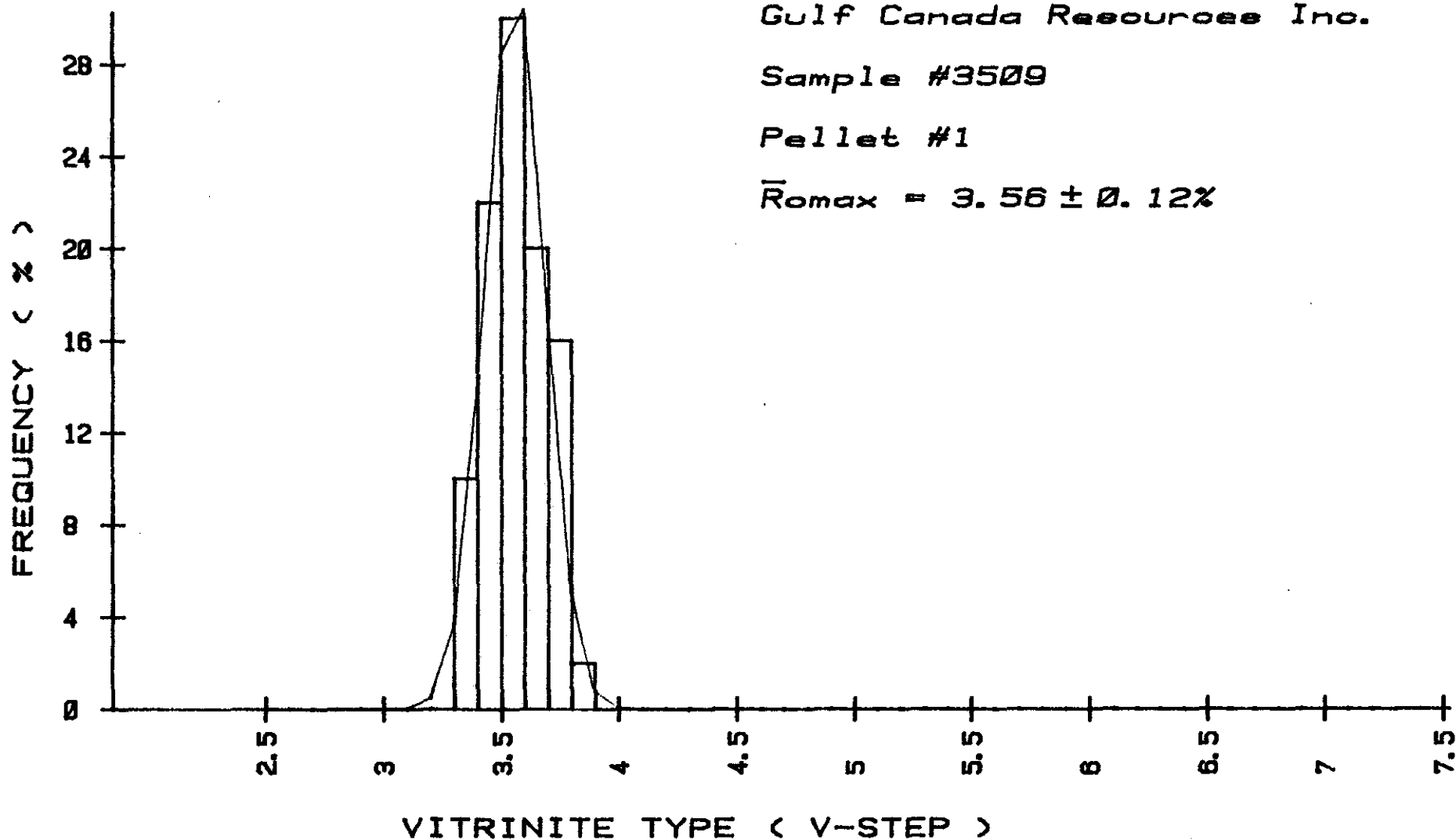
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #3509

Pellet #1

$\bar{R}_{\text{omax}} = 3.56 \pm 0.12\%$



GULF CANADA RESOURCES INC.

SAMPLE # 3509

MINERAL MATTER-DRY LENS				
Calc.	Py	Qu	Sh	Coal.
5	0	5	4	86
5	0	4	7	84
3	0	5	7	85
4	1	4	2	89
5	0	4	8	83

AVERAGE				
4.4	0.2	4.4	5.6	85.4

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82004 SEAM - D

SAMPLE ID - 3510

WASHABILITY ID - WAI

FRACTION	ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00 ASH % -				
	SIZE(MM)	9.53 X		0.00		CUM. SINKS		CUM.	
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.70	54.30	17.42	54.30	17.42	45.70	53.48	26.99	26.99	
2.60	45.70	53.48	100.00	33.90			13.11	20.65	

GCRI COAL DIVISION	HEAD	PROJ	KPN	BLK	BC	DS	DDHS2004
=====							
SAMPLE ID	27	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SPLIT SAMPLE ID	HD1	DATE ANALYSED		14/10/82			
		ANALYSIS BASIS TYPE (AD,DB,AR,EM)				AD	
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM							
TOP SIZE (MM)		10.00					
SURFACE MOISTURE %<AD,AR>		---		TOTAL SULPHUR %		0.43	
TOTAL MOISTURE %		---		PHOSPHOROUS %		---	
EQUILIBRIUM MOISTURE %		---		CHLORINE (PPM)		00359	
				SPECIFIC GRAVITY		1.69	
RESIDUAL MOISTURE %<AD,EM>		1.25		FSI		---	
ASH %		35.82		HGI		101.0	
VOLATILE MATTER %		8.92		CO2 %		3.08	
FIXED CARBON %		54.01					
GROSS CALORIFIC VALUE (MJ/KG)		21.14					
NET CALORIFIC VALUE (MJ/KG)		---					

GCRI COAL DIVISION	ULTIMATE	PROJ	KPN	BLK	BC	DS	DDHS2004
=====							
SAMPLE ID	27	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SAMPLE PRODUCT ID	SP1	DATE ANALYSED		28/10/82			
SPLIT SAMPLE ID	UL1	ANALYSIS BASIS TYPE (DAF,DB,AD)				AD	
WATER	%	1.25					
CARBON	%	57.12					
HYDROGEN	%	2.04					
SULPHUR	%	0.43					
NITROGEN	%	0.67					
ASH	%	35.82					
OXYGEN	%	2.67					

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82004

SAMPLE ID 27
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1245.0
SOFTENING TEMP.(C) 1275.0
HEMISPHERICAL TEMP.(C) 1300.0
FLUID TEMP.(C) 1335.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1195.0
SOFTENING TEMP.(C) 1250.0
HEMISPHERICAL TEMP.(C) 1280.0
FLUID TEMP.(C) 1315.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82004

SAMPLE ID 27
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE % (SI02) 50.62
ALUMINIUM OXIDE % (AL2O3) 19.14
FERRIC OXIDE % (FE2O3) 7.53
TITANIUM DIOXIDE % (TI02) 0.51
PHOSPHOROUS PENTOXIDE % (P2O5) 0.87
CALCIUM OXIDE % (CAO) 6.23
MAGNESIUM OXIDE % (MGO) 4.19
SULPHUR TRIOXIDE % (SO3) 2.26
SODIUM OXIDE % (NA2O) 2.40
POTASSIUM OXIDE % (K2O) 1.35

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82004

SAMPLE ID 27
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 18/11/82

PYRITE % 19.00
SULPHATE % 2.00
ORGANIC % 79.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82004 SEAM - D REPEAT

SAMPLE ID - 3511

WASHABILITY ID - WA1

FRACTION S.G.TME	ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00			
	SIZE (MM) 9.53 X 0.00		CUM. FLOATS		CUM. SINKS		ASH % -	
	ELEMENTAL WT% ASH%		WT% ASH%		WT% ASH%		C.V. CUM.	
1.70	55.41	18.74	55.41	18.74	44.59	63.37	27.39	27.39
2.60	44.59	63.37	100.00	38.64			9.36	19.35

GCRI COAL DIVISION	HEAD	PROJ	KPN	BLK	BC	DS	DDHB2004
=====							
SAMPLE ID	28	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SPLIT SAMPLE ID	HD1	DATE ANALYSED 14/10/82					
		ANALYSIS BASIS TYPE (AD,DB,AR,EM)				AD	
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)		ASTM					
TOP SIZE (MM)		10.00					
SURFACE MOISTURE %<AD,AR>		---		TOTAL SULPHUR %	0.39		
TOTAL MOISTURE %		---		PHOSPHOROUS %	---		
EQUILIBRIUM MOISTURE %		---		CHLORINE (PPM)	00109		
				SPECIFIC GRAVITY	1.71		
RESIDUAL MOISTURE %<AD,EM>		1.47		FSI	---		
ASH %		38.69		HGI	61.0		
VOLATILE MATTER %		8.03		CO2 %	2.58		
FIXED CARBON %		51.81					
GROSS CALORIFIC VALUE (MJ/KG)		19.25					
NET CALORIFIC VALUE (MJ/KG)		---					

GCRI COAL DIVISION	ULTIMATE	PROJ	KPN	BLK	BC	DS	DDHB2004
=====							
SAMPLE ID	28	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SAMPLE PRODUCT ID	SP1	DATE ANALYSED 28/10/82					
SPLIT SAMPLE ID	UL1						
ANALYSIS BASIS TYPE (DAF,DB,AD)		AD					
WATER	%	1.47					
CARBON	%	52.03					
HYDROGEN	%	1.60					
SULPHUR	%	0.39					
NITROGEN	%	0.84					
ASH	%	38.69					
OXYGEN	%	4.98					

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82004

SAMPLE ID 28
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1270.0
SOFTENING TEMP.(C) 1300.0
HEMISPHERICAL TEMP.(C) 1325.0
FLUID TEMP.(C) 1385.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1235.0
SOFTENING TEMP.(C) 1275.0
HEMISPHERICAL TEMP.(C) 1305.0
FLUID TEMP.(C) 1340.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82004

SAMPLE ID 28
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE % (SI02) 53.32
ALUMINIUM OXIDE % (AL2O3) 20.30
FERRIC OXIDE % (FE2O3) 5.69
TITANIUM DIOXIDE % (TI02) 0.53
PHOSPHOROUS PENTOXIDE % (P2O5) 0.83
CALCIUM OXIDE % (CAO) 5.56
MAGNESIUM OXIDE % (MGO) 3.51
SULPHUR TRIOXIDE % (S03) 2.57
SODIUM OXIDE % (NA2O) 1.94
POTASSIUM OXIDE % (K2O) 1.43

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82004

SAMPLE ID 28
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE % 10.00
SULPHATE % 3.00
ORGANIC % 87.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82004 SEAM - E REPEAT

SAMPLE ID - 3512

WASHABILITY ID - WA1

FRACTION	ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -	
	SIZE (MM)	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	C.V.
S.G.TME	9.53 X	0.00	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	67.02	16.62	67.02	16.62	32.98	49.79	27.89	27.89		
2.60	32.98	49.79	100.00	27.56			14.39	23.44		

GCRI COAL DIVISION	HEAD	PROJ	KPN	BLK	BC	DS	DDHS2004
=====							
SAMPLE ID	29	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SPLIT SAMPLE ID	HD1	DATE ANALYSED 14/10/82					
		ANALYSIS BASIS TYPE (AD,DB,AR,EM)				AD	
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM							
TOP SIZE (MM)		10.00					
SURFACE MOISTURE %<AD,AR>		---		TOTAL SULPHUR %		0.72	
TOTAL MOISTURE %		---		PHOSPHOROUS %		---	
EQUILIBRIUM MOISTURE %		---		CHLORINE (PPM)		00117	
				SPECIFIC GRAVITY		1.64	
RESIDUAL MOISTURE %<AD,EM>		1.10		FSI		---	
ASH %		28.37		HGI		61.0	
VOLATILE MATTER %		9.34		CO2 %		2.92	
FIXED CARBON %		61.19					
GROSS CALORIFIC VALUE (MJ/KG)		24.11					
NET CALORIFIC VALUE (MJ/KG)		---					

GCRI COAL DIVISION	ULTIMATE	PROJ	KPN	BLK	BC	DS	DDHS2004
=====							
SAMPLE ID	29	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SAMPLE PRODUCT ID	SP1	DATE ANALYSED 28/10/82					
SPLIT SAMPLE ID	UL1	ANALYSIS BASIS TYPE (DAF,DB,AD)				AD	
WATER	%	1.10					
CARBON	%	64.54					
HYDROGEN	%	2.46					
SULPHUR	%	0.72					
NITROGEN	%	0.72					
ASH	%	28.37					
OXYGEN	%	2.09					

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82004

SAMPLE ID 29
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1220.0
 SOFTENING TEMP.(C) 1260.0
 HEMISPHERICAL TEMP.(C) 1270.0
 FLUID TEMP.(C) 1315.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1150.0
 SOFTENING TEMP.(C) 1165.0
 HEMISPHERICAL TEMP.(C) 1175.0
 FLUID TEMP.(C) 1220.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82004

SAMPLE ID 29
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	45.93
ALUMINIUM OXIDE %	(AL2O3)	18.18
FERRIC OXIDE %	(FE2O3)	12.89
TITANIUM DIOXIDE %	(TI02)	0.42
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.70
CALCIUM OXIDE %	(CAO)	6.64
MAGNESIUM OXIDE %	(MGO)	4.09
SULPHUR TRIOXIDE %	(SO3)	3.97
SODIUM OXIDE %	(NA2O)	0.76
POTASSIUM OXIDE %	(K2O)	0.90

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82004

SAMPLE ID 29
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	50.00
SULPHATE	%	1.00
ORGANIC	%	49.00

TOTAL 100.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPDLRDDH82005 SEAM - I

SAMPLE ID - 4884

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT											
FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		C.V.
1.70		86.25	7.69	86.25	7.69	13.75	54.81	32.23		32.23	
2.60		13.75	54.81	100.00	14.17			10.37		29.22	

=====
 GCRI COAL DIVISION HEAD PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 30 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 25/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 10.00
 SURFACE MOISTURE % (AD,AR) ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE % (AD,EM) 2.52
 ASH % 14.21
 VOLATILE MATTER % 7.44
 FIXED CARBON % 75.83
 TOTAL SULPHUR % 0.44
 PHOSPHOROUS % ---
 CHLORINE (PPM) 00714
 SPECIFIC GRAVITY 1.49
 FSI ---
 HGI 35.0
 CO2 % 1.89
 GROSS CALORIFIC VALUE (MJ/KG) ---
 NET CALORIFIC VALUE (MJ/KG) ---

=====
 GCRI COAL DIVISION SIZE PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 30 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 25/10/82
 FRACTION SIZE WT% ASH% FSI CAL RM VM TS
 (MM) TO (MM) (MJ/KG)
 10.00 0.60 87.18 13.78 --- 29.64 1.39 7.26 0.43
 0.60 0.15 8.66 19.59 --- 27.03 1.46 8.29 0.42
 0.15 0.00 4.16 29.16 --- 22.62 0.98 9.16 0.46

=====
 GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 30
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 01/11/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER % 2.52
 CARBON % 78.07
 HYDROGEN % 2.31
 SULPHUR % 0.44
 NITROGEN % 0.81
 ASH % 14.21
 OXYGEN % 1.64

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 30
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1225.0
SOFTENING TEMP.(C) 1245.0
HEMISPHERICAL TEMP.(C) 1270.0
FLUID TEMP.(C) 1305.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1170.0
SOFTENING TEMP.(C) 1185.0
HEMISPHERICAL TEMP.(C) 1205.0
FLUID TEMP.(C) 1235.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 30
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE % (SI02) 45.31
ALUMINIUM OXIDE % (AL2O3) 22.75
FERRIC OXIDE % (FE2O3) 10.78
TITANIUM DIOXIDE % (TI02) 0.58
PHOSPHOROUS PENTOXIDE % (P2O5) 1.78
CALCIUM OXIDE % (CAO) 7.18
MAGNESIUM OXIDE % (MGO) 4.68
SULPHUR TRIOXIDE % (SO3) 5.07
SODIUM OXIDE % (NA2O) 0.76
POTASSIUM OXIDE % (K2O) 0.94

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 30
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE % 7.00
SULPHATE % 2.00
ORGANIC % 91.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNLRDDH82005 SEAM - I

SAMPLE ID - 30

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT										
FRACTION	SIZE(MM)	10.00	X	0.60	RELATIVE WEIGHT % - 87.18					ASH % - 13.78
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.		
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.40	0.61	1.78	0.61	1.78	99.39	11.76	34.72		34.72	
1.50	79.32	5.11	79.93	5.08	20.07	38.02	33.38		33.39	
1.60	7.07	16.53	87.00	6.01	13.00	49.70	28.65		33.01	
1.70	1.85	26.53	88.85	6.44	11.15	53.55	24.30		32.82	
1.80	1.75	35.17	90.60	7.00	9.40	56.97	20.34		32.58	
1.90	1.24	39.70	91.84	7.44	8.16	59.59	18.89		32.40	
2.00	1.27	45.50	93.11	7.96	6.89	62.19	14.92		32.16	
2.10	1.08	50.78	94.19	8.45	5.81	64.31	12.71		31.94	
2.20	0.31	53.79	94.50	8.60	5.50	64.91	10.21		31.87	
2.30	0.65	59.97	95.15	8.95	4.85	65.57	10.09		31.72	
2.60	4.85	65.57	100.00	11.69			3.77		30.36	

ANALYSIS TYPE - FLOAT										
FRACTION	SIZE(MM)	0.60	X	0.15	RELATIVE WEIGHT % - 8.66					ASH % - 19.59
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.		
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.40	3.73	1.21	3.73	1.21	96.27	18.50	34.48		34.48	
1.50	62.99	4.71	66.72	4.51	33.28	44.60	33.24		33.31	
1.60	10.55	17.34	77.27	6.27	22.73	57.26	28.16		32.61	
1.70	3.21	25.73	80.48	7.04	19.52	62.44	24.66		32.29	
2.10	5.61	42.31	86.09	9.34	13.91	70.56	17.92		31.35	
2.60	13.91	70.56	100.00	17.86			0.14		27.01	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNLRDDH82005 SEAM - I

SAMPLE ID - 30

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 4.16 ASH % - 29.16			
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00	75.61	15.89	75.61	15.89	24.39	65.28	27.96	27.96
45.00	2.05	38.69	77.66	16.49	22.34	67.72	18.97	27.72
60.00	1.74	54.03	79.40	17.31	20.60	68.88	13.00	27.40
90.00	2.51	61.39	81.91	18.67	18.09	69.92	9.16	26.84
120.00	2.02	66.94	83.93	19.83	16.07	70.29	6.70	26.36
300.00	16.07	70.29	100.00	27.94			5.27	22.97

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK LR DS DDH82005

SAMPLE ID 30 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP2

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.50	78.34	68.30
0.60	0.15	1.53	69.89	6.05

GCRI COAL DIVISION COALCOMP PROJ KPN BLK LR DS DDH82005

SAMPLE ID 30 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP2 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % <AD,AR>	---	TOTAL SULPHUR %	0.39
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE <AD,EM>	0.48	SPECIFIC GRAVITY	1.40
ASH %	5.24	FSI	---
VOLATILE MATTER %	5.15	HGI	33.0
FIXED CARBON %	89.13	CO2 %	0.17

GROSS CALORIFIC VALUE (MJ/KG) 32.67
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005

SAMPLE ID 30 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP2 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF, DB, AD) AD

WATER	%	0.48
CARBON	%	88.80
HYDROGEN	%	2.76
SULPHUR	%	0.39
NITROGEN	%	1.16
ASH	%	5.68
OXYGEN	%	0.73

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 30
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 09/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
SOFTENING TEMP.(C) 1435.0
HEMISPHERICAL TEMP.(C) 1475.0
FLUID TEMP.(C) 1500.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
SOFTENING TEMP.(C) 1425.0
HEMISPHERICAL TEMP.(C) 1460.0
FLUID TEMP.(C) 1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 30
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 21/12/82

SILICON DIOXIDE % (SI02) 49.14
ALUMINIUM OXIDE % (AL2O3) 30.50
FERRIC OXIDE % (FE2O3) 2.70
TITANIUM DIOXIDE % (TI02) 1.20
PHOSPHOROUS PENTOXIDE % (P2O5) 3.81
CALCIUM OXIDE % (CAO) 3.69
MAGNESIUM OXIDE % (MGO) 0.38
SULPHUR TRIOXIDE % (SO3) 0.94
SODIUM OXIDE % (NA2O) 1.22
POTASSIUM OXIDE % (K2O) 0.83

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 30
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE % 3.00
SULPHATE % 3.00
ORGANIC % 94.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK LR DS DDH82005

SAMPLE ID 30 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) 10.02

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.60	100.00	87.18
0.60	0.15	2.60	100.00	8.66
0.15	0.00	300.00	100.00	4.16

GCRI COAL DIVISION COALCOMP PROJ KPN BLK LR DS DDH82005

SAMPLE ID 30 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 25/10/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %<AD,AR>	---	TOTAL SULPHUR %	---
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00714
RESIDUAL MOISTURE (AD,EM)	2.52	SPECIFIC GRAVITY	---
ASH %	14.21	FSI	---
VOLATILE MATTER %	7.44	HGI	35.0
FIXED CARBON %	75.83	CO2 %	---
GROSS CALORIFIC VALUE (MJ/KG)	---		
NET CALORIFIC VALUE (MJ/KG)	---		

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005

SAMPLE ID 30 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 01/11/82
 SPLIT SAMPLE ID UL1 ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	2.52
CARBON	%	78.07
HYDROGEN	%	2.59
SULPHUR	%	0.44
NITROGEN	%	0.81
ASH	%	14.21
OXYGEN	%	3.88

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDHB2005

SAMPLE ID 30
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1225.0
SOFTENING TEMP.(C) 1245.0
HEMISPHERICAL TEMP.(C) 1270.0
FLUID TEMP.(C) 1305.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1170.0
SOFTENING TEMP.(C) 1185.0
HEMISPHERICAL TEMP.(C) 1205.0
FLUID TEMP.(C) 1235.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDHB2005

SAMPLE ID 30
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE % (SI02) 45.31
ALUMINIUM OXIDE % (AL2O3) 22.75
FERRIC OXIDE % (FE2O3) 10.78
TITANIUM DIOXIDE % (TI02) 0.58
PHOSPHOROUS PENTOXIDE % (P2O5) 1.78
CALCIUM OXIDE % (CAO) 7.18
MAGNESIUM OXIDE % (MGO) 4.68
SULPHUR TRIOXIDE % (SO3) 5.07
SODIUM OXIDE % (NA2O) 0.76
POTASSIUM OXIDE % (K2O) 0.94

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDHB2005

SAMPLE ID 30
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE % 7.00
SULPHATE % 2.00
ORGANIC % 91.00

TOTAL 100.00

Gulf Canada Resources Inc.
Sample #4884
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS 50
MEAN MAXIMUM REFLECTANCE

OF VITRINITE% 3.97
STANDARD ERROR OF THE MEAN 0.02
COEFFICIENT OF VARIATION% 3.24
VARIANCE 0.0166
STANDARD DEVIATION 0.1288
SKEWNESS -0.1144
KURTOSIS 2.2298

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
6	3.70	5	10.00
7	3.80	10	20.00
8	3.90	10	20.00
9	4.00	15	30.00
10	4.10	8	16.00
11	4.20	2	4.00

Results Of Maceral Analysis For
 Gulf Canada Resources Inc.
 #4884
 Semifusinite - KOENSLER method

COUNT #	1	2	3	4	5	6	7	8	9	10
VITRINITE	66.0	65.0	68.0	70.0	70.0	65.0	66.0	68.0	76.0	69.0
EXINITE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REACTIVE SEMIF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL REACTIVE	66.0	65.0	68.0	70.0	70.0	65.0	66.0	68.0	76.0	69.0
MACRINITE	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
INERT SEMIFUSI	31.0	29.0	29.0	23.0	25.0	33.0	28.0	27.0	24.0	29.0
FUSINITE	3.0	6.0	3.0	7.0	4.0	2.0	6.0	5.0	0.0	2.0
INERTODETRINIT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL INERTINI	34.0	35.0	32.0	30.0	30.0	35.0	34.0	32.0	24.0	31.0

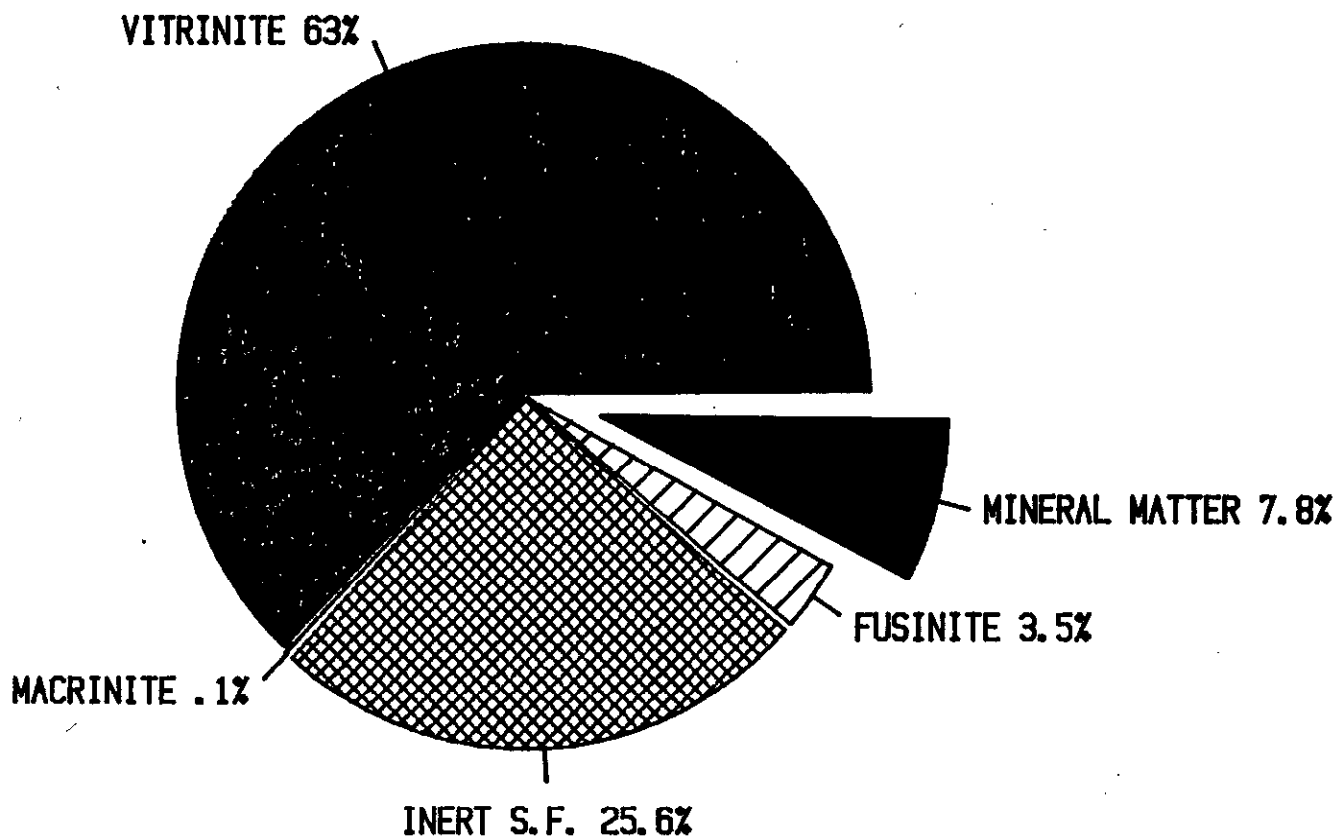
BASIC STATISTICS	MEAN	ST.DEVIATION	VARIANCE
VITRINITE	68.3	3.3	10.9
EXINITE	0.0	0.0	0.0
REACTIVE SEMIFUSINITE	0.0	0.0	0.0
TOTAL REACTIVES	68.3	3.3	10.9
MACRINITE	0.1	0.3	0.1
INERT SEMIFUSINITE	27.8	3.1	9.7
FUSINITE	3.8	2.2	4.8
INERTODETRINITE	0.0	0.0	0.0
TOTAL INERTINITES	31.7	3.3	10.9

MACERAL DATA CORRECTED FOR MINERAL-MATTER CONTENT

VITRINITE	63.0
EXINITE	0.0
REACTIVE SEMIFUSINITE	0.0
TOTAL REACTIVES	63.0
MACRINITE	0.1
INERT SEMIFUSINITE	25.6
FUSINITE	3.5
INERTODETRINITE	0.0
MINERAL MATTER	7.8
TOTAL INERTS	37.0

MACERAL DISTRIBUTION

Gulf Sample #4884
Semifusinite - KOENSLER method



David E. Pearson & Associates Ltd.

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPDLRDDH82005 SEAM - I

SAMPLE ID - 4885

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT		9.53 X		0.00		RELATIVE WEIGHT % - 100.00 ASH % -			
FRACTION	SIZE (MM)	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		28.08	16.58	28.08	16.58	71.92	69.96	28.54	28.54
2.60		71.92	69.96	100.00	54.97			6.48	12.67

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNLRDDH82005 SEAM - I

SAMPLE ID - 4886

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	74.15	19.03	74.15	19.03	25.85	60.67	27.88	27.88
2.60	25.85	60.67	100.00	29.79			10.26	23.33

GCRI COAL DIVISION HEAD PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 25/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM;JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %<AD,AR>	---	TOTAL SULPHUR %	0.34
TOTAL MOISTURE %	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00529
		SPECIFIC GRAVITY	1.65
RESIDUAL MOISTURE %<AD,EM>	2.46	FSI	---
ASH %	34.58	HGI	44.0
VOLATILE MATTER %	7.34	CO2 %	1.67
FIXED CARBON %	55.62		
GROSS CALORIFIC VALUE (MJ/KG)	---		
NET CALORIFIC VALUE (MJ/KG)	---		

GCRI COAL DIVISION SIZE PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 25/10/82

FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS
MM (MM) TO (MM)				(MJ/KG)			
10.00 0.60	83.72	32.71	---	22.02	1.31	7.08	0.34
0.60 0.15	10.59	42.77	---	16.91	1.88	7.79	0.30
0.15 0.00	5.69	46.27	---	16.25	1.26	7.92	0.32

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 28/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	2.46
CARBON	%	59.81
HYDROGEN	%	1.89
SULPHUR	%	0.34
NITROGEN	%	0.67
ASH	%	34.58
OXYGEN	%	0.25

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1270.0
SOFTENING TEMP.(C) 1385.0
HEMISPHERICAL TEMP.(C) 1420.0
FLUID TEMP.(C) 1470.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1205.0
SOFTENING TEMP.(C) 1325.0
HEMISPHERICAL TEMP.(C) 1370.0
FLUID TEMP.(C) 1430.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE % (SI02) 58.20
ALUMINIUM OXIDE % (AL2O3) 26.29
FERRIC OXIDE % (FE2O3) 5.29
TITANIUM DIOXIDE % (TI02) 0.43
PHOSPHOROUS PENTOXIDE % (P2O5) 0.25
CALCIUM OXIDE % (CAO) 1.76
MAGNESIUM OXIDE % (MGO) 2.82
SULPHUR TRIOXIDE % (SO3) 1.70
SODIUM OXIDE % (NA2O) 1.35
POTASSIUM OXIDE % (K2O) 0.98

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE % 12.00
SULPHATE % 3.00
ORGANIC % 85.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KP NL RDDH82005 SEAM - I

SAMPLE ID - 31

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE (MM) 10.00 X 0.60		ELEMENTAL		CUM. FLOATS		RELATIVE WEIGHT % - 83.72 ASH % - 34.45		CUM. C.V.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)		
1.40	0.20	2.01	0.20	2.01	99.80	31.45			
1.50	45.38	6.83	45.58	6.81	54.42	51.99	32.93	32.79	
1.60	13.89	16.96	59.47	9.18	40.53	63.99	28.63	31.81	
1.70	6.48	27.95	65.95	11.02	34.05	70.85	24.00	31.05	
1.80	3.59	36.92	69.54	12.36	30.46	74.85	20.56	30.51	
1.90	2.38	42.24	71.92	13.35	28.08	77.62	17.99	30.09	
2.00	2.01	49.74	73.93	14.34	26.07	79.77	15.49	29.69	
2.10	1.28	53.79	75.21	15.01	24.79	81.11	12.85	29.41	
2.20	1.29	60.75	76.50	15.78	23.50	82.22	10.26	29.08	
2.30	1.39	66.24	77.89	16.68	22.11	83.23	8.68	28.72	
2.60	22.11	83.23	100.00	31.40			0.00	22.37	

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE (MM) 0.60 X 0.15		ELEMENTAL		CUM. FLOATS		RELATIVE WEIGHT % - 10.59 ASH % - 42.77		CUM. C.V.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)		
1.40	0.20	1.20	0.20	1.20	99.80	42.30			
1.50	34.36	6.23	34.56	6.20	65.44	61.23	32.63	32.44	
1.60	11.09	16.33	45.65	8.66	54.35	70.39	27.47	31.23	
1.70	5.47	24.33	51.12	10.34	48.88	75.55	25.08	30.58	
1.80	3.81	33.48	54.93	11.94	45.07	79.11	21.40	29.94	
1.90	2.87	48.89	57.80	13.78	42.20	81.16	15.25	29.21	
2.10	2.96	54.88	60.76	15.78	39.24	83.14	14.11	28.47	
2.30	2.16	65.17	62.92	17.48	37.08	84.19	9.18	27.81	
2.60	37.08	84.19	100.00	42.21			0.00	17.50	

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPCLRDDH82005 SEAM - I

SAMPLE ID - 31

WASHABILITY ID - WA1

FRACTION SIZE (MM)		ANALYSIS TYPE - FROTH				RELATIVE WEIGHT % - 5.69 ASH % - 46.27			
S.G.TME	0.15 X ELEMENTAL WT% ASH%	0.00 CUM. FLUATS		CUM. SINKS		C.V.		CUM. C.V.	
		WT%	ASH%	WT%	ASH%	(MJ/KG)			
30.00	59.92 23.16	59.92	23.16	40.08	78.49	26.04	26.04		
45.00	3.58 59.78	63.50	25.22	36.50	80.32	9.70	25.12		
60.00	2.08 69.26	65.58	26.62	34.42	80.99	7.56	24.56		
90.00	3.30 73.05	68.88	28.85	31.12	81.83	5.91	23.67		
120.00	2.87 78.80	71.75	30.84	28.25	82.14	3.70	22.87		
300.00	28.25 82.14	100.00	45.33			0.64	16.59		

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP3

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.65	62.39	52.23
0.60	0.15	1.68	50.03	5.30

GCRI COAL DIVISION COALCOMP PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.31
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	0.64	SPECIFIC GRAVITY	1.46
ASH %	9.88	FSI	---
VOLATILE MATTER %	5.68	HGI	39.0
FIXED CARBON %	83.80	CO2 %	0.20

GROSS CALORIFIC VALUE (MJ/KG) 30.92
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.64
CARBON	%	84.00
HYDROGEN	%	2.71
SULPHUR	%	0.31
NITROGEN	%	0.91
ASH	%	9.88
OXYGEN	%	1.55

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 09/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1190.0
SOFTENING TEMP.(C) 1485.0
HEMISPHERICAL TEMP.(C) 1500.0
FLUID TEMP.(C) 1500.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1190.0
SOFTENING TEMP.(C) 1475.0
HEMISPHERICAL TEMP.(C) 1495.0
FLUID TEMP.(C) 1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 21/12/82

SILICON DIOXIDE % (SI02) 65.93
ALUMINIUM OXIDE % (AL2O3) 22.05
FERRIC OXIDE % (FE2O3) 1.92
TITANIUM DIOXIDE % (TI02) 0.75
PHOSPHOROUS PENTOXIDE % (P2O5) 0.52
CALCIUM OXIDE % (CAO) 0.92
MAGNESIUM OXIDE % (MGO) 0.76
SULPHUR TRIOXIDE % (SO3) 0.77
SODIUM OXIDE % (NA2O) 1.14
POTASSIUM OXIDE % (K2O) 0.79

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE % 3.00
SULPHATE % 3.00
ORGANIC % 94.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.30	77.89	65.21
0.60	0.15	2.30	62.92	6.66
0.15	0.00	120.00	71.75	4.08

GCRI COAL DIVISION COALCOMP PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 25/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.46
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	04588
RESIDUAL MOISTURE (AD,EM)	1.60	SPECIFIC GRAVITY	1.49
ASH %	17.06	FSI	---
VOLATILE MATTER %	7.03	HGI	39.0
FIXED CARBON %	74.31	CO2 %	0.49

GROSS CALORIFIC VALUE (MJ/KG) 27.84
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.60
CARBON	%	76.38
HYDROGEN	%	2.53
SULPHUR	%	0.46
NITROGEN	%	0.84
ASH	%	17.06
OXYGEN	%	1.13

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 25/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1310.0
 SOFTENING TEMP.(C) 1450.0
 HEMISPHERICAL TEMP.(C) 1470.0
 FLUID TEMP.(C) 1500.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1300.0
 SOFTENING TEMP.(C) 1450.0
 HEMISPHERICAL TEMP.(C) 1460.0
 FLUID TEMP.(C) 1500.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 09/12/82

SILICON DIOXIDE %	(SI02)	69.53
ALUMINIUM OXIDE %	(AL2O3)	16.66
FERRIC OXIDE %	(FE2O3)	2.63
TITANIUM DIOXIDE %	(TI02)	0.65
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.26
CALCIUM OXIDE %	(CAO)	1.08
MAGNESIUM OXIDE %	(MGO)	1.22
SULPHUR TRIOXIDE %	(SO3)	1.04
SODIUM OXIDE %	(NA2O)	1.26
POTASSIUM OXIDE %	(K2O)	0.68

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 31
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 02/12/82

PYRITE	%	11.00
SULPHATE	%	2.00
ORGANIC	%	87.00

TOTAL 100.00

Gulf Canada Resources Inc.
 Sample #4885-4886
 Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	4.06
STANDARD ERROR OF THE MEAN	0.03
COEFFICIENT OF VARIATION	4.68
VARIANCE	0.0360
STANDARD DEVIATION	0.1898
SKEWNESS	0.3571
KURTOSIS	2.5269

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
8	3.70	4	8.00
9	3.80	5	10.00
10	3.90	12	24.00
11	4.00	9	18.00
12	4.10	8	16.00
13	4.20	6	12.00
14	4.30	1	2.00
15	4.40	5	10.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNLRDDH82005 SEAM - J

SAMPLE ID - 4887

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	9.53 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL						C.V.		CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)		C.V.	
1.70		75.14	13.28	75.14	13.28	24.86	45.73	29.41		29.41	
2.60		24.86	45.73	100.00	21.35			13.75		25.52	

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPnlRDDH82005 SEAM - J

SAMPLE ID - 4888

WASHABILITY ID - WAI

FRACTION	ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -	
	SIZE (MM)	9.53 X		0.00		CUM. SINKS		C.V.		CUM.
		ELEMENTAL		CUM. FLOATS		WT%	ASH%	(MJ/KG)	C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%				
1.70	4.48	8.95	4.48	8.95	95.52	78.68	31.26	31.26		
2.60	95.52	78.68	100.00	75.56			4.56	5.76		

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GCRI COAL DIVISION  HEAD  PROJ  KPN  BLK  LR  DS  DDH82005
=====
SAMPLE ID          32      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID   HD1      DATE ANALYSED 25/10/82
                                ANALYSIS BASIS TYPE (AD,DB,AR,EM)  AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)  ASTM

TOP SIZE (MM)          10.00
SURFACE MOISTURE %<AD,AR>  ---
TOTAL MOISTURE %       ---
EQUILIBRIUM MOISTURE % ---
RESIDUAL MOISTURE %<AD,EM> 1.90
ASH %                  19.64
VOLATILE MATTER %     9.84
FIXED CARBON %        68.62

TOTAL SULPHUR %       0.53
PHOSPHOROUS %        ---
CHLORINE (PPM)       00632
SPECIFIC GRAVITY     1.58
FSI                   ---
HGI                   37.0
CO2 %                 4.15

GROSS CALORIFIC VALUE (MJ/KG)  ---
NET CALORIFIC VALUE (MJ/KG)  ---

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GCRI COAL DIVISION  SIZE  PROJ  KPN  BLK  LR  DS  DDH82005
=====
SAMPLE ID          32      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID   SZ1      DATE ANALYSED 25/10/82
FRACTION SIZE     WT%   ASH%   FSI   CAL   RM   VM   TS
FROM (MM) TO (MM) (MJ/KG)
10.00  0.60  89.22  19.45  ---  26.86  1.37  10.23  0.49
0.60  0.15  7.62  26.96  ---  24.34  1.90  8.29  0.54
0.15  0.00  3.16  40.73  ---  18.66  1.27  9.17  0.56

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GCRI COAL DIVISION  ULTIMATE  PROJ  KPN  BLK  LR  DS  DDH82005
=====
SAMPLE ID          32
SAMPLE PRODUCT ID  SP1      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID   UL1      DATE ANALYSED 28/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD)  AD

WATER %            1.90
CARBON %           71.48
HYDROGEN %         2.36
SULPHUR %          0.53
NITROGEN %         0.85
ASH %              19.64
OXYGEN %           3.24

```

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 32
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1250.0	INITIAL TEMP.(C)	1130.0
SOFTENING TEMP.(C)	1320.0	SOFTENING TEMP.(C)	1175.0
HEMISPHERICAL TEMP.(C)	1335.0	HEMISPHERICAL TEMP.(C)	1200.0
FLUID TEMP.(C)	1370.0	FLUID TEMP.(C)	1315.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 32
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	38.75
ALUMINIUM OXIDE %	(AL2O3)	24.56
FERRIC OXIDE %	(FE2O3)	23.55
TITANIUM DIOXIDE %	(TI02)	0.62
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.33
CALCIUM OXIDE %	(CAO)	3.12
MAGNESIUM OXIDE %	(MGO)	3.06
SULPHUR TRIOXIDE %	(SO3)	3.72
SODIUM OXIDE %	(NA2O)	1.01
POTASSIUM OXIDE %	(K2O)	1.20

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 32
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	17.00
SULPHATE	%	2.00
ORGANIC	%	81.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNLRDDH82005 SEAM - J

SAMPLE ID - 32

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM) 10.00 X 0.60		CUM. FLOATS		RELATIVE WEIGHT % - 89.22 ASH % - 19.45		C.V.	CUM.
	ELEMENTAL		WT%	ASH%	CUM. SINKS			
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	1.76	2.01	1.76	2.01	98.24	17.80	34.68	34.68
1.50	48.01	8.70	49.77	8.46	50.23	26.50	31.81	31.91
1.60	26.91	15.27	76.68	10.85	23.32	39.45	28.67	30.77
1.70	4.90	21.69	81.58	11.50	18.42	44.18	24.69	30.41
1.80	3.00	28.19	84.58	12.09	15.42	47.29	22.20	30.12
1.90	1.77	33.70	86.35	12.54	13.65	49.05	19.31	29.90
2.00	1.48	35.29	87.83	12.92	12.17	50.72	17.72	29.69
2.10	2.32	39.24	90.15	13.60	9.85	53.43	15.49	29.33
2.20	0.72	47.06	90.87	13.86	9.13	53.93	12.30	29.19
2.30	2.24	48.71	93.11	14.70	6.89	55.63	11.60	28.77
2.60	6.89	55.63	100.00	17.52			7.27	27.29

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM) 0.60 X 0.15		CUM. FLOATS		RELATIVE WEIGHT % - 7.62 ASH % - 26.96		C.V.	CUM.
	ELEMENTAL		WT%	ASH%	CUM. SINKS			
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	7.14	1.88	7.14	1.88	92.86	27.73	34.65	34.65
1.50	44.69	7.42	51.83	6.66	48.17	46.56	32.42	32.73
1.60	17.35	17.20	69.18	9.30	30.82	63.10	27.96	31.53
1.70	4.58	23.01	73.76	10.15	26.24	70.09	25.16	31.14
1.80	2.74	30.43	76.50	10.88	23.50	74.72	21.94	30.81
2.10	3.75	43.26	80.25	12.39	19.75	80.69	16.34	30.13
2.60	19.75	80.69	100.00	25.88			0.00	24.18

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPnlRDDH82005 SEAM - J

SAMPLE ID - 32

WASHABILITY ID - WA1

FRACTION	ANALYSIS TYPE - FROTH				RELATIVE WEIGHT % - 3.16 ASH % - 40.73				
	SIZE (MM)	0.15 X		0.00		CUM. SINKS		C.V.	
S.G.TME	ELEMENTAL	CUM. FLUATS		CUM. SINKS		C.V.		CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
30.00	70.25	21.39	70.25	21.39	29.75	81.97	26.29	26.29	
60.00	3.07	66.05	73.32	23.26	26.68	83.80	7.26	25.49	
120.00	3.99	79.14	77.31	26.14	22.69	84.62	3.70	24.37	
300.00	22.69	84.62	100.00	39.41			0.00	18.84	

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK LR DS DDH82005

SAMPLE ID 32 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP3

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.56	66.99	59.77
0.60	0.15	1.68	72.94	5.56

GCRI COAL DIVISION COALCOMP PROJ KPN BLK LR DS DDH82005

SAMPLE ID 32 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	---
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	0.69	SPECIFIC GRAVITY	1.46
ASH %	10.73	FSI	---
VOLATILE MATTER %	6.61	HGI	34.0
FIXED CARBON %	81.97	CO2 %	---

GROSS CALORIFIC VALUE (MJ/KG) 30.77
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005

SAMPLE ID 32 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.69
CARBON	%	82.04
HYDROGEN	%	2.72
SULPHUR	%	0.41
NITROGEN	%	1.15
ASH	%	10.73
OXYGEN	%	2.26

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 32
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 09/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1270.0
 SOFTENING TEMP.(C) 1455.0
 HEMISPHERICAL TEMP.(C) 1465.0
 FLUID TEMP.(C) 1495.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1260.0
 SOFTENING TEMP.(C) 1450.0
 HEMISPHERICAL TEMP.(C) 1460.0
 FLUID TEMP.(C) 1485.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 32
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 21/12/82

SILICON DIOXIDE %	(SI02)	52.11
ALUMINIUM OXIDE %	(AL2O3)	27.93
FERRIC OXIDE %	(FE2O3)	6.74
TITANIUM DIOXIDE %	(TI02)	1.11
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.21
CALCIUM OXIDE %	(CAO)	0.92
MAGNESIUM OXIDE %	(MGO)	1.71
SULPHUR TRIOXIDE %	(SO3)	1.40
SODIUM OXIDE %	(NA2O)	1.26
POTASSIUM OXIDE %	(K2O)	1.47

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 32
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK LR DS DDH82005

SAMPLE ID 32 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) 0.28

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.60	100.00	89.22
0.60	0.15	2.60	100.00	7.62
0.15	0.00	300.00	100.00	3.16

GCRI COAL DIVISION COALCOMP PROJ KPN BLK LR DS DDH82005

SAMPLE ID 32 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 25/10/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	---
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00632
RESIDUAL MOISTURE (AD,EM)	1.90	SPECIFIC GRAVITY	---
ASH %	19.64	FSI	---
VOLATILE MATTER %	9.84	HGI	37.0
FIXED CARBON %	68.62	CO2 %	---

GROSS CALORIFIC VALUE (MJ/KG) ---
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005

SAMPLE ID 32 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 28/10/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.90
CARBON	%	71.48
HYDROGEN	%	2.57
SULPHUR	%	0.53
NITROGEN	%	0.85
ASH	%	19.64
OXYGEN	%	4.93

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 32
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1250.0
 SOFTENING TEMP.(C) 1320.0
 HEMISPHERICAL TEMP.(C) 1335.0
 FLUID TEMP.(C) 1370.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1130.0
 SOFTENING TEMP.(C) 1175.0
 HEMISPHERICAL TEMP.(C) 1200.0
 FLUID TEMP.(C) 1315.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 32
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	38.75
ALUMINIUM OXIDE %	(AL2O3)	24.54
FERRIC OXIDE %	(FE2O3)	23.55
TITANIUM DIOXIDE %	(TI02)	0.62
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.33
CALCIUM OXIDE %	(CAO)	3.12
MAGNESIUM OXIDE %	(MGO)	3.06
SULPHUR TRIOXIDE %	(SO3)	3.72
SODIUM OXIDE %	(NA2O)	1.01
POTASSIUM OXIDE %	(K2O)	1.20

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 32
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	17.00
SULPHATE	%	2.00
ORGANIC	%	81.00

TOTAL 100.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK LR DS DDH82005

SAMPLE ID 32 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP5

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION	YEILD/FRACTION RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.20	23.88	21.31
0.60	0.15	1.70	0.62	0.06
0.15	0.00	60.00	73.32	2.32

GCRI COAL DIVISION COALCOMP PROJ KPN BLK LR DS DDH82005

SAMPLE ID 32 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP5 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % <AD,AR>	---	TOTAL SULPHUR %	0.68
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS	---
MOISTURE %	---	CHLORINE (PPM)	---
		SPG	---
INHERENT MOISTURE <AD,EM>	0.79	FSI	---
ASH %	24.00	HGI	---
FIXED CARBON %	69.05	CO2 %	---
VOLITILE MATTER %	6.16		

GROSS CALORIFIC VALUE (MJ,KG) 24.32
 NET CALORIFIC VALUE (MJ,KG) ---

Gulf Canada Resources Inc.
Sample #4887
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.78
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	3.59
VARIANCE	0.0184
STANDARD DEVIATION	0.1357
SKEWNESS	-0.5575
KURTOSIS	3.8594

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
4	3.30	1	2.00
5	3.40	1	2.00
6	3.50	2	4.00
7	3.60	5	10.00
8	3.70	19	38.00
9	3.80	12	24.00
10	3.90	7	14.00
11	4.00	3	6.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPCLRDDH82005 SEAM - J

SAMPLE ID - 4889

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT										
FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.70		24.79	17.26	24.79	17.26	75.21	71.67	27.86	27.86	
2.60		75.21	71.67	100.00	58.18			4.86	10.56	

GCRI COAL DIVISION	HEAD	PROJ	KPN	BLK	LR	DS	DDH82005
=====							
SAMPLE ID	33	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SPLIT SAMPLE ID	HD1	DATE ANALYSED 25/10/82					
		ANALYSIS BASIS TYPE (AD,DB,AR,EM)				AD	
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM							
TOP SIZE (MM)		10.00					
SURFACE MOISTURE %<AD,AR>		---			TOTAL SULPHUR %	0.13	
TOTAL MOISTURE %		---			PHOSPHOROUS %	---	
EQUILIBRIUM MOISTURE %		---			CHLORINE (PPM)	00285	
RESIDUAL MOISTURE %<AD,EM>		1.61			SPECIFIC GRAVITY	2.08	
ASH %		60.19			FSI	---	
VOLATILE MATTER %		13.04			HGI	---	
FIXED CARBON %		25.16			CO2 %	7.54	
GROSS CALORIFIC VALUE (MJ/KG) ---							
NET CALORIFIC VALUE (MJ/KG) ---							

GCRI COAL DIVISION	SIZE	PROJ	KPN	BLK	LR	DS	DDH82005	
=====								
SAMPLE ID	33	DATA TYPE (REAL,BORO,AVER,CALC)				REAL		
SPLIT SAMPLE ID	SZ1	DATE ANALYSED 25/10/82						
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS	
FROM (MM) TO (MM)				(MJ/KG)				
10.00	0.60	82.63	62.15	---	9.53	1.67	13.12	0.23
0.60	0.15	10.37	54.13	---	12.40	1.76	10.28	0.25
0.15	0.00	7.00	60.88	---	9.99	1.57	11.26	0.26

GCRI COAL DIVISION	ULTIMATE	PROJ	KPN	BLK	LR	DS	DDH82005
=====							
SAMPLE ID	33	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SAMPLE PRODUCT ID	SP1	DATE ANALYSED 28/10/82					
SPLIT SAMPLE ID	UL1	ANALYSIS BASIS TYPE (DAF,DB,AD)				AD	
WATER	%	1.61					
CARBON	%	31.13					
HYDROGEN	%	1.31					
SULPHUR	%	0.26					
NITROGEN	%	0.49					
ASH	%	60.19					
OXYGEN	%	5.14					

GCRI COAL DIVISION ASH FUSION PROJ. KPN BLK LR DS DDH82005
 =====

SAMPLE ID 33
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1280.0	INITIAL TEMP.(C)	1185.0
SOFTENING TEMP.(C)	1320.0	SOFTENING TEMP.(C)	1220.0
HEMISPHERICAL TEMP.(C)	1340.0	HEMISPHERICAL TEMP.(C)	1230.0
FLUID TEMP.(C)	1390.0	FLUID TEMP.(C)	1375.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 33
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	47.55
ALUMINIUM OXIDE %	(AL2O3)	22.29
FERRIC OXIDE %	(FE2O3)	11.35
TITANIUM DIOXIDE %	(TI02)	0.60
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.20
CALCIUM OXIDE %	(CAO)	2.98
MAGNESIUM OXIDE %	(MGO)	11.36
SULPHUR TRIOXIDE %	(SO3)	1.11
SODIUM OXIDE %	(NA2O)	1.18
POTASSIUM OXIDE %	(K2O)	1.28

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 33
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	19.00
SULPHATE	%	12.00
ORGANIC	%	69.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPDLRDDH82005 SEAM - J

SAMPLE ID - 33

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 10.00 X 0.60		CUM. FLOATS		RELATIVE WEIGHT % - 82.63 ASH % - 62.15		C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT% ASH%		WT% ASH%		CUM. SINKS WT% ASH%			
1.40	2.54	2.01	2.54	2.01	97.46	62.91	34.60	34.60
1.50	6.55	8.72	9.09	6.85	90.91	66.82	32.03	32.75
1.60	10.41	19.45	19.50	13.57	80.50	72.94	27.56	29.98
1.70	4.30	26.20	23.80	15.86	76.20	75.58	24.30	28.95
1.80	3.34	32.36	27.14	17.89	72.86	77.56	21.72	28.06
1.90	4.30	38.04	31.44	20.64	68.56	80.04	19.25	26.86
2.00	1.80	46.61	33.24	22.05	66.76	80.94	15.87	26.26
2.10	2.33	55.94	35.57	24.27	64.43	81.85	12.32	25.35
2.20	0.83	56.64	36.40	25.01	63.60	82.18	10.99	25.02
2.30	0.65	60.44	37.05	25.63	62.95	82.40	9.94	24.76
2.60	62.95	82.40	100.00	61.37			0.00	9.17

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 0.60 X 0.15		CUM. FLOATS		RELATIVE WEIGHT % - 10.37 ASH % - 54.13		C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT% ASH%		WT% ASH%		CUM. SINKS WT% ASH%			
1.40	7.34	1.65	7.34	1.65	92.66	57.50	34.71	34.71
1.50	13.86	7.89	21.20	5.73	78.80	66.23	32.46	33.24
1.60	7.90	18.59	29.10	9.22	70.90	71.53	27.56	31.70
1.70	5.87	30.48	34.97	12.79	65.03	75.24	22.29	30.12
1.80	3.82	34.24	38.79	14.90	61.21	77.80	20.52	29.17
1.90	3.04	39.07	41.83	16.66	58.17	79.82	18.58	28.40
2.00	2.98	51.39	44.81	18.97	55.19	81.36	12.43	27.34
2.10	4.10	58.99	48.91	22.32	51.09	83.15	9.98	25.89
2.30	3.31	65.17	52.22	25.04	47.78	84.40	8.16	24.76
2.60	47.78	84.40	100.00	53.40			0.00	12.93

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPCLRDDH82005 SEAM - J

SAMPLE ID - 33

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH									
FRACTION S.G.TME	SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 7.00 ASH % - 60.88			
		ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
30.00	50.34	41.91	50.34	41.91	49.66	77.30	16.93	16.93	
45.00	7.01	61.73	57.35	44.33	42.65	79.85	7.64	15.79	
60.00	5.03	69.45	62.38	46.36	37.62	81.24	4.92	14.92	
90.00	4.26	74.72	66.64	48.17	33.36	82.08	4.77	14.27	
120.00	3.22	79.16	69.86	49.60	30.14	82.39	0.00	13.61	
300.00	30.14	82.39	100.00	59.48			0.00	9.51	

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK LR DS DDH82005

SAMPLE ID 33 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.90	31.44	25.98
0.60	0.15	1.80	38.79	4.02

GCRI COAL DIVISION COALCOMP PROJ KPN BLK LR DS DDH82005

SAMPLE ID 33 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 29/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % <AD,AR>	---	TOTAL SULPHUR %	0.40
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE <AD,EM>	0.88	SPECIFIC GRAVITY	1.57
ASH %	20.27	FSI	---
VOLATILE MATTER %	7.53	HGI	---
FIXED CARBON %	71.32	CO2 %	0.76

GROSS CALORIFIC VALUE (MJ/KG) 26.39
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005

SAMPLE ID 33 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.88
CARBON	%	71.83
HYDROGEN	%	2.61
SULPHUR	%	0.40
NITROGEN	%	0.99
ASH	%	20.27
OXYGEN	%	3.02

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 33
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 25/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1290.0
SOFTENING TEMP.(C) 1400.0
HEMISPHERICAL TEMP.(C) 1435.0
FLUID TEMP.(C) 1465.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1285.0
SOFTENING TEMP.(C) 1385.0
HEMISPHERICAL TEMP.(C) 1410.0
FLUID TEMP.(C) 1440.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 33
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/12/82

SILICON DIOXIDE % (SI02) 65.87
ALUMINIUM OXIDE % (AL2O3) 17.39
FERRIC OXIDE % (FE2O3) 4.22
TITANIUM DIOXIDE % (TI02) 0.97
PHOSPHOROUS PENTOXIDE % (P2O5) 0.30
CALCIUM OXIDE % (CAO) 0.81
MAGNESIUM OXIDE % (MGO) 1.60
SULPHUR TRIOXIDE % (SO3) 0.66
SODIUM OXIDE % (NA2O) 1.43
POTASSIUM OXIDE % (K2O) 0.98

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 33
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 02/12/82

PYRITE % 5.00
SULPHATE % 2.00
ORGANIC % 93.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNLRDDH82005 SEAM - J

SAMPLE ID - 4890

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00 ASH % -			
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		78.20	12.86	78.20	12.86	21.80	51.90	29.70	29.70
2.60		21.80	51.90	100.00	21.37			11.64	25.76

GCRI COAL DIVISION HEAD PROJ KPN BLK LR DS DDH82005

=====

SAMPLE ID 34 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 25/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 10.00

SURFACE MOISTURE %<AD,AR>	---	TOTAL SULPHUR %	0.47
TOTAL MOISTURE %	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00293
		SPECIFIC GRAVITY	1.56
RESIDUAL MOISTURE %<AD,EM>	2.37	FSI	---
ASH %	19.52	HGI	41.0
VOLATILE MATTER %	7.99	CO2 %	2.75
FIXED CARBON %	70.12		

GROSS CALORIFIC VALUE (MJ/KG) ---
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK LR DS DDH82005

=====

SAMPLE ID 34 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 25/10/82

FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS
FROM (MM) TO (MM)				(MJ/KG)			
10.00 0.60	82.63	18.95	---	27.39	1.18	8.52	0.47
0.60 0.15	10.85	22.12	---	26.03	2.05	7.61	0.45
0.15 0.00	6.52	30.55	---	23.08	1.23	8.32	0.42

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005

=====

SAMPLE ID 34
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 28/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	2.37
CARBON	%	71.98
HYDROGEN	%	2.17
SULPHUR	%	0.47
NITROGEN	%	0.88
ASH	%	19.52
OXYGEN	%	2.61

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 34
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1210.0
 SOFTENING TEMP.(C) 1250.0
 HEMISPHERICAL TEMP.(C) 1260.0
 FLUID TEMP.(C) 1320.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1165.0
 SOFTENING TEMP.(C) 1190.0
 HEMISPHERICAL TEMP.(C) 1195.0
 FLUID TEMP.(C) 1240.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 34
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	38.10
ALUMINIUM OXIDE %	(AL2O3)	25.41
FERRIC OXIDE %	(FE2O3)	13.61
TITANIUM DIOXIDE %	(TI02)	0.65
PHOSPHOROUS PENTOXIDE %	(P2O5)	3.95
CALCIUM OXIDE %	(CAO)	8.27
MAGNESIUM OXIDE %	(MGO)	3.36
SULPHUR TRIOXIDE %	(SO3)	4.16
SODIUM OXIDE %	(NA2O)	1.05
POTASSIUM OXIDE %	(K2O)	0.60

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 34
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	4.00
SULPHATE	%	2.00
ORGANIC	%	94.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPDLRDDH82005 SEAM - J

SAMPLE ID - 34

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE(MM)	10.00 X	0.60	RELATIVE WEIGHT % - 82.63		ASH % - 18.95		
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS	C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40	0.20	2.07	0.20	2.07	99.80	20.37	34.46	34.46
1.50	41.93	6.84	42.13	6.82	57.87	30.17	32.44	32.45
1.60	28.58	15.48	70.71	10.32	29.29	44.50	28.86	31.00
1.70	7.90	24.83	78.61	11.78	21.39	51.77	24.62	30.36
1.80	2.50	33.53	81.11	12.45	18.89	54.18	21.95	30.10
1.90	2.72	37.26	83.83	13.25	16.17	57.03	19.05	29.74
2.00	2.51	45.87	86.34	14.20	13.66	59.08	15.37	29.32
2.10	1.90	48.90	88.24	14.95	11.76	60.72	13.68	28.99
2.20	0.69	53.29	88.93	15.25	11.07	61.18	11.58	28.85
2.30	0.67	53.33	89.60	15.53	10.40	61.69	10.94	28.72
2.60	10.40	61.69	100.00	20.33			3.89	26.13

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE(MM)	0.60 X	0.15	RELATIVE WEIGHT % - 10.85		ASH % - 22.12		
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS	C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40	5.93	1.83	5.93	1.83	94.07	22.31	34.21	34.21
1.50	41.74	8.09	47.67	7.31	52.33	33.66	32.21	32.46
1.60	16.68	13.63	64.35	8.95	35.65	43.03	28.90	31.54
1.70	11.29	20.09	75.64	10.61	24.36	53.66	25.95	30.70
1.80	5.89	28.85	81.53	11.93	18.47	61.57	22.60	30.12
1.90	3.17	37.75	84.70	12.90	15.30	66.50	18.48	29.68
2.00	2.45	46.98	87.15	13.85	12.85	70.23	14.06	29.24
2.10	2.35	51.61	89.50	14.85	10.50	74.39	12.77	28.81
2.30	1.76	60.61	91.26	15.73	8.74	77.17	9.40	28.44
2.60	8.74	77.17	100.00	21.10			2.86	26.20

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPDLRDDH82005 SEAM - J

SAMPLE ID - 34

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION	SIZE (MM)		0.15 X		0.00		RELATIVE WEIGHT % -		6.52 ASH % - 30.55	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		C.V.
30.00	70.01	19.22	70.01	19.22	29.99	51.98	26.03		26.03	
45.00	6.66	24.05	76.67	19.64	23.33	59.95	25.53		25.99	
60.00	3.04	45.63	79.71	20.63	20.29	62.10	17.00		25.64	
90.00	4.43	45.68	84.14	21.95	15.86	66.69	16.49		25.16	
120.00	1.15	56.04	85.29	22.41	14.71	67.52	12.68		24.99	
300.00	14.71	67.52	100.00	29.05			7.91		22.48	

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK LR DS DDH82005

SAMPLE ID 34 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP3

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.59	67.90	56.11
0.60	0.15	1.66	71.46	7.75

GCRI COAL DIVISION COALCOMP PROJ KPN BLK LR DS DDH82005

SAMPLE ID 34 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % <AD,AR>	---	TOTAL SULPHUR %	0.39
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE <AD,EM>	0.66	SPECIFIC GRAVITY	1.46
ASH %	10.86	FSI	---
VOLATILE MATTER %	6.11	HGI	38.0
FIXED CARBON %	82.37	CO2 %	0.33

GROSS CALORIFIC VALUE (MJ/KG) 31.01
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005

SAMPLE ID 34 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.66
CARBON	%	82.53
HYDROGEN	%	2.68
SULPHUR	%	0.39
NITROGEN	%	0.98
ASH	%	10.86
OXYGEN	%	1.90

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 34
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 10/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1255.0
SOFTENING TEMP.(C) 1285.0
HEMISPHERICAL TEMP.(C) 1300.0
FLUID TEMP.(C) 1325.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1250.0
SOFTENING TEMP.(C) 1275.0
HEMISPHERICAL TEMP.(C) 1290.0
FLUID TEMP.(C) 1310.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 34
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 21/12/82

SILICON DIOXIDE %	(SI02)	48.03
ALUMINIUM OXIDE %	(AL2O3)	24.38
FERRIC OXIDE %	(FE2O3)	4.53
TITANIUM DIOXIDE %	(TI02)	1.27
PHOSPHOROUS PENTOXIDE %	(P2O5)	5.88
CALCIUM OXIDE %	(CAO)	7.40
MAGNESIUM OXIDE %	(MGO)	0.95
SULPHUR TRIOXIDE %	(SO3)	1.06
SODIUM OXIDE %	(NA2O)	1.31
POTASSIUM OXIDE %	(K2O)	0.68

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 34
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE	%	3.00
SULPHATE	%	3.00
ORGANIC	%	94.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK LR DS DDH82005

SAMPLE ID 34 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.30	89.60	74.04
0.60	0.15	2.60	100.00	10.85
0.15	0.00	300.00	100.00	6.52

GCRI COAL DIVISION COALCOMP PROJ KPN BLK LR DS DDH82005

SAMPLE ID 34 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 25/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % <AD,AR>	---	TOTAL SULPHUR %	0.51
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	04746
RESIDUAL MOISTURE <AD,EM>	1.77	SPECIFIC GRAVITY	1.57
ASH %	18.47	FSI	---
VOLATILE MATTER %	8.17	HGI	43.0
FIXED CARBON %	71.59	CO2 %	1.31

GROSS CALORIFIC VALUE (MJ/KG) 26.97
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005

SAMPLE ID 34 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.77
CARBON	%	72.39
HYDROGEN	%	2.28
SULPHUR	%	0.51
NITROGEN	%	0.92
ASH	%	18.47
OXYGEN	%	3.66

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 34
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 25/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1235.0
 SOFTENING TEMP.(C) 1265.0
 HEMISPHERICAL TEMP.(C) 1275.0
 FLUID TEMP.(C) 1300.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1235.0
 SOFTENING TEMP.(C) 1265.0
 HEMISPHERICAL TEMP.(C) 1275.0
 FLUID TEMP.(C) 1295.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 34
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 09/12/82

SILICON DIOXIDE %	(SI02)	53.56
ALUMINIUM OXIDE %	(AL2O3)	22.51
FERRIC OXIDE %	(FE2O3)	4.99
TITANIUM DIOXIDE %	(TI02)	0.90
PHOSPHOROUS PENTOXIDE %	(P2O5)	2.50
CALCIUM OXIDE %	(CAO)	4.68
MAGNESIUM OXIDE %	(MGO)	2.00
SULPHUR TRIOXIDE %	(SO3)	1.60
SODIUM OXIDE %	(NA2O)	1.18
POTASSIUM OXIDE %	(K2O)	0.90

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 34
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 02/12/82

PYRITE	%	4.00
SULPHATE	%	2.00
ORGANIC	%	94.00

Gulf Canada Resources Inc.
Sample #4890
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.79
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION	3.89
VARIANCE	0.0218
STANDARD DEVIATION	0.1475
SKEWNESS	0.4208
KURTOSIS	3.5022

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
1	3.30	1	1.00
3	3.50	5	5.00
4	3.60	20	20.00
5	3.70	29	29.00
6	3.80	17	17.00
7	3.90	20	20.00
8	4.00	6	6.00
9	4.10	1	1.00
10	4.20	1	1.00

Results Of Maceral Analysis For
 Gulf Canada Resources Inc.
 Sample #4890
 Semifusinite - KOENSLER method

COUNT #	1	2	3	4	5	6	7	8	9	10
VITRINITE	55.0	74.0	62.0	67.0	73.0	73.0	75.0	58.0	70.0	73.0
EXINITE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REACTIVE SEMIF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL REACTIVE	55.0	74.0	62.0	67.0	73.0	73.0	75.0	58.0	70.0	73.0
MACRINITE	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
INERT SEMIFUSI	35.0	21.0	35.0	24.0	25.0	23.0	24.0	34.0	24.0	27.0
FUSINITE	9.0	5.0	3.0	9.0	1.0	4.0	1.0	7.0	6.0	0.0
INERTODETRINIT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL INERTINI	45.0	26.0	38.0	33.0	27.0	27.0	25.0	42.0	30.0	27.0

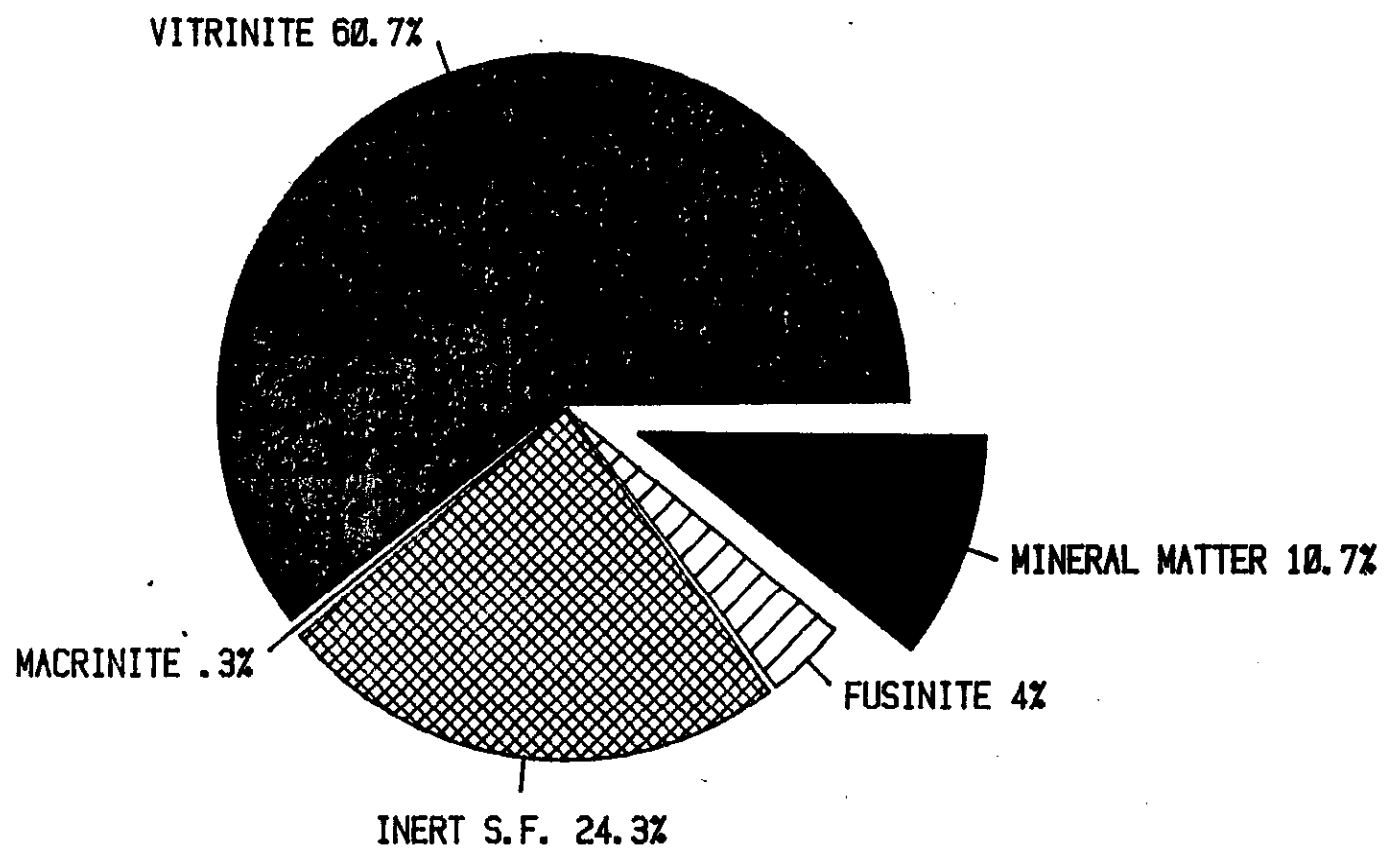
BASIC STATISTICS	MEAN	ST.DEVIATION	VARIANCE
VITRINITE	68.0	7.2	52.2
EXINITE	0.0	0.0	0.0
REACTIVE SEMIFUSINITE	0.0	0.0	0.0
TOTAL REACTIVES	68.0	7.2	52.2
MACRINITE	0.3	0.5	0.2
INERT SEMIFUSINITE	27.2	5.4	28.8
FUSINITE	4.5	3.3	10.7
INERTODETRINITE	0.0	0.0	0.0
TOTAL INERTINITES	32.0	7.2	52.2

MACERAL DATA CORRECTED FOR MINERAL-MATTER CONTENT

VITRINITE	60.7
EXINITE	0.0
REACTIVE SEMIFUSINITE	0.0
TOTAL REACTIVES	60.7
MACRINITE	0.3
INERT SEMIFUSINITE	24.3
FUSINITE	4.0
INERTODETRINITE	0.0
MINERAL MATTER	10.7
TOTAL INERTS	39.3

MACERAL DISTRIBUTION

Gulf Sample #4890
Semifusinite - KOENSLER method



GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPnlRDDH82005 SEAM - K LOWER

SAMPLE ID - 4891

WASHABILITY ID - WA1

ANALYSIS TYPE - FLUAT

FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		37.20	10.97	37.20	10.97	62.80	51.95	30.68	30.68
2.60		62.80	51.95	100.00	36.71			13.34	19.79

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPnlRDDH82005 SEAM - K LOWER

SAMPLE ID - 4892

WASHABILITY ID - WAI

FRACTION	ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -	
	SIZE (MM)	9.53 X		0.00		CUM. SINKS		C.V.		CUM.
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70	9.82	10.21	9.82	10.21	90.18	62.62	30.51	30.51		
2.60	90.18	62.62	100.00	57.47			10.55	12.51		

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNLRDDH82005 SEAM - K LOWER

SAMPLE ID - 4893

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.	TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		66.22	13.20	66.22	13.20	33.78	43.45	29.36	29.36
2.60		33.78	43.45	100.00	23.42			16.60	25.05

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPnlRDDH82005 SEAM - K LOWER

SAMPLE ID - 4894

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM) 9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	16.80	16.22	16.80	16.22	83.20	59.55	28.25	28.25
2.60	83.20	59.55	100.00	52.27			11.64	14.43

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPMLRDDH82005 SEAM - K

SAMPLE ID - 4895

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT										
FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.70		6.20	11.35	6.20	11.35	93.80	69.41	30.73		30.73
2.60		93.80	69.41	100.00	65.81			8.63		10.00

GCRI COAL DIVISION		HEAD	PROJ	KPN	BLK	LR	DS	DDH82005
=====		=====	=====		=====		=====	
SAMPLE ID	35		DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SPLIT SAMPLE ID	HD1		DATE ANALYSED 25/10/82					
			ANALYSIS BASIS TYPE (AD,DB,AR,EM)				AD	
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM								
TOP SIZE (MM)			10.00					
SURFACE MOISTURE %<AD,AR>			---			TOTAL SULPHUR %		0.33
TOTAL MOISTURE %			---			PHOSPHOROUS %		---
EQUILIBRIUM MOISTURE %			---			CHLORINE (PPM)		00310
						SPECIFIC GRAVITY		1.83
RESIDUAL MOISTURE %<AD,EM>			1.81			FSI		---
ASH %			52.75			HGI		51.0
VOLATILE MATTER %			7.47			CO2 %		2.35
FIXED CARBON %			37.97					
GROSS CALORIFIC VALUE (MJ/KG) ---								
NET CALORIFIC VALUE (MJ/KG) ---								

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	LR	DS	DDH82005
=====		=====	=====		=====		=====	
SAMPLE ID	35		DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SPLIT SAMPLE ID	SZ1		DATE ANALYSED 25/10/82					
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS	
MM (MM) TO (MM)				(MJ/KG)				
10.00 0.60	84.55	54.72	---	13.28	1.35	7.46	0.30	
0.60 0.15	10.25	45.03	---	16.49	1.59	6.79	0.38	
0.15 0.00	5.20	51.37	---	13.75	1.19	7.74	0.38	

GCRI COAL DIVISION		ULTIMATE	PROJ	KPN	BLK	LR	DS	DDH82005
=====		=====	=====		=====		=====	
SAMPLE ID	35		DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SAMPLE PRODUCT ID	SP1		DATE ANALYSED 28/10/82					
SPLIT SAMPLE ID	UL1		ANALYSIS BASIS TYPE (DAF,DB,AD)				AD	
WATER % 1.81								
CARBON % 40.78								
HYDROGEN % 1.50								
SULPHUR % 0.33								
NITROGEN % 0.62								
ASH % 52.75								
OXYGEN % 2.21								

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 35
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1290.0
SOFTENING TEMP.(C) 1395.0
HEMISPHERICAL TEMP.(C) 1445.0
FLUID TEMP.(C) 1460.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1245.0
SOFTENING TEMP.(C) 1350.0
HEMISPHERICAL TEMP.(C) 1390.0
FLUID TEMP.(C) 1460.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 35
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	61.98
ALUMINIUM OXIDE %	(AL2O3)	24.72
FERRIC OXIDE %	(FE2O3)	4.67
TITANIUM DIOXIDE %	(TI02)	0.56
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.16
CALCIUM OXIDE %	(CAO)	1.70
MAGNESIUM OXIDE %	(MGO)	1.80
SULPHUR TRIOXIDE %	(SO3)	1.40
SODIUM OXIDE %	(NA2O)	1.05
POTASSIUM OXIDE %	(K2O)	1.62

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 35
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	30.00
SULPHATE	%	3.00
ORGANIC	%	67.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPDLRDDH82005 SEAM - K

SAMPLE ID - 35

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE (MM)	10.00 X	0.60	RELATIVE WEIGHT % - 84.55 ASH % - 54.72				
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	3.63	1.16	3.63	1.16	96.37	54.55	35.05	35.05
1.50	8.32	5.54	11.95	4.21	88.05	59.18	33.11	33.70
1.60	4.31	15.02	16.26	7.08	83.74	61.45	28.87	32.42
1.70	4.19	28.55	20.45	11.48	79.55	63.18	23.46	30.58
1.80	4.88	35.33	25.33	16.07	74.67	65.00	20.84	28.71
1.90	7.83	40.43	33.16	21.82	66.84	67.88	18.40	26.27
2.00	8.78	47.47	41.94	27.19	58.06	70.97	15.34	23.98
2.10	9.44	55.58	51.38	32.41	48.62	73.95	11.80	21.75
2.20	7.62	63.36	59.00	36.41	41.00	75.92	9.25	20.13
2.30	10.65	68.15	69.65	41.26	30.35	78.65	8.26	18.32
2.60	30.35	78.65	100.00	52.61			4.04	13.98

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE (MM)	0.60 X	0.15	RELATIVE WEIGHT % - 10.25 ASH % - 45.03				
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	4.39	1.37	4.39	1.37	95.61	45.86	34.83	34.83
1.50	24.51	5.45	28.90	4.83	71.10	59.79	33.06	33.33
1.60	5.78	17.13	34.68	6.88	65.32	63.56	28.33	32.50
1.70	4.23	28.90	38.91	9.27	61.09	65.96	22.98	31.46
1.80	4.92	32.61	43.83	11.89	56.17	68.89	21.16	30.30
1.90	3.51	40.12	47.34	13.99	52.66	70.80	17.66	29.37
2.00	5.82	44.68	53.16	17.35	46.84	74.05	15.17	27.81
2.10	7.72	54.11	60.88	22.01	39.12	77.98	13.09	25.95
2.20	4.16	63.69	65.04	24.67	34.96	79.69	9.89	24.92
2.30	4.58	66.19	69.62	27.41	30.38	81.72	8.75	23.86
2.60	30.38	81.72	100.00	43.91			2.35	17.32

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNLRDDH82005 SEAM - K

SAMPLE ID - 35

WASHABILITY ID - WA1

FRACTION SIZE (MM)		ANALYSIS TYPE - FROTH		RELATIVE WEIGHT % - 5.20 ASH % - 51.37		CUM. SINKS		CUM. FLOATS	
0.15 X 0.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. FLOATS	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	C.V.
30.00	47.45	27.92	47.45	27.92	52.55	70.63	24.03	24.03	
45.00	8.76	49.91	56.21	31.35	43.79	74.78	14.34	22.52	
60.00	2.74	57.99	58.95	32.59	41.05	75.90	12.60	22.06	
90.00	3.83	65.16	62.78	34.57	37.22	77.00	9.84	21.31	
120.00	3.37	73.51	66.15	36.56	33.85	77.35	6.69	20.57	
300.00	33.85	77.35	100.00	50.36			0.00	13.61	

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK LR DS DDH82005

SAMPLE ID 35 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.80	25.33	21.42
0.60	0.15	2.30	69.62	7.14
0.15	0.00	30.00	47.45	2.47

GCRI COAL DIVISION COALCOMP PROJ KPN BLK LR DS DDH82005

SAMPLE ID 35 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 29/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.60
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	04450
RESIDUAL MOISTURE (AD,EM)	1.25	SPECIFIC GRAVITY	1.57
ASH %	21.40	FSI	---
VOLATILE MATTER %	7.32	HGI	49.0
FIXED CARBON %	70.03	CO2 %	0.44

GROSS CALORIFIC VALUE (MJ/KG) 26.04
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005

SAMPLE ID 35 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.25
CARBON	%	70.27
HYDROGEN	%	2.73
SULPHUR	%	0.60
NITROGEN	%	0.91
ASH	%	21.40
OXYGEN	%	2.84

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 35
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 25/11/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1320.0	INITIAL TEMP.(C)	1310.0
SOFTENING TEMP.(C)	1485.0	SOFTENING TEMP.(C)	1480.0
HEMISPHERICAL TEMP.(C)	1500.0	HEMISPHERICAL TEMP.(C)	1500.0
FLUID TEMP.(C)	1500.0	FLUID TEMP.(C)	1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 35
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 14/12/82

SILICON DIOXIDE %	(SI02)	63.99
ALUMINIUM OXIDE %	(AL2O3)	21.68
FERRIC OXIDE %	(FE2O3)	2.19
TITANIUM DIOXIDE %	(TI02)	1.28
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.25
CALCIUM OXIDE %	(CAO)	0.68
MAGNESIUM OXIDE %	(MGO)	0.88
SULPHUR TRIOXIDE %	(SO3)	0.57
SODIUM OXIDE %	(NA2O)	1.69
POTASSIUM OXIDE %	(K2O)	1.13

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 35
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 02/12/82

PYRITE	%	5.00
SULPHATE	%	2.00
ORGANIC	%	93.00

Gulf Canada Resources Inc.
Sample #4891-4895
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.64
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	3.20
VARIANCE	0.0136
STANDARD DEVIATION	0.1167
SKEWNESS	0.2120
KURTOSIS	1.8978

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF, OBSERVATIONS	FREQUENCY (%)
5	3.40	4	8.00
6	3.50	19	38.00
7	3.60	9	18.00
8	3.70	12	24.00
9	3.80	6	12.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPDLRDDH82005 SEAM - K UPPER

SAMPLE ID - 4896

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00			
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		36.82	14.59	36.82	14.59	63.18	54.98	28.97	28.97
2.60		63.18	54.98	100.00	40.11			13.40	19.13

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNLRDDH82005 SEAM - K UPPER

SAMPLE ID - 4897

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00 ASH % -			
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		54.11	18.05	54.11	18.05	45.89	53.73	27.63	27.63
2.60		45.89	53.73	100.00	34.42			13.94	21.35

GCRI COAL DIVISION		HEAD	PROJ	KPN	BLK	LR	DS	DDH82005	
=====		=====	=====					=====	
SAMPLE ID		36	DATA TYPE (REAL,BORO,AVER,CALC)					REAL	
SPLIT SAMPLE ID		HD1	DATE ANALYSED 25/10/82						
			ANALYSIS BASIS TYPE (AD,DB,AR,EM)					AD	
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)			ASTM						
TOP SIZE (MM)			10.00						
SURFACE MOISTURE %<AD,AR>			---					TOTAL SULPHUR %	0.44
TOTAL MOISTURE %			---					PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %			---					CHLORINE (PPM)	00504
								SPECIFIC GRAVITY	1.71
RESIDUAL MOISTURE %<AD,EM>			1.90					FSI	---
ASH %			38.38					HGI	45.0
VOLATILE MATTER %			7.66					CO2 %	1.97
FIXED CARBON %			52.06						
GROSS CALORIFIC VALUE (MJ/KG)			---						
NET CALORIFIC VALUE (MJ/KG)			---						

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	LR	DS	DDH82005	
=====		=====	=====					=====	
SAMPLE ID		36	DATA TYPE (REAL,BORO,AVER,CALC)					REAL	
SPLIT SAMPLE ID		SZ1	DATE ANALYSED 25/10/82						
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS		
FROM (MM) TO (MM)				(MJ/KG)					
10.00	0.60	83.26	39.55	---	19.76	1.30	7.74	0.45	
0.60	0.15	10.80	37.32	---	20.11	1.60	7.08	0.41	
N 0.15	0.00	5.94	48.23	---	15.35	1.20	8.42	0.36	

GCRI COAL DIVISION		ULTIMATE	PROJ	KPN	BLK	LR	DS	DDH82005	
=====		=====	=====					=====	
SAMPLE ID		36	DATA TYPE (REAL,BORO,AVER,CALC)					REAL	
SAMPLE PRODUCT ID		SP1	DATE ANALYSED 28/10/82						
SPLIT SAMPLE ID		UL1							
ANALYSIS BASIS TYPE (DAF,DB,AD)			AD						
WATER	%	1.90							
CARBON	%	55.25							
HYDROGEN	%	1.88							
SULPHUR	%	0.44							
NITROGEN	%	0.61							
ASH	%	38.38							
OXYGEN	%	1.54							

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 36
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
SOFTENING TEMP.(C) 1340.0
HEMISPHERICAL TEMP.(C) 1390.0
FLUID TEMP.(C) 1425.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1220.0
SOFTENING TEMP.(C) 1290.0
HEMISPHERICAL TEMP.(C) 1330.0
FLUID TEMP.(C) 1370.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 36
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	59.22
ALUMINIUM OXIDE %	(AL2O3)	20.26
FERRIC OXIDE %	(FE2O3)	6.41
TITANIUM DIOXIDE %	(TI02)	0.46
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.82
CALCIUM OXIDE %	(CAO)	2.78
MAGNESIUM OXIDE %	(MGO)	1.31
SULPHUR TRIOXIDE %	(SO3)	1.56
SODIUM OXIDE %	(NA2O)	1.01
POTASSIUM OXIDE %	(K2O)	1.09

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 36
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	18.00
SULPHATE	%	2.00
ORGANIC	%	80.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT I

PAGE -

DATA SOURCE - KPNLRDDH82005 SEAM - K

SAMPLE ID - 36

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	10.00	X	0.60	RELATIVE WEIGHT % - 83.26 ASH % - 39.55				
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.	
1.40	1.42	1.24	1.42	1.24	98.58	36.64	34.84	34.84	
1.50	13.53	6.64	14.95	6.13	85.05	41.41	32.71	32.91	
1.60	15.64	15.33	30.59	10.83	69.41	47.28	28.60	30.71	
1.70	15.53	27.18	46.12	16.34	53.88	53.08	24.13	28.49	
1.80	10.47	34.93	56.59	19.78	43.41	57.46	20.66	27.04	
1.90	11.32	40.78	67.91	23.28	32.09	63.34	18.14	25.56	
2.00	7.64	46.33	75.55	25.61	24.45	68.65	15.52	24.54	
2.10	5.40	55.60	80.95	27.61	19.05	72.35	12.53	23.74	
2.20	3.47	62.49	84.42	29.04	15.58	74.55	10.15	23.18	
2.30	1.92	64.96	86.34	29.84	13.66	75.90	8.77	22.86	
2.60	13.66	75.90	100.00	36.13			3.91	20.27	

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	0.60	X	0.15	RELATIVE WEIGHT % - 10.80 ASH % - 37.32				
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.	
1.40	6.25	2.00	6.25	2.00	93.75	38.40	34.43	34.43	
1.50	23.70	11.31	29.95	9.37	70.05	47.56	30.25	31.12	
1.60	10.39	15.70	40.34	11.00	59.66	53.11	28.36	30.41	
1.70	8.35	23.37	48.69	13.12	51.31	57.95	25.24	29.52	
1.80	8.72	29.81	57.41	15.65	42.59	63.71	22.16	28.41	
1.90	6.58	37.00	63.99	17.85	36.01	68.59	19.34	27.47	
2.00	6.10	45.67	70.09	20.27	29.91	73.27	16.81	26.55	
2.10	6.90	52.28	76.99	23.14	23.01	79.56	13.15	25.34	
2.20	2.39	61.59	79.38	24.30	20.62	81.64	10.35	24.89	
2.30	2.49	65.80	81.87	25.56	18.13	83.82	9.06	24.41	
2.60	18.13	83.82	100.00	36.12			0.00	19.99	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPDLRDDH82005 SEAM - K

SAMPLE ID - 36

WASHABILITY ID - WA1

FRACTION SIZE (MM)		ANALYSIS TYPE - FROTH		RELATIVE WEIGHT % -		5.94 ASH % - 48.23	
S.G.TME	0.15 X	ELEMENTAL		CUM. FLOATS		CUM. SINKS	
		WT%	ASH%	WT%	ASH%	WT%	ASH%
						C.V. (MJ/KG)	CUM. C.V.
30.00		49.99	26.81	49.99	26.81	24.57	24.57
45.00		9.22	41.37	59.21	29.08	18.50	23.62
60.00		4.57	55.59	63.78	30.98	13.62	22.91
90.00		4.63	66.78	68.41	33.40	9.23	21.98
120.00		2.44	73.88	70.85	34.79	6.55	21.45
300.00		29.15	79.90	100.00	47.94	0.00	15.20

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK LR DS DDH82005

SAMPLE ID 36 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.80	56.59	47.12
0.60	0.15	2.00	70.09	7.57

GCRI COAL DIVISION COALCOMP PROJ KPN BLK LR DS DDH82005

SAMPLE ID 36 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 25/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.50
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	05572
RESIDUAL MOISTURE (AD,EM)	1.45	SPECIFIC GRAVITY	1.62
ASH %	21.46	FSI	---
VOLATILE MATTER %	7.98	HGI	41.0
FIXED CARBON %	69.11	CO2 %	0.36

GROSS CALORIFIC VALUE (MJ/KG) 26.04
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005

SAMPLE ID 36 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.45
CARBON	%	69.26
HYDROGEN	%	2.46
SULPHUR	%	0.50
NITROGEN	%	0.82
ASH	%	18.84
OXYGEN	%	6.67

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 36
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 29/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1300.0
SOFTENING TEMP.(C) 1495.0
HEMISPHERICAL TEMP.(C) 1500.0
FLUID TEMP.(C) 1500.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1300.0
SOFTENING TEMP.(C) 1485.0
HEMISPHERICAL TEMP.(C) 1500.0
FLUID TEMP.(C) 1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 36
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/12/82

SILICON DIOXIDE % (SI02) 64.55
ALUMINIUM OXIDE % (AL2O3) 22.71
FERRIC OXIDE % (FE2O3) 1.74
TITANIUM DIOXIDE % (TI02) 0.96
PHOSPHOROUS PENTOXIDE % (P2O5) 0.69
CALCIUM OXIDE % (CAO) 0.95
MAGNESIUM OXIDE % (MGO) 0.49
SULPHUR TRIOXIDE % (SO3) 0.43
SODIUM OXIDE % (NA2O) 1.69
POTASSIUM OXIDE % (K2O) 0.83

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 36
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 02/12/82

PYRITE % 4.00
SULPHATE % 2.00
ORGANIC % 94.00

TOTAL 100.00

Gulf Canada Resources Inc.
 Sample #4896-4897
 Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS 50
 MEAN MAXIMUM REFLECTANCE
 OF VITRINITE% 3.70
 STANDARD ERROR OF THE MEAN 0.02
 COEFFICIENT OF VARIATION% 3.86
 VARIANCE 0.0203
 STANDARD DEVIATION 0.1426
 SKEWNESS 0.2570
 KURTOSIS 3.9878

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
4	3.30	1	2.00
5	3.40	2	4.00
6	3.50	10	20.00
7	3.60	12	24.00
8	3.70	11	22.00
9	3.80	12	24.00
10	3.90	1	2.00
12	4.10	1	2.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPMLRDDH82005 SEAM - L

SAMPLE ID - 4737

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		37.11	13.42	37.11	13.42	62.89	58.52	28.96	28.96
2.60		62.89	58.52	100.00	41.78			8.64	16.18

GCRI COAL DIVISION		HEAD	PROJ	KPN	BLK	LR	DS	DDH82005	
=====		=====	=====					=====	
SAMPLE ID		37	DATA TYPE (REAL,BORO,AVER,CALC)					REAL	
SPLIT SAMPLE ID		HD1	DATE ANALYSED 26/10/82						
			ANALYSIS BASIS TYPE (AD,DB,AR,EM)					AD	
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM									
TOP SIZE (MM)			10.00						
SURFACE MOISTURE %<AD,AR>			---						
TOTAL MOISTURE %			---						
EQUILIBRIUM MOISTURE %			---						
RESIDUAL MOISTURE %<AD,EM>			0.89			TOTAL SULPHUR %			0.30
ASH %			43.57			PHOSPHOROUS %			---
VOLATILE MATTER %			14.01			CHLORINE (PPM)			00661
FIXED CARBON %			41.53			SPECIFIC GRAVITY			1.85
						FSI			---
						HGI			73.0
						CO2 %			7.73
GROSS CALORIFIC VALUE (MJ/KG) ---									
NET CALORIFIC VALUE (MJ/KG) ---									

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	LR	DS	DDH82005	
=====		=====	=====					=====	
SAMPLE ID		37	DATA TYPE (REAL,BORO,AVER,CALC)					REAL	
SPLIT SAMPLE ID		SZ1	DATE ANALYSED 26/10/82						
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS		
FROM (MM) TO (MM)				(MJ/KG)					
10.00 0.60	69.34	51.70	---	13.01	1.14	17.79	0.28		
0.60 0.15	17.11	27.40	---	24.01	0.61	8.00	0.45		
0.15 0.00	13.55	26.46	---	24.55	0.91	8.31	0.49		

GCRI COAL DIVISION		ULTIMATE	PROJ	KPN	BLK	LR	DS	DDH82005	
=====		=====	=====					=====	
SAMPLE ID		37	DATA TYPE (REAL,BORO,AVER,CALC)					REAL	
SAMPLE PRODUCT ID		SP1	DATE ANALYSED 28/10/82						
SPLIT SAMPLE ID		UL1							
ANALYSIS BASIS TYPE (DAF,DB,AD) AD									
WATER	%	0.89							
CARBON	%	47.66							
HYDROGEN	%	1.60							
SULPHUR	%	0.30							
NITROGEN	%	0.56							
ASH	%	43.57							
OXYGEN	%	5.42							

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 37
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
 SOFTENING TEMP.(C) 1245.0
 HEMISPHERICAL TEMP.(C) 1260.0
 FLUID TEMP.(C) 1370.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1170.0
 SOFTENING TEMP.(C) 1195.0
 HEMISPHERICAL TEMP.(C) 1205.0
 FLUID TEMP.(C) 1230.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 37
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	52.06
ALUMINIUM OXIDE %	(AL2O3)	20.66
FERRIC OXIDE %	(FE2O3)	8.80
TITANIUM DIOXIDE %	(TI02)	0.33
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.32
CALCIUM OXIDE %	(CAO)	9.49
MAGNESIUM OXIDE %	(MGO)	6.04
SULPHUR TRIOXIDE %	(SO3)	0.74
SODIUM OXIDE %	(NA2O)	0.67
POTASSIUM OXIDE %	(K2O)	0.56

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 37
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	13.00
SULPHATE	%	3.00
ORGANIC	%	84.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPMLRDDH82005 SEAM - L

SAMPLE ID - 37

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE(MM)	10.00 X	0.60		RELATIVE WEIGHT % - 69.34 ASH % - 51.70			
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	4.61	1.52	4.61	1.52	95.39	51.31	34.75	34.75
1.50	5.72	6.82	10.33	4.45	89.67	54.15	32.70	33.61
1.60	7.78	18.94	18.11	10.68	81.89	57.49	27.61	31.04
1.70	10.02	26.28	28.13	16.24	71.87	61.85	24.28	28.63
1.80	5.71	33.11	33.84	19.08	66.16	64.33	21.15	27.37
1.90	6.50	38.63	40.34	22.23	59.66	67.13	19.06	26.03
2.00	3.72	45.45	44.06	24.19	55.94	68.57	15.92	25.18
2.10	3.23	51.20	47.29	26.04	52.71	69.63	13.04	24.35
2.20	3.73	56.12	51.02	28.24	48.98	70.66	10.74	23.35
2.30	3.37	60.94	54.39	30.26	45.61	71.38	9.11	22.47
2.60	45.61	71.38	100.00	49.02			3.07	13.62

ANALYSIS TYPE - FLOAT								
FRACTION	SIZE(MM)	0.60 X	0.15		RELATIVE WEIGHT % - 17.11 ASH % - 27.40			
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	21.66	2.25	21.66	2.25	78.34	35.17	34.52	34.52
1.50	23.38	13.48	45.04	8.08	54.96	44.40	30.27	32.31
1.60	9.53	18.96	54.57	9.98	45.43	49.73	26.77	31.35
1.70	9.13	24.23	63.70	12.02	36.30	56.15	24.08	30.30
1.80	7.67	28.68	71.37	13.81	28.63	63.51	22.91	29.51
1.90	3.88	36.12	75.25	14.96	24.75	67.80	19.73	29.01
2.00	3.06	45.94	78.31	16.17	21.69	70.88	15.92	28.49
2.10	3.50	52.08	81.81	17.71	18.19	74.50	12.14	27.79
2.30	3.08	60.88	84.89	19.28	15.11	77.28	9.47	27.13
2.60	15.11	77.28	100.00	28.04			0.00	23.03

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPMLRDDH82005 SEAM - L

SAMPLE ID - 37

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION	SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 13.55 ASH % - 26.46		C.V.	CUM.
		WT%	ASH%	CUM. FLOATS	WT%	ASH%	C.V.		
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00		85.34	17.94	85.34	17.94	14.66	72.07	27.66	27.66
45.00		4.40	55.94	89.74	19.80	10.26	78.98	11.12	26.85
60.00		1.14	70.49	90.88	20.44	9.12	80.04	6.92	26.60
120.00		2.29	78.30	93.17	21.86	6.83	80.63	3.47	26.03
300.00		6.83	80.63	100.00	25.88			2.12	24.40

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK LR DS DDH82005

SAMPLE ID 37 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.80	33.84	23.46
0.60	0.15	2.30	84.89	14.52
0.15	0.00	120.00	93.17	12.62

GCRI COAL DIVISION COALCOMP PROJ KPN BLK LR DS DDH82005

SAMPLE ID 37 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 25/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.56
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	03939
RESIDUAL MOISTURE (AD,EM)	1.06	SPECIFIC GRAVITY	1.55
ASH %	18.81	FSI	---
VOLATILE MATTER %	7.49	HGI	---
FIXED CARBON %	72.64	CO2 %	0.76

GROSS CALORIFIC VALUE (MJ/KG) 27.34
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005

SAMPLE ID 37 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.06
CARBON	%	72.69
HYDROGEN	%	2.65
SULPHUR	%	0.56
NITROGEN	%	0.88
ASH	%	18.81
OXYGEN	%	3.35

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 37
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 29/11/82

OXIDIZING ATMOSPHERE *****	REDUCING ATMOSPHERE *****
INITIAL TEMP.(C) 1305.0	INITIAL TEMP.(C) 1300.0
SOFTENING TEMP.(C) 1410.0	SOFTENING TEMP.(C) 1405.0
HEMISPHERICAL TEMP.(C) 1445.0	HEMISPHERICAL TEMP.(C) 1420.0
FLUID TEMP.(C) 1490.0	FLUID TEMP.(C) 1485.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 37
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 09/12/82

SILICON DIOXIDE %	(SI02)	69.36
ALUMINIUM OXIDE %	(AL2O3)	16.36
FERRIC OXIDE %	(FE2O3)	2.65
TITANIUM DIOXIDE %	(TI02)	0.87
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.45
CALCIUM OXIDE %	(CAO)	1.76
MAGNESIUM OXIDE %	(MGO)	2.04
SULPHUR TRIOXIDE %	(SO3)	0.36
SODIUM OXIDE %	(NA2O)	0.84
POTASSIUM OXIDE %	(K2O)	0.38

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 37
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 02/12/82

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00
TOTAL		100.00

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WASHABILITY REPORT 1

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DATA SOURCE - KPNLRDDH82005 SEAM - L

SAMPLE ID - 4738

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT										
FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.70		71.64	11.23	71.64	11.23	28.36	47.37	30.25		30.25
2.60		28.36	47.37	100.00	21.48			14.94		25.91

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 38
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
 SOFTENING TEMP.(C) 1270.0
 HEMISPHERICAL TEMP.(C) 1290.0
 FLUID TEMP.(C) 1345.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1200.0
 SOFTENING TEMP.(C) 1230.0
 HEMISPHERICAL TEMP.(C) 1245.0
 FLUID TEMP.(C) 1305.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 38
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	49.83
ALUMINIUM OXIDE %	(AL2O3)	24.20
FERRIC OXIDE %	(FE2O3)	5.06
TITANIUM DIOXIDE %	(TI02)	0.52
PHOSPHOROUS PENTOXIDE %	(P2O5)	3.82
CALCIUM OXIDE %	(CAO)	9.00
MAGNESIUM OXIDE %	(MGO)	1.22
SULPHUR TRIOXIDE %	(SO3)	1.84
SODIUM OXIDE %	(NA2O)	1.18
POTASSIUM OXIDE %	(K2O)	0.45

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 38
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPDLRDDH82005 SEAM - L

SAMPLE ID - 38

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	10.00 X	0.60	RELATIVE WEIGHT % - 80.55		ASH % - 22.30			
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	6.93	2.22	6.93	2.22	93.07	22.49	34.47	34.47	
1.50	37.08	7.13	44.01	6.36	55.99	32.66	32.39	32.72	
1.60	20.44	15.71	64.45	9.32	35.55	42.40	28.77	31.47	
1.70	10.33	25.98	74.78	11.62	25.22	49.12	24.11	30.45	
1.80	4.81	31.47	79.59	12.82	20.41	53.29	21.92	29.93	
1.90	6.25	37.32	85.84	14.61	14.16	60.33	19.20	29.15	
2.00	2.94	43.69	88.78	15.57	11.22	64.69	16.79	28.74	
2.10	3.09	51.56	91.87	16.78	8.13	69.68	13.34	28.22	
2.20	0.87	59.05	92.74	17.18	7.26	70.96	10.57	28.06	
2.30	1.52	63.06	94.26	17.92	5.74	73.05	8.66	27.75	
2.60	5.74	73.05	100.00	21.08			4.78	26.43	

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	0.60 X	0.15	RELATIVE WEIGHT % - 13.20		ASH % - 20.06			
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	6.73	3.33	6.73	3.33	93.27	18.91	33.87	33.87	
1.50	37.37	6.49	44.10	6.01	55.90	27.21	32.14	32.40	
1.60	25.21	12.14	69.31	8.24	30.69	39.59	29.74	31.44	
1.70	10.10	19.38	79.41	9.66	20.59	49.50	27.90	30.99	
1.80	5.88	27.25	85.29	10.87	14.71	58.39	23.17	30.45	
1.90	3.60	38.16	88.89	11.97	11.11	64.95	19.04	29.98	
2.00	1.85	45.03	90.74	12.65	9.26	68.93	16.62	29.71	
2.10	2.05	51.49	92.79	13.51	7.21	73.89	13.53	29.35	
2.30	1.69	61.89	94.48	14.37	5.52	77.56	9.45	29.00	
2.60	5.52	77.56	100.00	17.86			3.73	27.60	

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPDLRDDH82005 SEAM - L

SAMPLE ID - 38

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION	SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % -		6.25 ASH % - 25.93	
		WT%	ASH%	CUM. FLOATS	WT%	ASH%	C.V.	CUM.	C.V.
S.G.TME		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00		70.87	13.52	70.87	13.52	29.13	53.50	29.90	29.90
45.00		8.05	24.62	78.92	14.65	21.08	64.53	25.68	29.47
60.00		2.64	36.04	81.56	15.34	18.44	68.60	20.91	29.19
90.00		3.80	48.77	85.36	16.83	14.64	73.75	16.13	28.61
120.00		1.82	59.89	87.18	17.73	12.82	75.72	11.52	28.25
300.00		12.82	75.72	100.00	25.17			5.05	25.28

GCRI COAL DIVISION . SAMPLE PRODUCT PROJ KPN BLK LR DS DDH82005

SAMPLE ID 38 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP3

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.63	67.55	54.41
0.60	0.15	1.73	81.06	10.70

GCRI COAL DIVISION COALCOMP PROJ KPN BLK LR DS DDH82005

SAMPLE ID 38 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.43
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	0.75	SPECIFIC GRAVITY	1.48
ASH %	10.85	FSI	---
VOLATILE MATTER %	6.23	HGI	44.0
FIXED CARBON %	82.17	CO2 %	0.29

GROSS CALORIFIC VALUE (MJ/KG) 30.74
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005

SAMPLE ID 38
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 08/12/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.75
CARBON	%	82.17
HYDROGEN	%	2.98
SULPHUR	%	0.43
NITROGEN	%	1.11
ASH	%	10.85
OXYGEN	%	1.71

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 38
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 13/12/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1230.0	INITIAL TEMP.(C)	1220.0
SOFTENING TEMP.(C)	1265.0	SOFTENING TEMP.(C)	1265.0
HEMISPHERICAL TEMP.(C)	1275.0	HEMISPHERICAL TEMP.(C)	1275.0
FLUID TEMP.(C)	1310.0	FLUID TEMP.(C)	1295.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 38
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 21/12/82

SILICON DIOXIDE %	(SI02)	51.56
ALUMINIUM OXIDE %	(AL2O3)	21.08
FERRIC OXIDE %	(FE2O3)	3.52
TITANIUM DIOXIDE %	(TI02)	0.98
PHOSPHOROUS PENTOXIDE %	(P2O5)	5.60
CALCIUM OXIDE %	(CAO)	8.20
MAGNESIUM OXIDE %	(MGO)	1.14
SULPHUR TRIOXIDE %	(SO3)	1.36
SODIUM OXIDE %	(NA2O)	1.27
POTASSIUM OXIDE %	(K2O)	0.45

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 38
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE	%	5.00
SULPHATE	%	2.00
ORGANIC	%	93.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK LR DS DDH82005

SAMPLE ID 38 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.30	94.26	75.93
0.60	0.15	2.60	100.00	13.20
0.15	0.00	120.00	87.18	5.45

GCRI COAL DIVISION COALCOMP PROJ KPN BLK LR DS DDH82005

SAMPLE ID 38 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 29/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.49
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	2.95	SPECIFIC GRAVITY	1.62
ASH %	17.11	FSI	---
VOLATILE MATTER %	9.77	HGI	54.0
FIXED CARBON %	70.17	CO2 %	0.85

GROSS CALORIFIC VALUE (MJ/KG) 27.08
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005

SAMPLE ID 38 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	2.95
CARBON	%	71.66
HYDROGEN	%	2.16
SULPHUR	%	0.49
NITROGEN	%	1.00
ASH	%	17.11
OXYGEN	%	4.63

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 38
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 29/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1220.0
SOFTENING TEMP.(C) 1255.0
HEMISPHERICAL TEMP.(C) 1275.0
FLUID TEMP.(C) 1315.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1215.0
SOFTENING TEMP.(C) 1245.0
HEMISPHERICAL TEMP.(C) 1270.0
FLUID TEMP.(C) 1315.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 38
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/12/82

SILICON DIOXIDE % (SI02) 53.23
ALUMINIUM OXIDE % (AL2O3) 19.16
FERRIC OXIDE % (FE2O3) 3.94
TITANIUM DIOXIDE % (TI02) 0.69
PHOSPHOROUS PENTOXIDE % (P2O5) 4.05
CALCIUM OXIDE % (CAO) 8.39
MAGNESIUM OXIDE % (MGO) 1.70
SULPHUR TRIOXIDE % (SO3) 1.87
SODIUM OXIDE % (NA2O) 1.43
POTASSIUM OXIDE % (K2O) 0.30

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 38
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 08/12/82

PYRITE % 4.00
SULPHATE % 2.00
ORGANIC % 94.00

TOTAL 100.00

Gulf Canada Resources Inc.
Sample #4738
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.65
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	4.25
VARIANCE	0.0241
STANDARD DEVIATION	0.1552
SKEWNESS	0.0286
KURTOSIS	2.7124

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	3.20	1	1.00
4	3.30	4	4.00
5	3.40	12	12.00
6	3.50	20	20.00
7	3.60	26	26.00
8	3.70	21	21.00
9	3.80	11	11.00
10	3.90	4	4.00
11	4.00	1	1.00

Results Of Maceral Analysis For
 Gulf Canada Resources Inc.
 Sample #4738
 Semifusinite - KOENSLER method

COUNT #	1	2	3	4	5	6	7	8	9	10
VITRINITE	39.0	35.0	39.0	53.0	49.0	55.0	48.0	38.0	46.0	38.0
EXINITE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REACTIVE SEMIF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL REACTIVE	39.0	35.0	39.0	53.0	49.0	55.0	48.0	38.0	46.0	38.0
MACRINITE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INERT SEMIFUSI	49.0	52.0	55.0	41.0	45.0	41.0	44.0	55.0	51.0	51.0
FUSINITE	7.0	8.0	2.0	3.0	4.0	2.0	5.0	2.0	0.0	6.0
INERTODETRINIT	5.0	5.0	4.0	3.0	2.0	2.0	3.0	5.0	3.0	5.0
TOTAL INERTINI	61.0	65.0	61.0	47.0	51.0	45.0	52.0	62.0	54.0	62.0

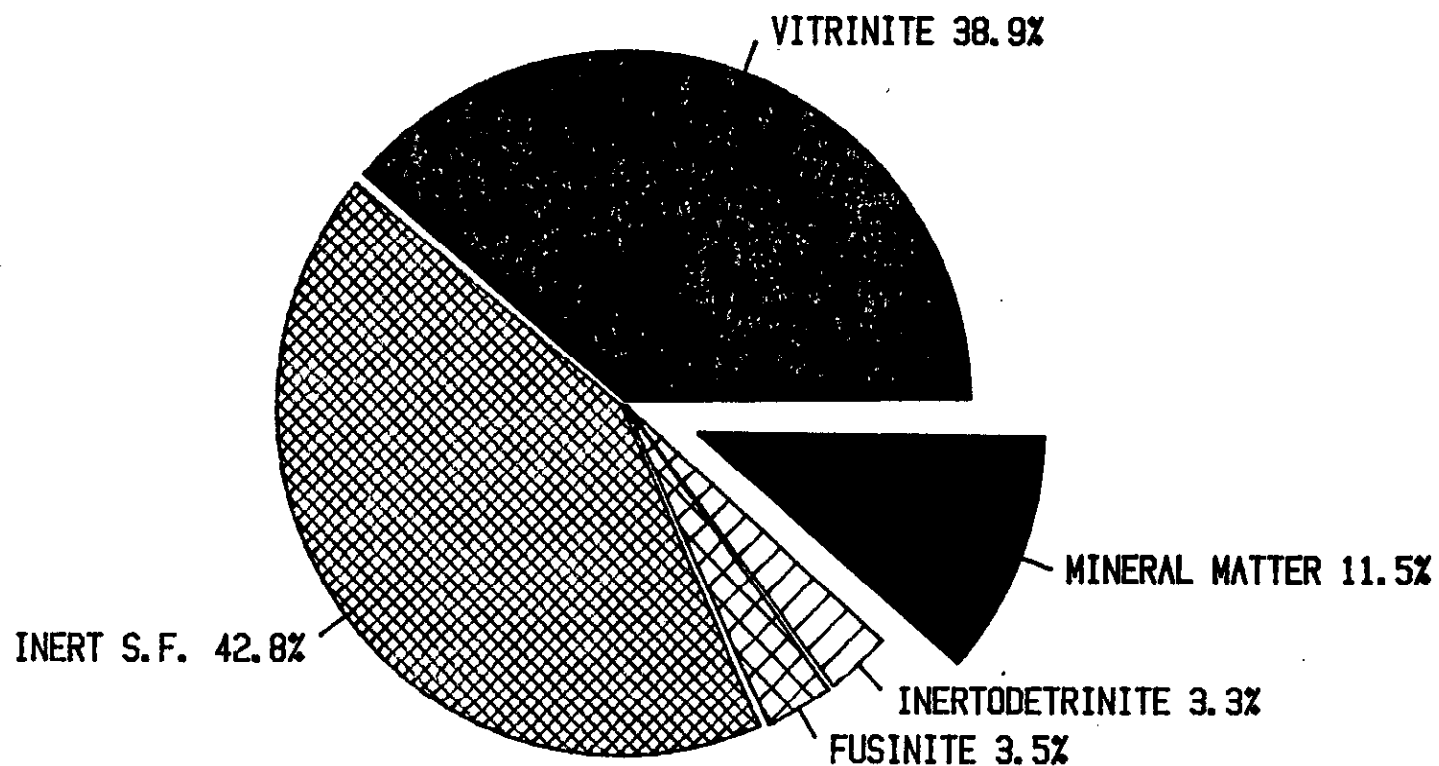
BASIC STATISTICS	MEAN	ST.DEVIATION	VARIANCE
VITRINITE	44.0	7.1	50.0
EXINITE	0.0	0.0	0.0
REACTIVE SEMIFUSINITE	0.0	0.0	0.0
TOTAL REACTIVES	44.0	7.1	50.0
MACRINITE	0.0	0.0	0.0
INERT SEMIFUSINITE	48.4	5.3	28.3
FUSINITE	3.9	2.6	6.5
INERTODETRINITE	3.7	1.3	1.6
TOTAL INERTINITES	56.0	7.1	50.0

MACERAL DATA CORRECTED FOR MINERAL-MATTER CONTENT

VITRINITE	38.9
EXINITE	0.0
REACTIVE SEMIFUSINITE	0.0
TOTAL REACTIVES	38.9
MACRINITE	0.0
INERT SEMIFUSINITE	42.8
FUSINITE	3.5
INERTODETRINITE	3.3
MINERAL MATTER	11.5
TOTAL INERTS	61.1

MACERAL DISTRIBUTION

Sample #4738
Semifusinite - KOENSLER method



GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPDLRDDH82005 SEAM - L

SAMPLE ID - 4739

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00			
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		ASH % -	
S.G.	TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.70		15.97	10.41	15.97	10.41	84.03	61.37	30.65	30.65
2.60		84.03	61.37	100.00	53.23			9.17	12.60

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPnlRDDH82005 SEAM - L

SAMPLE ID - 4898

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -					
		ELEMENTAL	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	WT%	ASH%	C.V.	CUM.	C.V.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)					
1.70		3.38	10.80	3.38	10.80	96.62	60.68	30.61		30.61			
2.60		96.62	60.68	100.00	58.99			0.25		1.28			

GCRI COAL DIVISION HEAD PROJ KPN BLK LR DS DDH82005
 =====
 SAMPLE ID 39 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 28/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

 TOP SIZE (MM) 10.00
 SURFACE MOISTURE %<AD,AR> ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE %<AD,EM> 0.29
 ASH % 54.93
 VOLATILE MATTER % 31.34
 FIXED CARBON % 13.44

 TOTAL SULPHUR % 0.15
 PHOSPHOROUS % ---
 CHLORINE (PPM) 00675
 SPECIFIC GRAVITY 2.35
 FSI ---
 HGI 39.0
 CO2 % 27.98

 GROSS CALORIFIC VALUE (MJ/KG) ---
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK LR DS DDH82005
 =====
 SAMPLE ID 39 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 26/10/82
 FRACTION SIZE WT% ASH% FSI CAL RM VM TS
 FROM (MM) TO (MM) (MJ/KG)
 10.00 0.60 82.99 57.55 --- 3.77 0.42 33.37 0.17
 0.60 0.15 10.27 47.07 --- 12.62 0.97 20.03 0.16
 0.15 0.00 6.74 43.97 --- 13.82 0.84 19.33 0.27

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005
 =====
 SAMPLE ID 39
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 28/10/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER % 0.29
 CARBON % 24.49
 HYDROGEN % 0.70
 SULPHUR % 0.15
 NITROGEN % 0.39
 ASH % 54.93
 OXYGEN % 19.05

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 39
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1350.0
 SOFTENING TEMP.(C) 1385.0
 HEMISPHERICAL TEMP.(C) 1390.0
 FLUID TEMP.(C) 1390.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1345.0
 SOFTENING TEMP.(C) 1390.0
 HEMISPHERICAL TEMP.(C) 1395.0
 FLUID TEMP.(C) 1395.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 39
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	26.12
ALUMINIUM OXIDE %	(AL2O3)	8.04
FERRIC OXIDE %	(FE2O3)	16.98
TITANIUM DIOXIDE %	(TI02)	0.13
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.54
CALCIUM OXIDE %	(CAO)	25.35
MAGNESIUM OXIDE %	(MGO)	16.54
SULPHUR TRIOXIDE %	(SO3)	0.48
SODIUM OXIDE %	(NA2O)	0.59
POTASSIUM OXIDE %	(K2O)	0.19

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 39
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 08/12/82

PYRITE	%	60.00
SULPHATE	%	7.00
ORGANIC	%	33.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPMLRDDH82005 SEAM - L

SAMPLE ID - 39

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	10.00 X	0.60	RELATIVE WEIGHT % - 82.99 ASH % - 57.55					
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	0.90	1.56	0.90	1.56	99.10	58.32	34.55	34.55	
1.50	4.40	7.07	5.30	6.13	94.70	60.70	32.31	32.69	
1.60	1.61	15.38	6.91	8.29	93.09	61.49	28.98	31.83	
1.70	0.86	23.73	7.77	10.00	92.23	61.84	25.37	31.11	
1.80	0.53	28.06	8.30	11.15	91.70	62.04	23.01	30.59	
1.90	0.64	33.06	8.94	12.72	91.06	62.24	22.45	30.01	
2.00	0.74	39.09	9.68	14.74	90.32	62.43	19.87	29.24	
2.10	1.13	40.06	10.81	17.38	89.19	62.71	13.91	27.63	
2.20	1.26	44.62	12.07	20.23	87.93	62.97	11.70	25.97	
2.30	1.05	47.37	13.12	22.40	86.88	63.16	10.14	24.70	
2.60	86.88	63.16	100.00	57.81			0.00	3.24	

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	0.60 X	0.15	RELATIVE WEIGHT % - 10.27 ASH % - 47.07					
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	4.39	1.86	4.39	1.86	95.61	47.27	34.43	34.43	
1.50	25.59	8.64	29.98	7.65	70.02	61.38	30.84	31.37	
1.60	10.62	13.17	40.60	9.09	59.40	70.00	29.17	30.79	
1.70	5.89	20.66	46.49	10.56	53.51	75.44	25.62	30.14	
1.80	2.80	29.11	49.29	11.61	50.71	77.99	22.16	29.68	
2.00	4.77	43.81	54.06	14.45	45.94	81.54	15.24	28.41	
2.10	3.33	49.08	57.39	16.46	42.61	84.08	13.59	27.55	
2.60	42.61	84.08	100.00	45.27			0.00	15.81	

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNLRDDH82005 SEAM - L

SAMPLE ID - 39

WASHABILITY ID - WA1

FRACTION	ANALYSIS TYPE - FROTH				RELATIVE WEIGHT % - 6.74 ASH % - 43.97			
	SIZE(MM)	0.15 X	0.00		CUM. SINKS		C.V.	CUM.
S.G.TME	ELEMENTAL		CUM. FLOATS		WT% ASH%		(MJ/KG)	C.V.
	WT% ASH%		WT% ASH%					
30.00	54.01 23.68		54.01 23.68		45.99 67.08		24.56	24.56
45.00	2.91 49.78		56.92 25.01		43.08 68.25		10.90	23.86
60.00	4.17 65.28		61.09 27.76		38.91 68.56		3.22	22.45
90.00	3.58 65.72		64.67 29.86		35.33 68.85		2.82	21.37
120.00	2.52 66.01		67.19 31.22		32.81 69.07		2.79	20.67
300.00	32.81 69.07		100.00 43.64				0.00	13.89

=====
 GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 39 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.20	12.07	10.02
0.60	0.15	2.10	57.39	5.89
0.15	0.00	30.00	54.00	3.64

=====
 GCRI COAL DIVISION COALCOMP PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 39 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 25/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.50
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	1.40	SPECIFIC GRAVITY	1.58
ASH %	20.23	FSI	---
VOLATILE MATTER %	10.80	HGI	---
FIXED CARBON %	67.57	CO2 %	4.23

GROSS CALORIFIC VALUE (MJ/KG) 26.09
 NET CALORIFIC VALUE (MJ/KG) ---

=====
 GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH82005
 =====

SAMPLE ID 39 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.40
CARBON	%	70.00
HYDROGEN	%	2.51
SULPHUR	%	0.50
NITROGEN	%	0.87
ASH	%	20.23
OXYGEN	%	4.49

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH82005

SAMPLE ID 39
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/12/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1195.0	INITIAL TEMP.(C)	1185.0
SOFTENING TEMP.(C)	1215.0	SOFTENING TEMP.(C)	1205.0
HEMISPHERICAL TEMP.(C)	1220.0	HEMISPHERICAL TEMP.(C)	1210.0
FLUID TEMP.(C)	1235.0	FLUID TEMP.(C)	1225.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH82005

SAMPLE ID 39
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 09/12/82

SILICON DIOXIDE %	(SI02)	39.83
ALUMINIUM OXIDE %	(AL2O3)	16.55
FERRIC OXIDE %	(FE2O3)	7.91
TITANIUM DIOXIDE %	(TI02)	1.13
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.50
CALCIUM OXIDE %	(CAO)	14.92
MAGNESIUM OXIDE %	(MGO)	6.63
SULPHUR TRIOXIDE %	(SO3)	5.29
SODIUM OXIDE %	(NA2O)	1.10
POTASSIUM OXIDE %	(K2O)	0.38

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH82005

SAMPLE ID 39
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 01/12/82

PYRITE	%	6.00
SULPHATE	%	2.00
ORGANIC	%	92.00

TOTAL 100.00

Gulf Canada Resources Inc.
 Sample #4739+4898
 Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.97
STANDARD ERROR OF THE MEAN	0.03
COEFFICIENT OF VARIATION	5.62
VARIANCE	0.0496
STANDARD DEVIATION	0.2227
SKEWNESS	0.2312
KURTOSIS	3.8028

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
5	3.40	1	2.00
6	3.50	2	4.00
7	3.60	1	2.00
8	3.70	6	12.00
9	3.80	8	16.00
10	3.90	9	18.00
11	4.00	14	28.00
12	4.10	3	6.00
13	4.20	1	2.00
14	4.30	2	4.00
15	4.40	2	4.00
16	4.50	1	2.00

~~CONFIDENTIAL~~

OPEN FILE

APPENDIX III

Coal Quality

FOREWORD

The data contained within this Appendix represents the results of the coal quality analysis and testing program undertaken by Gulf Canada Resources Inc. on the Mount Klappan Anthracite.

The coal quality analysis and washability studies were undertaken by Cyclone Engineering Sales Ltd. of Edmonton, Alberta and the petrographic work by D.E. Pearson and Associates of Victoria, British Columbia.

APPENDIX III
Coal Quality
TABLE OF CONTENTS

VOLUME I

NOTE: CONFIDENTIAL
COAL QUALITY DATA
IS IN APPENDIX III,
VOLUME I BOOK.

Foreword

Discussion of Petrographic and Mineral Matter Analysis by D.E. Pearson
and Associates Ltd.

Explanation of Computer Printout Abbreviations

DDH82001

- Header data
- Page size map of property showing hole location
- Page size strip log showing coal intersections, gross coal, and seam designations
- List of Gulf and lab sample ID's component and composite, gross/net coal, depth
- Coal seam data sheets - true thickness
- Coal seam data sheets - apparent thickness
- Coal quality printouts
- Reflectance data (when applicable)

DDH82002

- Header data
- Page size map of property showing hole location
- Page size strip log showing coal intersections, gross coal, and seam designations
- List of Gulf and lab sample ID's component and composite, gross/net coal, depth
- Coal seam data sheets - true thickness
- Coal seam data sheets - apparent thickness
- Coal quality printouts
- Reflectance data (when applicable)

DDH82003

- Header data
- Page size map of property showing hole location
- Page size strip log showing coal intersections, gross coal, and seam designations
- List of Gulf and lab sample ID's component and composite, gross/net coal, depth
- Coal seam data sheets - true thickness
- Coal seam data sheets - apparent thickness
- Coal quality printouts
- Reflectance data (when applicable)

DDH82004

- Header data
- Page size map of property showing hole location
- Page size strip log showing coal intersections, gross coal, and seam designations
- List of Gulf and lab sample ID's component and composite, gross/net coal, depth
- Coal seam data sheets - true thickness
- Coal seam data sheets - apparent thickness
- Coal quality printouts
- Reflectance data (when applicable)

VOLUME II

DDH82005

- Header data
- Page size map of property showing hole location
- Page size strip log showing coal intersections, gross coal, and seam designations
- List of Gulf and lab sample ID's component and composite, gross/net coal, depth
- Coal seam data sheets - true thickness
- Coal seam data sheets - apparent thickness
- Coal quality printouts
- Reflectance data (when applicable)

DDH82006

- Header data
- Page size map of property showing hole location
- Page size strip log showing coal intersections, gross coal, and seam designations
- List of Gulf and lab sample ID's component and composite, gross/net coal, depth
- Coal seam data sheets - true thickness
- Coal seam data sheets - apparent thickness
- Coal quality printouts
- Reflectance data (when applicable)

DDH82007

- Header data
- Page size map of property showing hole location
- Page size strip log showing coal intersections, gross coal, and seam designations
- List of Gulf and lab sample ID's component and composite, gross/net coal, depth
- Coal seam data sheets - true thickness
- Coal seam data sheets - apparent thickness
- Coal quality printouts
- Reflectance data (when applicable)

Discussion of Reflectance and

Mineral Matter Analysis

by

D.E. Pearson & Associates Ltd.

INTRODUCTION

Twenty three coal samples were received at the Coal Laboratory on October 5, 1982. The samples were identified as follows:

3509

4701-4704

4705

4706-4707

4708-4709

4710-4714

4716-4720

4721-4723

4854-4857

4862-4864

4865

4866

4867-4869

4871

4958

4959-4961

4964-4966

4967-4969

4970-4972

4973-4974

4975-4977

4978

4979

SAMPLE PREPARATION

The coal samples were coned and quartered and reduced to provide sufficient material for one pellet. This coal was then placed in pre-greased, re-useable METSERV 25 mm plastic moulds. Cold-set epoxy resin, to which had been added a portion of hardener, was then mixed with the coal and allowed to set. This is the preferred method of sample preparation for all ranks of coal, as it does not affect the reflectance of vitrinites nor the fluorescence of exinites. The pellets were subsequently ground and polished on Beuhler equipment.

PETROGRAPHIC EXAMINATION

The polished samples were examined using a Leitz Orthoplan Compact-model microscope-photometer, the control panel of which is interfaced to a Hewlett-Packard 85 microcomputer, an Epson MX-80 printer and a Hewlett-Packard 725A plotter, for electronic computation, tabulation and draughting of results.

Fifty individual vitrinite 'A' grains were measured for reflectance in the rank analysis. Standardization of photometer-readout was performed before the analysis and values were retained by the computer.

Five hundred counts were made in the mineral-matter analysis, using a x20 dry-lens.

RESULTS

The results of the analyses are contained in table form in the appendix. We have enclosed the individual readings made in the reflectance analysis, the basic statistics and computer-generated histograms of the reflectance data.

The mineral-matter percentages are contained in table form in the appendix.

DISCUSSION

All samples have vitrinite reflectances that place them well within the limits for anthracites, that is, greater than 2.2%. The samples are of similar rank; the actual range of reflectance is 3.21-3.766%, and all should have d.a.f. volatile matter yields of about 5%.

Mineral-matter contents are variable, and for the samples examined, range from 36% to 9%. Carbonate in mineral-matter is quite variable from 3% to 18%, and will cause considerable variation in Volatile-matter yield. Pyrite is not common, and quartz is present in amounts of 0.8% to 6%. Shale, is most variable, from 1.8% to 36%.

RESULTS OF REFLECTANCE ANALYSIS

<u>SAMPLE #</u>	<u>REFLECTANCE (%)</u>
3509	3.56
4701-4704	3.54
4705	3.47
4706-4707	3.52
4708-4709	3.38
4710-4714	3.76
4716-4720	3.54
4721-4723	3.65
4854-4857	3.37
4862-4864	3.30
4865	3.43
4866	3.39
4867-4869	3.44
4871	3.55
4958	3.36
4959-4961	3.21
4964-4966	3.27
4967-4969	3.29
4970-4972	3.29
4973-4974	3.33
4975-4977	3.21
4978	3.42
4979	3.44

Explanation of Computer Printout Abbreviations

PROJ KPN	Mt. Klappan Project
BLK BC	Broatch Creek Block
BLK FC	Fox Creek Block
BLK GC	Grizzley Creek Block
BLK HC	Hobbit Creek Block
BLK IK	Little Klappan Block
BLK LR	Lost Ridge Block
BLK SS	Summit South Block
DDH	Diamond Drill Hole
TRC	Trench
OTC	Outcrop
HDI+	Head Analysis
WAI+	Washability Analysis
SZI+	Size Analysis
SP1*	Sample Product
CCI+	Coal Composition
AF1+	Ash Fusion Analysis
AM1+	Ash Mineral Analysis
UL1+	Ultimate Analysis
SU1+	Sulphur Analysis

*where 1=Raw, 2=5%, 3=10%, 4=20%, 5=25% Ash Content

+where 1=Cyclone Engineering Sales

gcri coal division history proj KPN blk HC ds DDH82001

start date 01/08/82
 end date 03/08/82

contractor J.T.THOMAS operator GCRI
 geologist SWANBERGSON surveyor _____

remarks VERTICAL HOLE, NO GEOPHYSICAL LOGS AS LOGGING UNIT
 WAS DESTROYED IN ACCIDENT, DRILLERS' MARKERS MEASURED FROM GROUND LEVEL + APPROX. 0.6M

gcri coal division location proj KPN blk HC ds DDH82001

choose one location input number, 1 province BC
 then enter location elevation (M) 1400.00

1	utm:	zone 09	northing	6343645.00	easting	0514375.00
2	lat-long:	lat 571415	long	1284543		

gcri coal division orientation proj KPN blk HC ds DDH82001

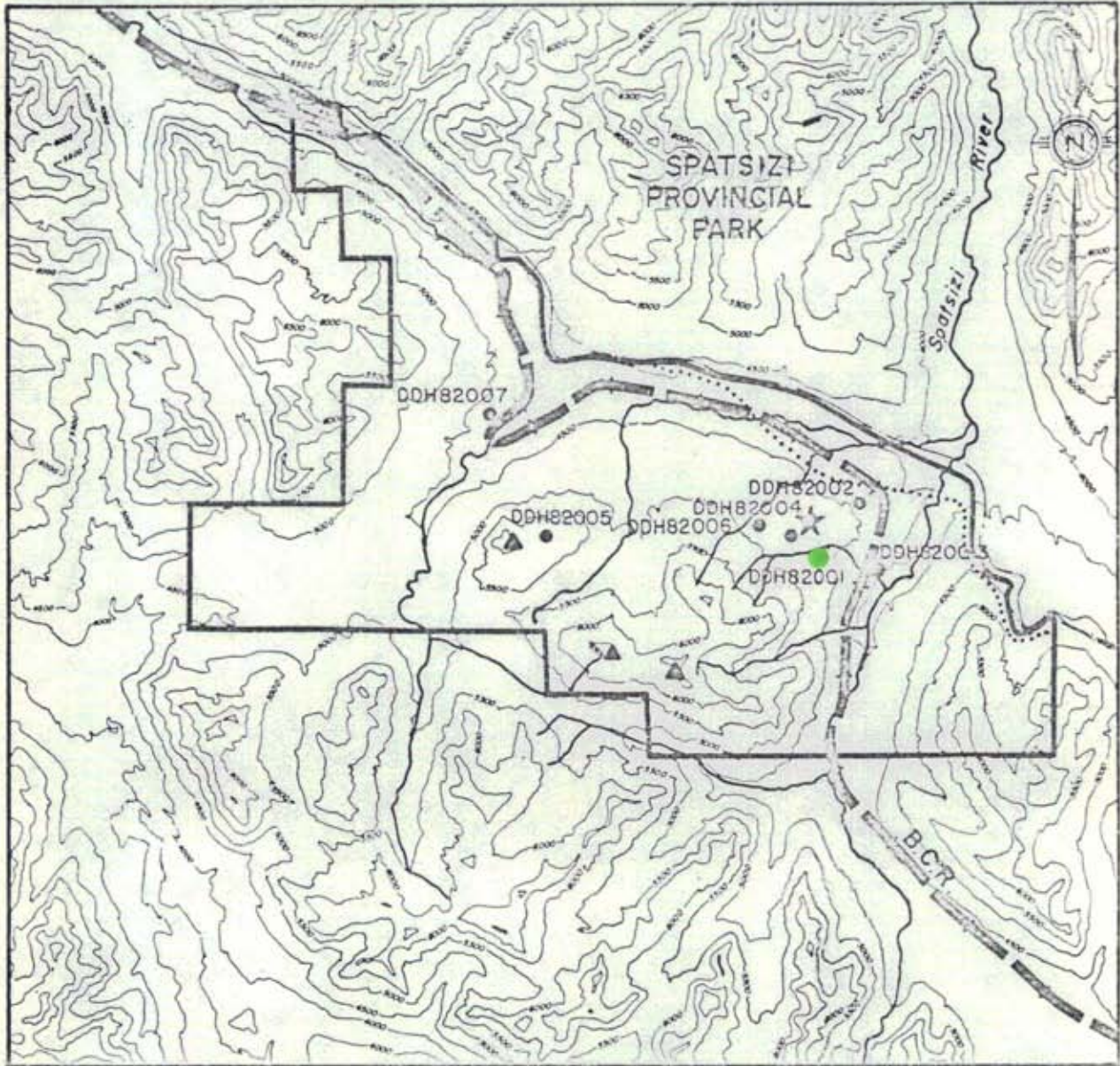
dimensions and orientation:

length (M) 124.05 inclination 90.0 azimuth 0.0
 size width 95.8 size height
 roof strike dip dir
 floor strike dip dir

casing depth (M) 12.19 cement(y,_) _ plug(Y,_) Y piez(Y,_) _
 aquifer depths (M) _____
 loss cir depths(M) _____




MT. KLAPPAN COAL PROPERTY

DIAMOND DRILL HOLES



0 1 2 3 4 5 Km

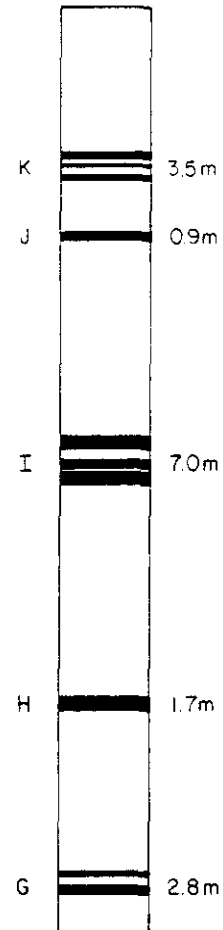


-  Prepared Rail Bed
-  Provincial Park Boundary
-  Camp
-  Diamond Drill Hole
-  Redefined Property Boundary
-  Peaks

MT. KLAPPAN COAL PROPERTY

DDH82001

SEAM SEAM THICKNESS



SCALE - 1:1000

LAB SAMPLE SUMMARY

DATA SOURCE	SEAM	GULF SAMPLE I.D.	CYCLONE SAMPLE I.D.	GROSS COAL	NET COAL	DRILLED INTERVAL
KPNHCDDH82001	K	1	sl-342-532	3.45	1.63	19.39 - 22.84
	J	2	sl-342-533	0.93	0.85	30.08 - 31.02
	I	3	sl-342-534	1.84	1.55	57.25 - 59.18
	I	4	sl-342-535	0.93	0.85	59.18 - 60.14
	I	5	sl-342-536	3.21	2.41	61.18 - 64.51
	H	6	sl-342-537	1.54	0.90	94.16 - 95.86
	G	7	sl-342-538	1.68	1.16	118.44 - 120.12

GULF CANADA RESOURCES INC. - COAL DIVISION
 24/JAN/83 SIMPLE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82001										
	K	4701	19.39	20.38	0.99	100.00	0.78	0.21	0.00	0.00
	K	4702	20.38	20.84	0.46	100.00	0.12	0.34	0.00	0.00
	K	4703	20.84	21.57	0.73	100.00	0.42	0.31	0.00	0.00
	K	4704	21.57	22.84	1.27	100.00	0.31	0.96	0.00	0.00
	J	4705	30.08	31.02	0.94	100.00	0.86	0.08	0.00	0.00
	I	4706	57.25	57.42	0.17	100.00	0.09	0.08	0.00	0.00
	I	4707	57.42	59.18	1.76	100.00	1.54	0.22	0.00	0.00
	I	4708	59.18	59.50	0.32	100.00	0.00	0.32	0.00	0.00
	I	4709	59.50	60.14	0.64	100.00	0.39	0.25	0.00	0.00
	I	4725	60.14	61.18	1.04	100.00	0.00	1.04	0.00	0.00
	I	4710	61.18	61.80	0.62	100.00	0.57	0.05	0.00	0.00
	I	4711	61.80	61.91	0.11	100.00	0.00	0.11	0.00	0.00
	I	4712	61.91	62.72	0.81	100.00	0.47	0.34	0.00	0.00
	I	4713	62.72	62.97	0.25	100.00	0.09	0.16	0.00	0.00
	I	4714	62.97	64.51	1.54	100.00	1.39	0.15	0.00	0.00
	H	4715	93.95	94.16	0.21	100.00	0.04	0.17	0.00	0.00
	H	4716	94.16	94.46	0.30	100.00	0.30	0.00	0.00	0.00
	H	4717	94.46	94.93	0.47	100.00	0.15	0.32	0.00	0.00
	H	4718	94.93	95.29	0.36	100.00	0.31	0.05	0.00	0.00
	H	4719	95.29	95.59	0.30	100.00	0.00	0.30	0.00	0.00
	H	4720	95.59	95.86	0.27	100.00	0.23	0.04	0.00	0.00
	G	4721	118.44	119.18	0.74	100.00	0.51	0.23	0.00	0.00
	G	4722	119.18	119.30	0.12	100.00	0.00	0.12	0.00	0.00
	G	4723	119.30	120.12	0.82	100.00	0.65	0.17	0.00	0.00

GULF CANADA RESOURCES INC. - COAL DIVISION
 24/JAN/83 COMPOSITE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82001												
	K	1	4701	4704	19.39	22.84	2.35	68.12	1.63	0.72	1.10	0.00
	J	2	4705	4705	30.08	31.02	0.94	100.00	0.86	0.08	0.00	0.00
	I UPPER	3	4706	4707	57.25	59.18	1.77	91.71	1.63	0.14	0.16	0.00
	I UPPER	4	4708	4709	59.18	60.14	0.96	100.00	0.39	0.57	0.00	0.00
	I LOWER	5	4710	4714	61.18	64.51	2.86	85.89	2.52	0.34	0.47	0.00
	H	6	4716	4720	94.16	95.86	1.64	96.47	0.99	0.65	0.06	0.00
	G	7	4721	4723	118.44	120.12	1.42	84.52	1.16	0.26	0.26	0.00

DRILLING DEPTH	COAL SEAM LUG	INTERVAL		REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
			No Geophysical Logs Obtained, Therefore Unable to Distinguish Core Loss.					
19.39								
			0.38					
		0.01	(0.10) 0.06 0.23	79.8	04701			
20.38		0.01	(0.10) 0.11					
		0.02	(0.10) 0.05	78.3	04702			
		0.02	0.05 0.04					
20.84		0.19						
			0.09 (0.10) 0.11					
		0.05	0.09	72.6	04703		1.63*/0.72*	1.63*/0.72*
		0.03	0.08 (0.10)				3.45+	3.45+
21.57		0.03	0.05 (0.10)					
		0.02	0.05					
		0.03	(0.10) 0.05					
		0.06						
			(0.40)					
		0.03	0.03	52.8	04704			
		0.02	0.03 0.02					
		0.02	0.02					
		0.15						
22.84		0.01	0.03 (0.10) 0.07					

* Does not include core loss.

* Includes core loss, drillers markers were used to determine amount of core loss.

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



MT. KLAPPAN COAL PROJECT
SEAM DETAIL
TRUE THICKNESS
DDH-82-001
SEAM K

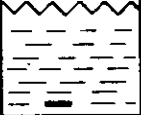
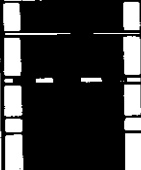

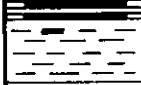


PREPARED BY: C. L.


SCALE 1:40

APPROVED BY: J. M. D.

DATE: NOV. '82

DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
30.08								
		0.02	0.17	100	04705	2	0.85 / 0.08 0.93	0.85 / 0.08 0.93
		0.04	0.21					
		0.01	0.17					
		0.01	0.06					
			0.24					
31.02		0.41						
31.55		0.05	0.03 0.03					
								
								

GULF CANADA RESOURCES INC.		
Calgary	Coal Division	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH - 82 - 001 SEAM J		
PREPARED BY: C. L.	DATE: NOV. '82	SCALE 1:40
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

P-267 (12-80)
Apparent Thickness

DENSITY

RESISTIVITY

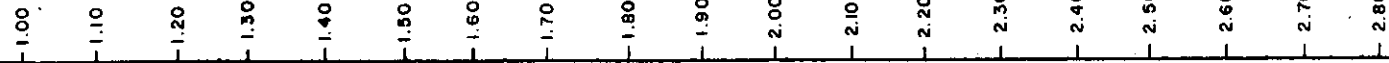
DRILL NO. DDH - 82 - 001

SEAM J

SEAM INTERVAL

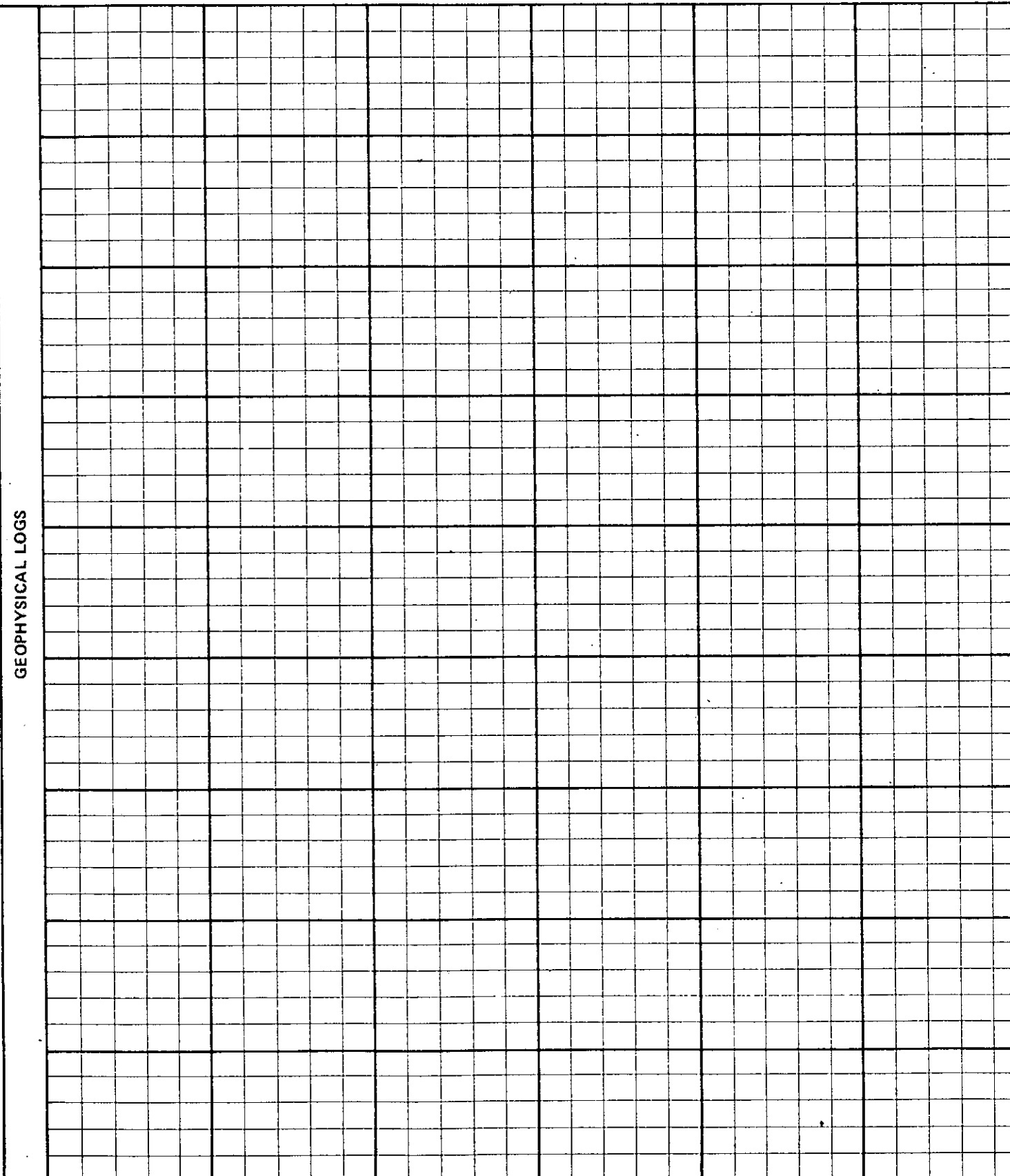
SCALE 1: 40

DENSITY SCALE



RESISTIVITY SCALE

No Geophysical Logs Obtained



GEOPHYSICAL LOGS

SEAM COMP. 1 2 3 4 5 6	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL. MJ/kg	FSI			
	30.08		0.02	0.18													
			0.04	0.21	100	04705	2	1.13	22.07	9.05	67.75		26.03				
	31.02		0.01	0.17													
			0.01	0.06													
	31.55		0.05	0.03													
				0.24													
			0.42														
				0.03													
				0.03													

Seam Interval (m) : 30.08 - 31.02
Seam True Thickness (Coal / Rock) : 0.85 / 0.08
Total 0.93

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS.		
57.25								
57.42		0.08	0.09	100	04706			
			0.91			3	1.55*/0.14*	1.55*/0.14*
		0.06		93.6	04707		1.84+	1.84+
			0.55					
59.18			(0.10)					
			(0.05)					
59.50		0.30		86.5	04708			
			0.14			4	0.38/0.54	
		0.10						
		0.07	0.08	100	04709		0.92	
60.14		0.03	0.05					
			0.05					
		1.00		100	04725			
61.18			0.17					
			(0.05)					
			0.37	91.9	04710			
61.80								
61.91		0.11		100	04711			
			0.36					
			(0.29)	63	04712			
62.72		0.02	0.05					
		0.02	0.05					
		0.08	0.04	100	04713		2.41*/0.34*	2.41*/0.34*
62.97		0.04	0.05			5	3.21+	3.21+
		0.04	0.05					
			0.05					
		0.03	0.08					
			0.08					
			0.14					
			(0.06)					
			1.05	92.2	04714			
64.51								

* Does not include core loss.
 + Includes core loss; drillers markers were used to determine amount of core loss.

No Geophysical Logs Obtained, Therefore Unable to Distinguish Core Loss.

GULF CANADA RESOURCES INC.

Coal Division
 CALGARY ALBERTA



MT. KLAPPAN COAL PROJECT
SEAM DETAIL
TRUE THICKNESS
DDH-82-001
SEAM I


PREPARED BY: C. L.

SCALE 1:40

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS.		
		No Geological Logs Obtained, Therefore Unable to Distinguish Core Loss.						
93.95								
94.16		0.07	0.04 (0.08)	57.1	04715			
94.46			0.28	100	04716			
	c-c-c-c	0.11	0.08					
	c-c-c	0.13	0.03	100	04717			
94.93		0.02 0.03	0.03 0.09			6	0.90 0.59*	0.90 0.59*
95.29		0.02 0.04	0.14 0.04 (0.05)	100	04718		1.54+	1.54+
95.59	c-c-c	0.17		80	04719			
95.86		0.02 0.02	0.12 0.01	100	04720			

* Does not include core loss

+ Includes core loss; drillers markers were used to determine amount of core loss

GULF CANADA RESOURCES INC.		
CALGARY	Coal Division	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-001 SEAM H		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV '82	DRAWING No.

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

P-267 (12-80)
Apparent Thickness

DENSITY

RESISTIVITY

DRILL NO. DDH - 82 - 001

SEAM H

SEAM INTERVAL

SCALE 1:40

DENSITY SCALE																		
1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80
RESISTIVITY SCALE																		
No Geophysical Logs Obtained																		

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS										
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL. MJ/kg	FSI				
	93.95		0.08	0.04 (0.09)	57.1	04715												
	94.16			0.30	100	04716	↑ 6 ↓	1.77	40.16	7.19	50.88	19.47						
	94.46	c-c-c-c	0.12	0.09	100	04717												
	94.93		0.15 0.02 0.03	0.03 0.03 0.10	100	04718												
	95.29		0.02 0.05	0.16 (0.06)	80	04719												
	95.59	c-c-c-c	0.19	0.13	100	04720												
	95.86		0.02 0.02	0.84														

GEOPHYSICAL LOGS

Seam Interval (m) : 93.95 - 95.86
 Seam True Thickness (Coal/Rock) : 0.94* 0.66*
 Total 1.73
 * does not include core loss

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
		No Geological Logs Obtained, Therefore Unable to Distinguish Core Loss						
117.35			0.16					
		0.30						
			(0.15)					
		0.48						
118.44			(0.08)					
		0.04	0.18				↑	↑
			0.33	80	04721			
			(0.14)					
119.18		0.12		100	04722	7	1.16*/0.26*	1.16*/0.26*
119.30			0.22				1.68 +	1.68 +
			(0.07)					
		0.05	0.10	91.5	04723		↓	↓
		0.03	0.12					
		0.02	0.14					
120.12			0.07					

* Does not include core loss

+ Includes core loss; drillers markers were used to determine amount of core loss

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH- 82-001 SEAM G		
PREPARED BY: C. L.	DATE: NOV. '82	SCALE 1:40
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

gcri coal division history proj KPN blk HC ds DDH82002

start date 05/08/82
 end date 08/08/82

contractor J.T.THOMAS operator GCRI
 geologist SWANBERGSON surveyor _____

remarks NEUTRON-GAMMA TOOL GAVE OFF SCALE READINGS IN BASAL
 PORTION OF HOLE AS A RESULT OF TOOL FAILURE- TO
 BE DETERMINED , GEOPHYSICAL LOG MEASURED FROM GROUND
 LEVEL + APPROX. 0.6m

gcri coal division location proj KPN blk HC ds DDH82002

choose one location input number, 1 province BC
 then enter location elevation (M) 1342.00

1	utm:	zone 09	northing 6345134.00	easting 0515445.00
2	lat-long:	lat 571503	long 1284439	

gcri coal division orientation proj KPN blk HC ds DDH82002

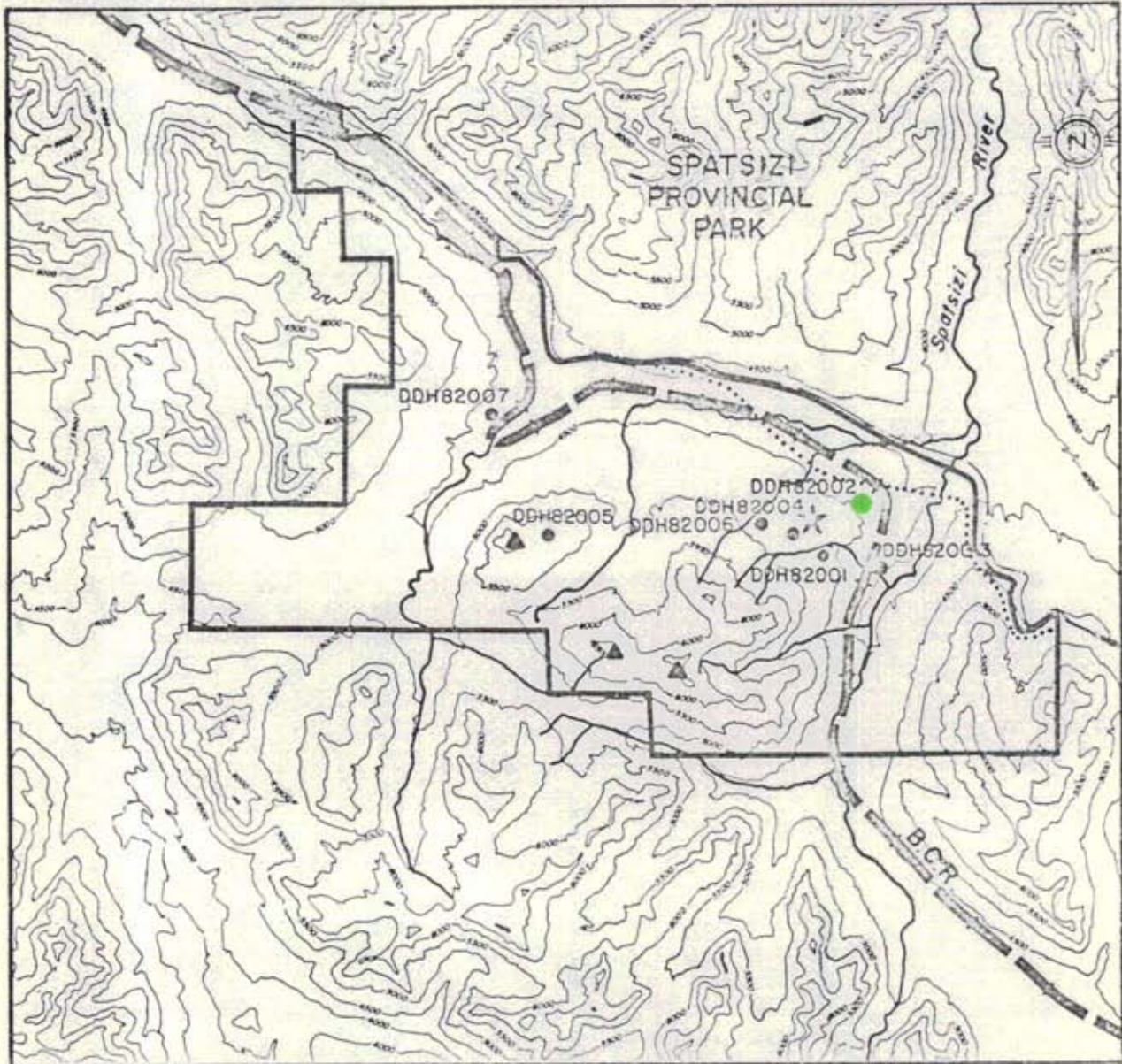
dimensions and orientation:

length (M) 178.96 inclination 90.0 azimuth 0.0
 size width 95.8 size height
 roof strike dip dir
 floor strike dip dir

casing depth (M) 0.61 cement(y,_) Y plug(Y,_) _ piez(Y,_) _
 aquifer depths (M) _____
 loss cir depths(M) _____






MT. KLAPPAN COAL PROPERTY

DIAMOND DRILL HOLES



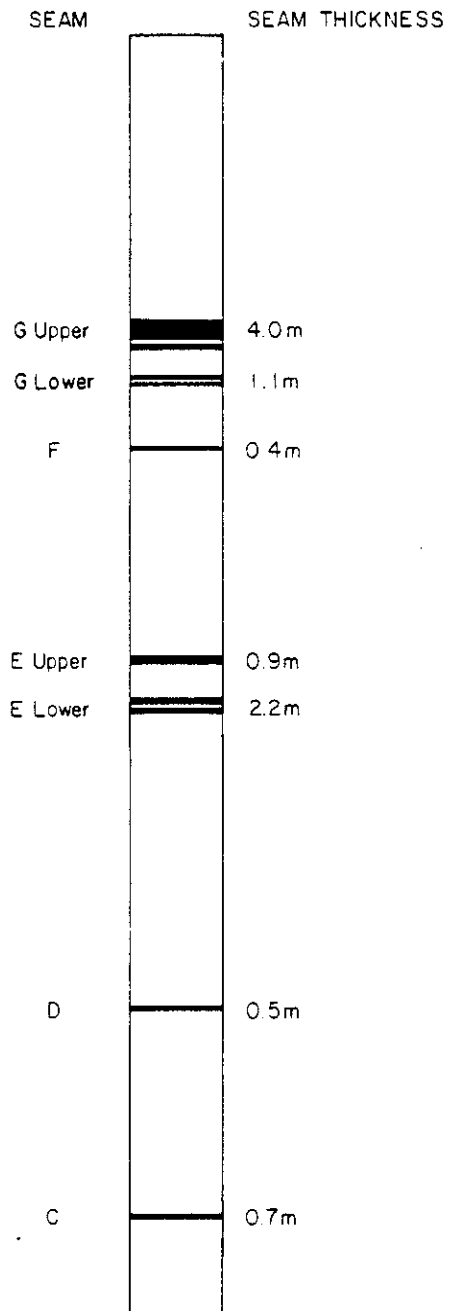
0 1 2 3 4 5 Km



-  Prepared Rail Bed
-  Provincial Park Boundary
-  Camp
-  Diamond Drill Hole
-  Redefined Property Boundary
-  Peaks

MT. KLAPPAN COAL PROPERTY

DDH82002



SCALE - 1:1000

LAB SAMPLE SUMMARY

DATA SOURCE	SEAM	GULF SAMPLE I.D.	CYCLONE SAMPLE I.D.	GROSS COAL	NET COAL	DRILLED INTERVAL
KPNHCDDH82002	G upper	8	sl-342-539	2.99	2.31	36.19 - 39.20
	G upper	9	sl-342-540	0.88	0.21	39.20 - 40.08
	G lower	10	sl-342-541	1.13	0.56	43.42 - 44.55
	E upper	11	sl-342-542	0.92	0.72	81.07 - 82.06
	E lower	12	sl-342-543	0.82	0.82	86.51 - 87.44
	E lower	13	sl-342-544	1.42	0.82	87.44 - 89.00
	D	14	sl-342-545	0.53	0.53	138.38 - 138.92
	C	15	sl-342-546	0.67	0.67	165.97 - 166.66

GULF CANADA RESOURCES INC. - COAL DIVISION
 24/JAN/83 COMPOSITE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82002												
	G UPPER	8	4854	4857	36.19	39.20	2.85	94.68	2.33	0.52	0.00	0.16
	G UPPER	9	4858	4859	39.20	40.08	0.34	38.64	0.07	0.27	0.14	0.40
	G LOWER	10	4862	4864	43.42	44.55	1.09	96.46	0.52	0.57	0.04	0.00
	E UPPER	11	4865	4865	81.07	82.06	0.78	78.79	0.78	0.00	0.00	0.21
	E LOWER	12	4866	4866	86.51	87.44	0.93	100.00	0.93	0.00	0.00	0.00
	E LOWER	13	4867	4869	87.44	89.00	1.32	84.62	0.83	0.49	0.07	0.17
	D	14	4870	4870	138.50	139.03	0.46	86.79	0.46	0.00	0.07	0.00
	C	15	4871	4871	166.20	166.89	0.69	100.00	0.69	0.00	0.00	0.00

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS.		
35.68		0.23		100	04852			
35.93		0.10		100	04853			
36.03		0.11	0.05	100	04853			
36.19			0.22	60	04854	↑	↑	↑
36.59		(0.16) 0.02 0.03	0.11	100	04855	↑	↑	↑
37.50		0.23	0.10	100	04856	8	2.31/0.68 2.99	2.31/0.68 2.99
38.04		0.21	0.69	100	04857	↓	↓	↓
39.20		0.24	0.05	37.5	04858	↑	↑	↑
39.84		(0.40) 0.03	0.02 0.05 (0.14)	41.6	04859	9	0.21/0.67 0.88	0.21/0.67 0.88
40.08		(0.22) 0.18	0.06	86	04860			
41.65		0.71 0.04 0.32	0.03 0.01					
42.32								

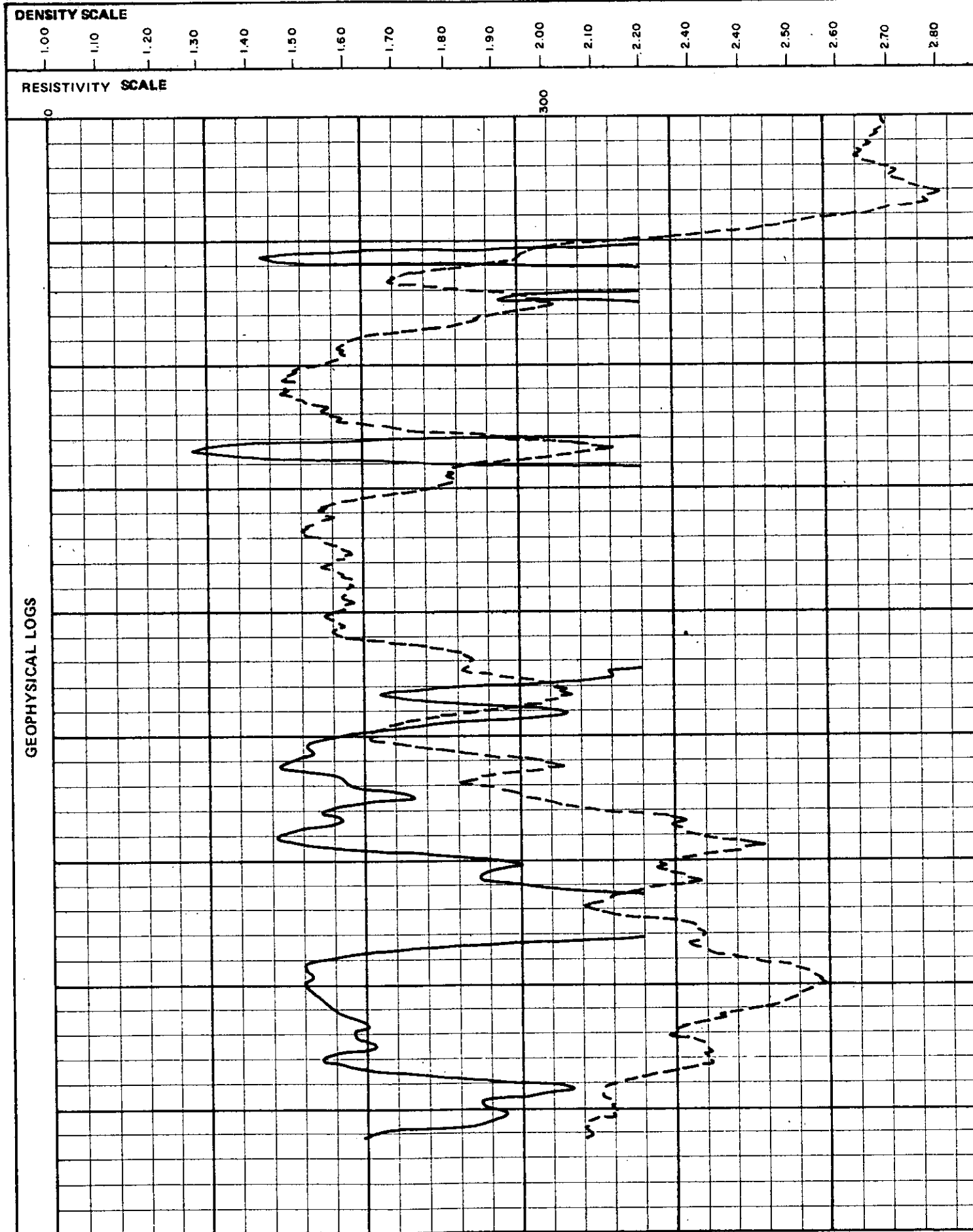
GULF CANADA RESOURCES INC.		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-002 SEAM G UPPER		
PREPARED BY: C. L.	DATE: NOV. '82	SCALE 1:40
APPROVED BY: J. M. D.	DRAWING No.	

DENSITY

RESISTIVITY

DRILL NO. DDH-82-002 SEAM G Upper SEAM INTERVAL _____

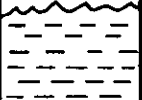





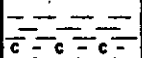
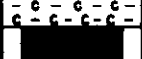

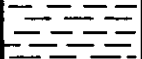

SCALE 1:40




GEOPHYSICAL LOGS

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	.S'	CAL. VAL MJ/kg	FSI		
123456	35.68															
	35.93		0.25		100	04852										
	36.03		0.10	0.05	100	04853										
	36.19		0.11													
	36.59		(0.16)		60	04854										
	36.59		0.03	0.11												
	37.50			0.77	100	04855										
	37.50		0.23				8	1.43	25.59	7.75	65.23		24.09			
	38.04		0.21	0.10	100	04856										
	38.04			0.70												
	39.20		0.01	0.38	100	04857										
	39.20		0.02	0.05												
	39.20		0.24		37.5	04858										
	39.84		(0.40)				9	1.52	45.61	8.73	44.14		15.17			
	39.84		0.03	0.02 0.05	41.6	04859										
	40.08		(0.22)	(0.14)												
	40.08		0.18	0.06												
	41.65		0.71		86	04860										
	41.65		0.04	0.03 0.01												
	41.65		0.32													
	42.32															

Seam Interval (m): 36.03 - 40.08
Seam True Thickness (Coal/Rock): 2.57/1.46
Total 4.03

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TCTAL
		ROCK	COAL		NUMBER	COMPOS.		
42.32								
		0.22	0.04					
		0.05	0.02					
		(0.45)		59.1	04861			
43.42		0.32						
43.71			0.25	86.2	04862	↑	↑	
			0.04					
44.26		0.55		100	04863	10	0.56/0.57	
44.55			0.20	100	04864	↓	↓	
		0.02	0.07					
								

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-002 SEAM G LOWER		
PREPARED BY: C. L.	SCALE 1: 40	
APPROVED BY: J. M. D.	DATE: NOV. '82 DRAWING No.	

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

Apparent Thickness

DENSITY

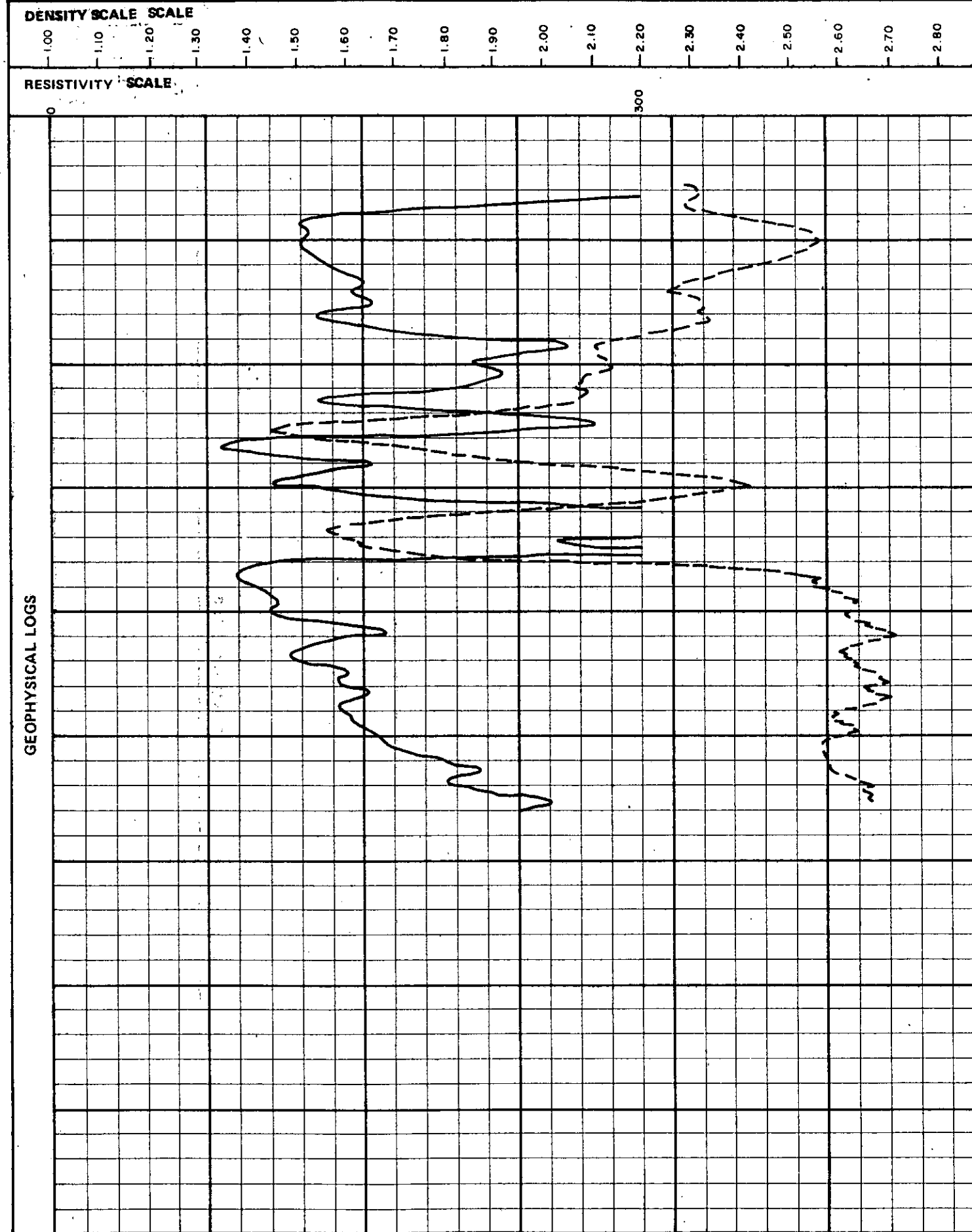
RESISTIVITY

DRILL NO. DDH - 82 - 002

SEAM G Lower

SEAM INTERVAL

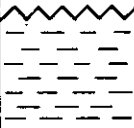


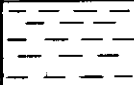
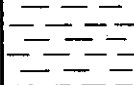
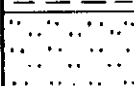

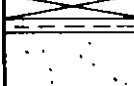
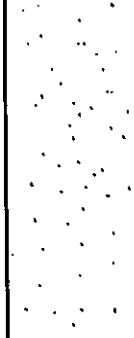
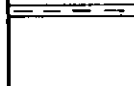
SCALE 1:40




GEOPHYSICAL LOGS

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S'	CAL. VAL MJ/kg	FSI			
123456	42.32		0.22 0.05	0.04 0.02	59.1	04861											
	43.42		(0.45) 0.32														
	43.71			0.25 (0.04)	86.2	04862	10	1.44	48.77	6.46	43.33	14.52					
	44.26		0.55		100	04863											
	44.55		0.02	0.20 0.07	100	04864											

Seam Interval (m): 43.42 - 44.55
Seam True Thickness (Coal/Rock): 0.56/0.57
Total 1.13

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
81.07								
			0.51	78.8	04865		0.72/0.20 0.92	0.72/0.20 0.92
		(0.20)						
82.06			0.21					
								
								
								
								
								
86.51								

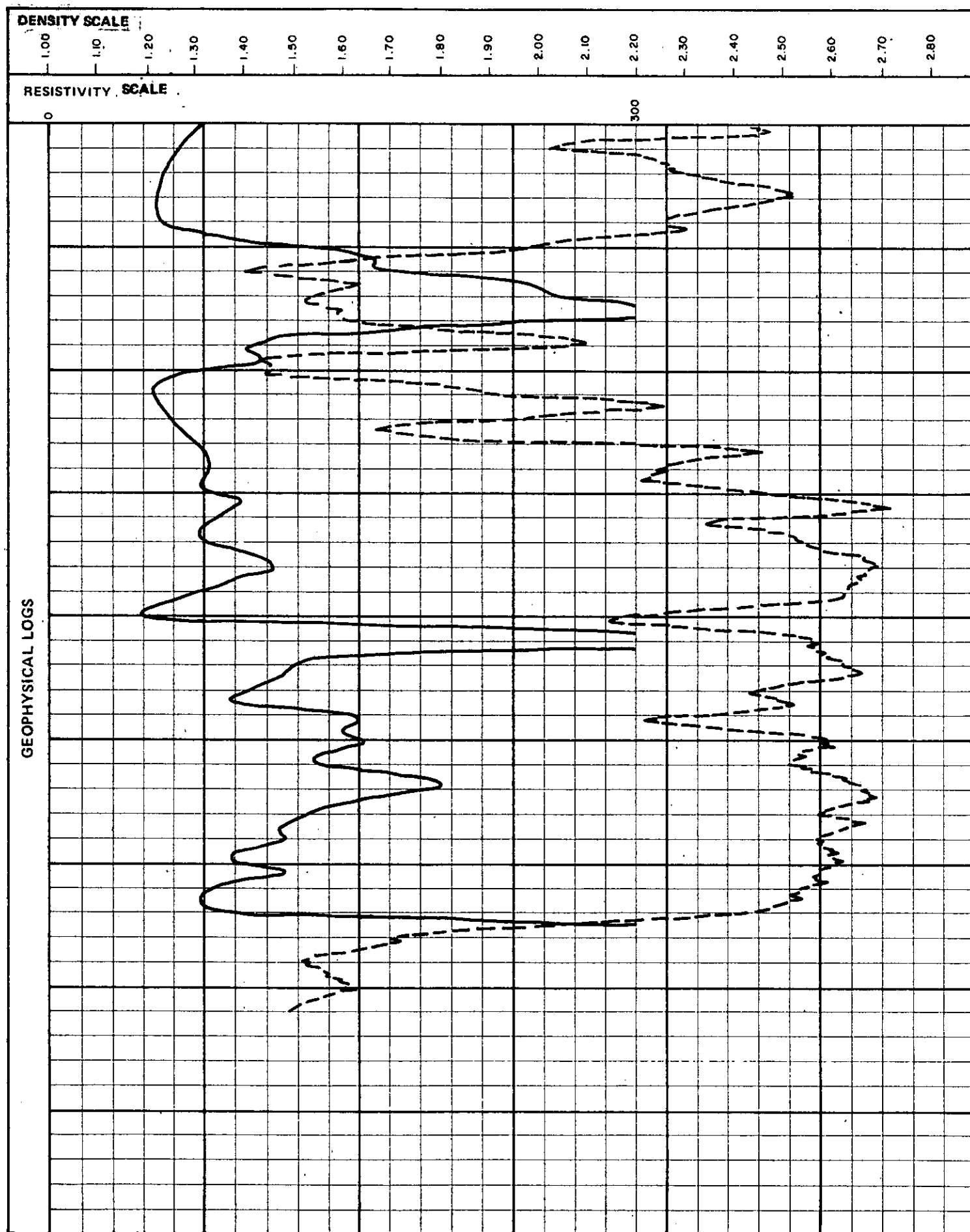
GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-002 SEAM E UPPER		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. L.	DATE: NOV. 82	DRAWING No.

DENSITY

RESISTIVITY

Apparent Thickness

DRILL NO. DDH - 82 - 002 SEAM E Upper SEAM INTERVAL _____
SCALE 1:40



SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL MJ/kg	FSI
123456	81.07			0.56	78.8	04865	↑ ↓	1.30	25.04	7.70	65.96	—	25.36	—
	82.06		(0.21)	0.22										
	86.51													

Seam Interval (m): 81.07 - 82.06
Seam True Thickness (Coal/Rock): 0.72/0.20
Total 0.92

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
86.51			0.82	100	04866	12	0.82/0.00 0.82	
87.44		0.04	0.01					
87.72		0.16 (0.04)	(0.08) 0.10	85.7	04867			
88.22		0.03 (0.12)	0.05	69.8	04868			1.64/0.60 2.24
		0.09	0.05			13	0.82/0.60 1.42	
		0.10	0.05	100	04869			
89.00		0.02	0.05					
			0.24					

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-002 SEAM E LOWER		
PREPARED BY: C. L.	SCALE 1: 40	
APPROVED BY: J. M. O.	DATE: NOV. 82	DRAWING No.

DENSITY

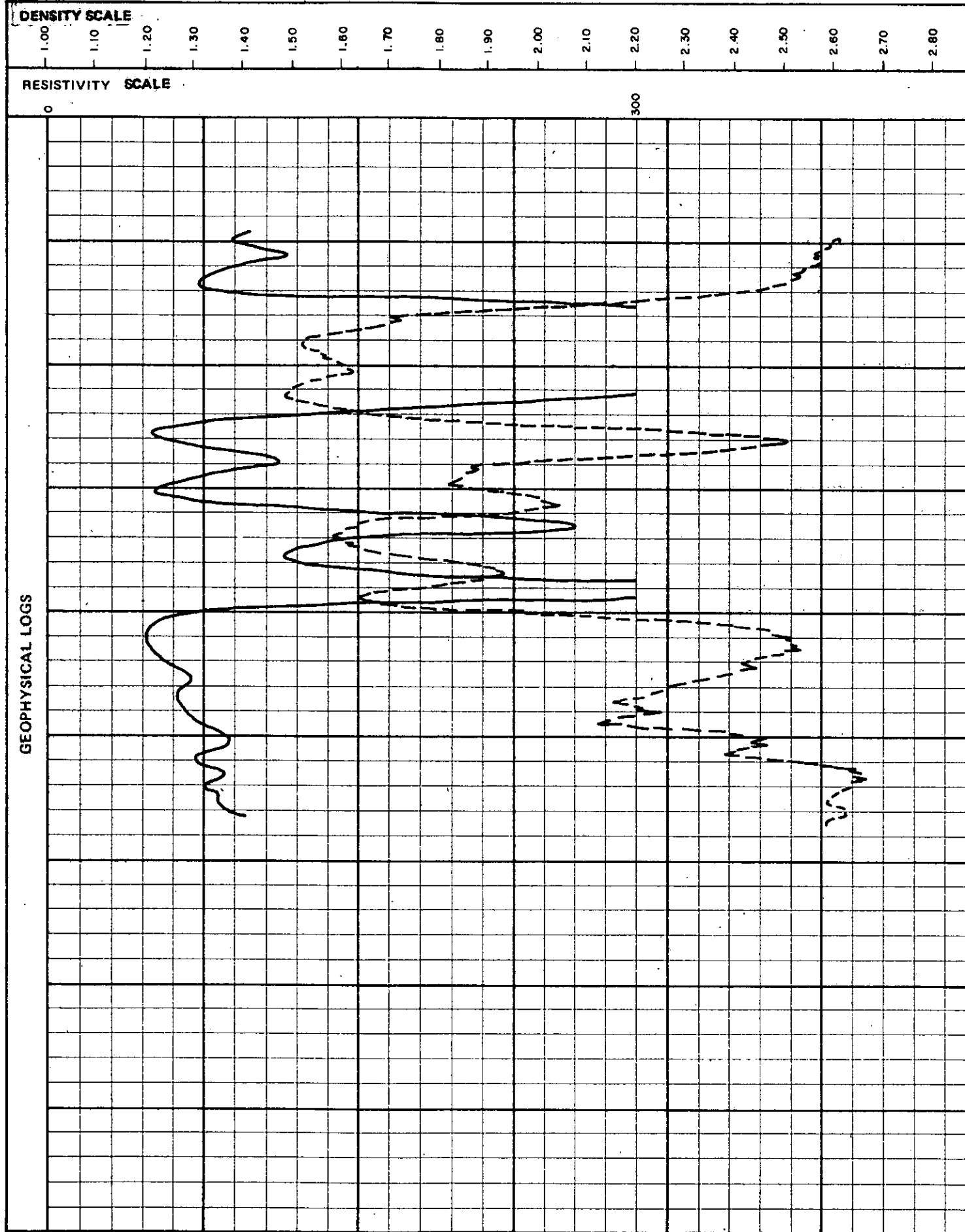
RESISTIVITY

DRILL NO. DDH - 82 - 002

SEAM E Lower

SEAM INTERVAL Apparent Thickness

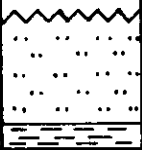
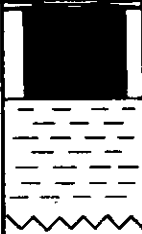
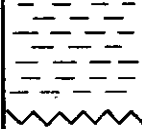
SCALE 1:40



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS					
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL KJ/kg
123456	86.51			0.93	100	04866	12	1.06	23.43	10.44	65.07	25.18	
	87.44		0.05 0.18 (0.04)	0.01	85.7	04867	13						
	87.72		0.03 0.10 (0.13)	0.07 0.11 0.08	69.8	04868							
	88.22			0.34			13	1.57	52.33	7.76	38.34	13.70	
	89.00		0.11 0.02	0.05 0.26	100	04869							

Seam Interval (m): 86.51 - 89.00
Seam True Thickness (Coal/Rock): 1.64/0.60
Total 2.24

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL/ROCK TOTAL	COAL/ROCK TOTAL		
138.38			(0.08)					
138.92			0.45	86.8	04870	↑ 14 ↓	↑ 0.53/0.00 ↓ 0.53	↑ 0.53/0.00 ↓ 0.53
								

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



MT. KLAPPAN COAL PROJECT
SEAM DETAIL
TRUE THICKNESS
DDH-82-002
SEAM D

PREPARED BY: C. L.

SCALE 1:40

APPROVED BY: J. M. D.

DATE: NOV. 82

DRAWING No.

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

DENSITY

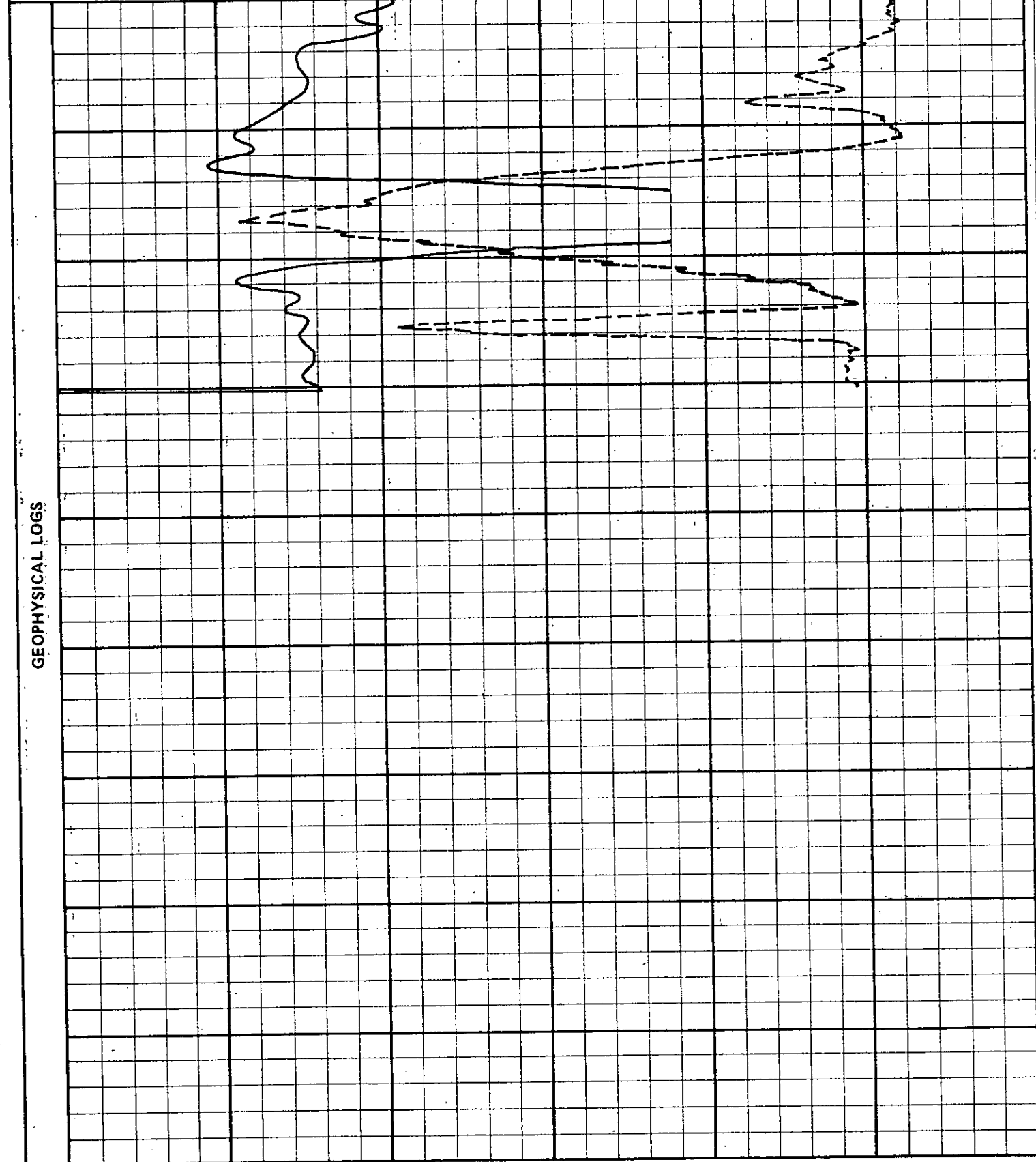
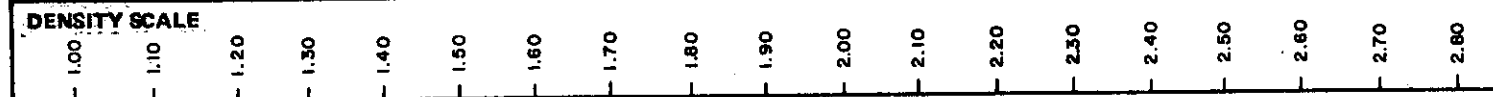
RESISTIVITY

DRILL NO. DDH-82-002

SEAM D

SEAM INTERVAL

Apparent Thickness



SEAM COMP. 1 2 3 4 5 6

DEPTH metres

COAL SEAM LOG

INTERVAL

ROCK COAL

% REC.

SAMPLE

NUMBER COMPOS.

PROXIMATE ANALYSIS

MOIST ASH VM FC S' Cal. Val MJ/kg FSI

138.38

138.92

0.08

0.46

85.2

04870

↑ 14 ↓

1.14

25.63



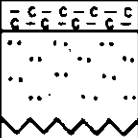
9.22


64.01

24.85

Seam Interval (m): 138.38-138.92
Seam True Thickness (Coal/Rock): 0.53/0.00
Total 0.53

GEOPHYSICAL LOGS

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
165.97								
166.66			0.67	100	04871	15	0.67/0.00 0.67	0.67/0.00 0.67
								

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-002 SEAM C		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

DENSITY

RESISTIVITY

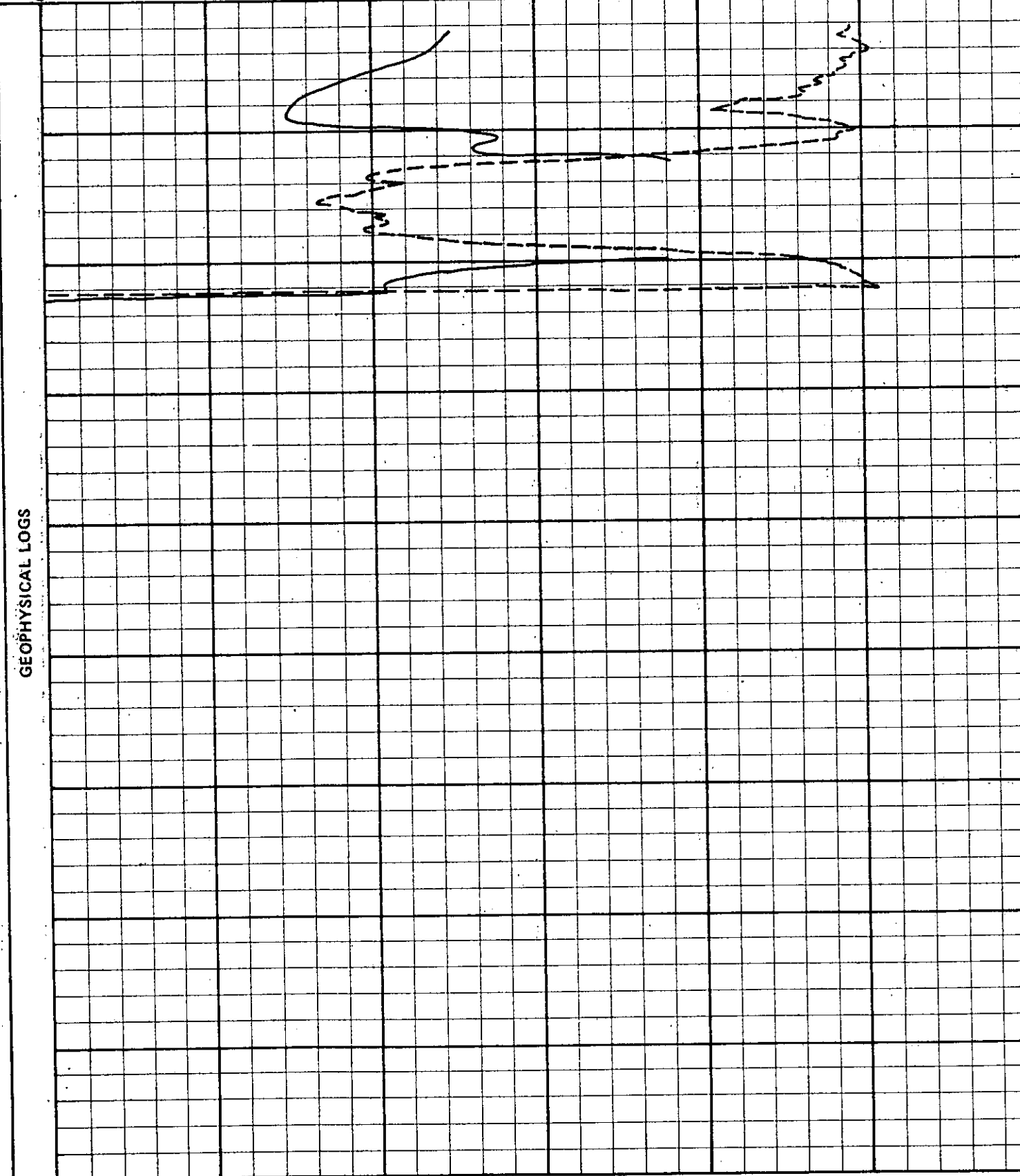
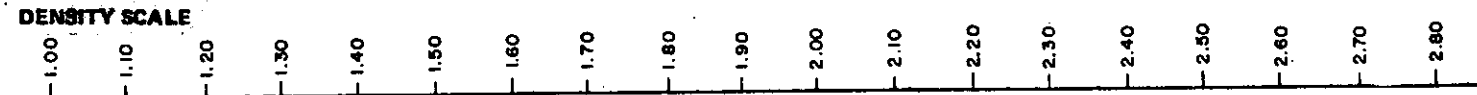
Apparent Thickness

DRILL NO. DDH-82-002

SEAM C

SEAM INTERVAL

SCALE 1:40



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	Cal. Val MJ/kg	FSI
1 2 3 4 5 6	165.97			0.67	100	04871	15	1.48	25.67	7.77	65.08	—	24.66	—
	166.66													
Seam Interval (m): 165.97-166.66 Seam True Thickness (Coal/Rock): 0.67/0.00 Total 0.67														

gcri coal division history proj KPN blk HC ds DDH82003

start date 20/08/82
 end date 20/08/82

contractor J.T.THOMAS operator GCRI
 geologist SEVE surveyor _____

remarks VERTICAL HOLE , GEOPHYSICAL LOG MEASURED FROM GROU
 ND LEVEL + APPROX. 0.6M

gcri coal division location proj KPN blk HC ds DDH82003

choose one location input number, 1 province BC
 then enter location elevation (M) 1271.00

1	utm:	zone 09	northing 6343325.00	easting 0515540.00
2	lat-long:	lat 571405	long 1284433	

gcri coal division orientation proj KPN blk HC ds DDH82003

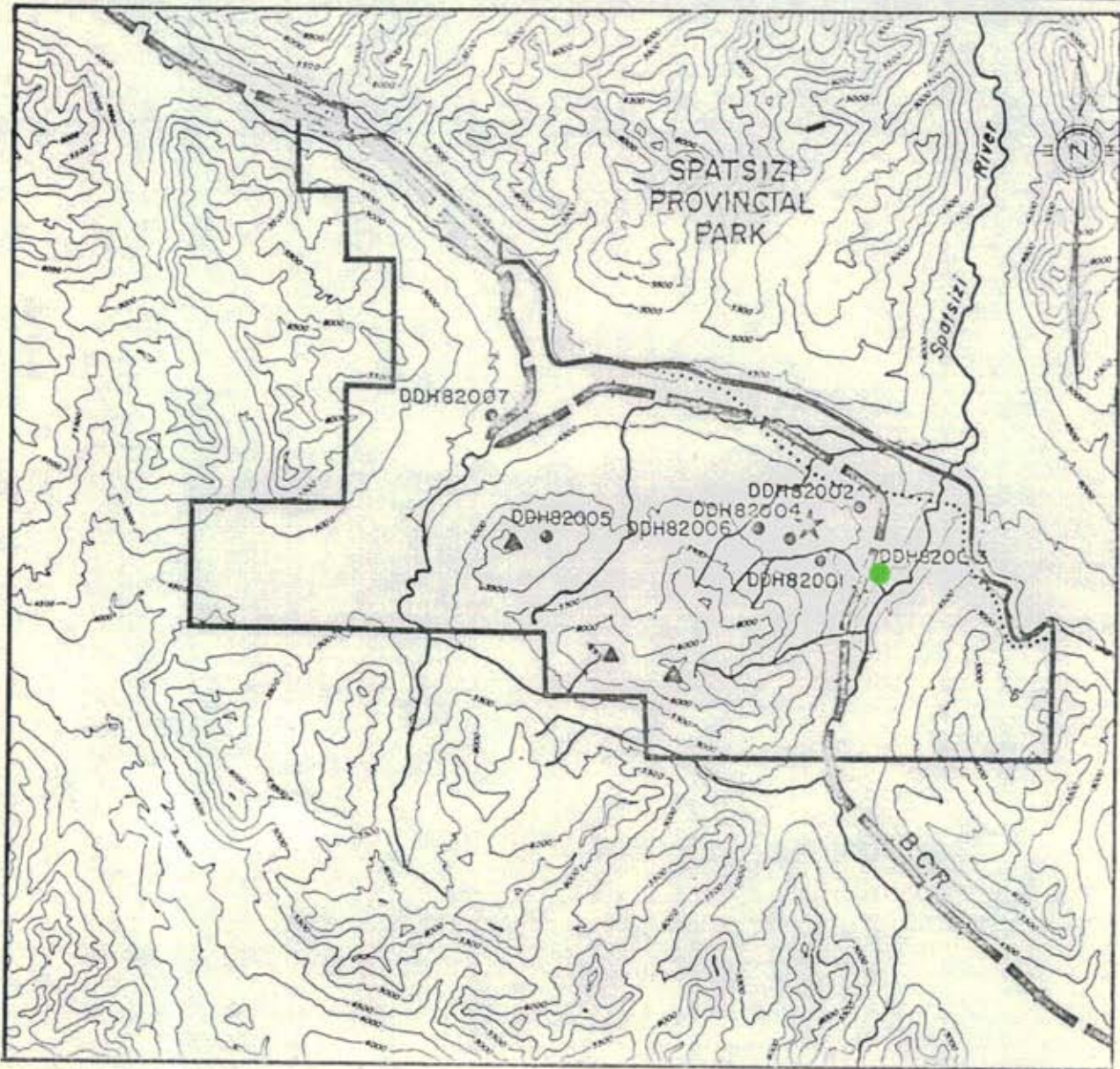
dimensions and orientation:

length (M) 215.48 inclination 90.0 azimuth 0.0
 size width 95.8 size height
 roof strike dip dir
 floor strike dip dir







casing depth (M) 19.51 cement(y,_) _ plug(Y,_) Y piez(Y,_) _
 aquifer depths (M) _____
 loss cir depths(M) _____

MT. KLAPPAN COAL PROPERTY

DIAMOND DRILL HOLES

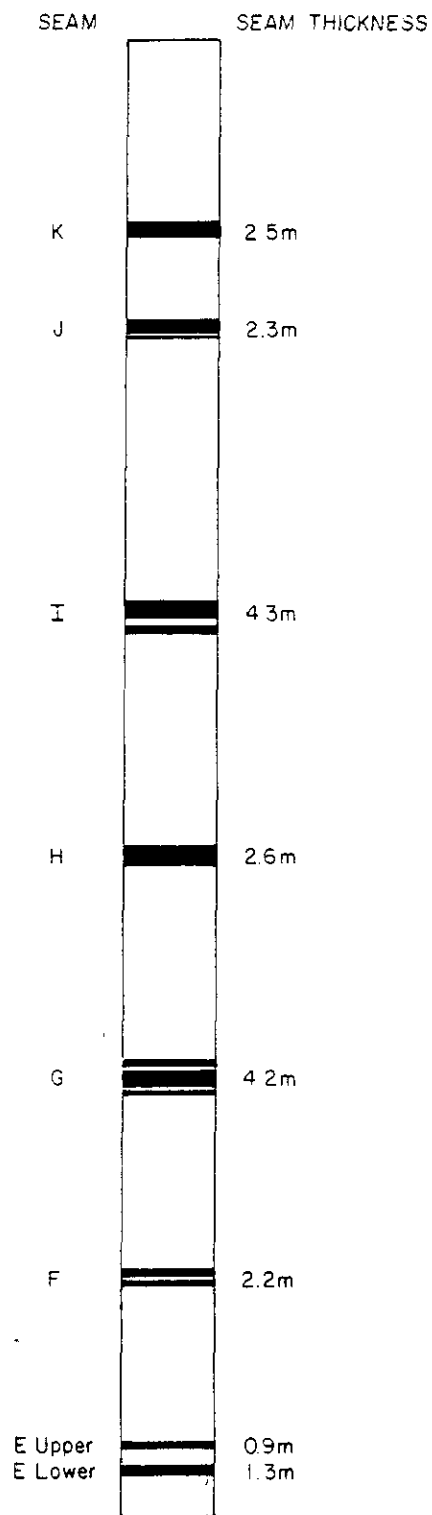


0 1 2 3 4 5 Km

-  Prepared Rail Bed
-  Provincial Park Boundary
-  Camp
-  Diamond Drill Hole
-  Redefined Property Boundary
-  Peaks

MT. KLAPPAN COAL PROPERTY

DDH82003



SCALE - 1:1000

LAB SAMPLE SUMMARY

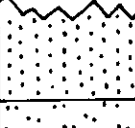


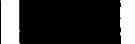

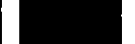


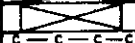
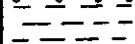
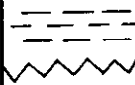
DATA SOURCE	SEAM	GULF SAMPLE I.D.	CYCLONE SAMPLE I.D.	GROSS COAL	NET COAL	DRILLED INTERVAL
KPNHCDDH82003	K	16	sl-342-547	2.24	2.06	28.90 - 32.79
	J	17	sl-342-548	2.33	2.21	44.06 - 46.62
	I	18	sl-342-549	3.92	3.21	94.57 - 98.94
	H	19	sl-342-550	2.57	2.23	127.24 - 129.81
	G	20	sl-342-551	2.89	2.41	155.24 - 158.13
	G	21	sl-342-552	1.05	0.59	158.13 - 159.18
	F	22	sl-342-553	2.17	1.70	182.38 - 184.56
	E	23	sl-342-554	0.86	0.86	205.28 - 206.14
	E	24	sl-342-555	1.28	1.16	208.17 - 209.45


GULF CANADA RESOURCES INC. - COAL DIVISION
 24/JAN/83 SIMPLE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82003										
	K	4956	27.87	28.53	0.39	59.09	0.39	0.00	0.27	0.00
	K	4957	28.53	28.90	0.31	83.78	0.07	0.24	0.00	0.06
	K	4958	28.90	32.79	2.97	76.35	2.83	0.14	0.82	0.10
	J	4959	44.06	44.78	0.51	70.83	0.51	0.00	0.21	0.00
	J	4960	44.78	45.07	0.29	100.00	0.15	0.14	0.00	0.00
	J	4961	45.07	46.62	1.05	67.74	1.05	0.00	0.50	0.00
	I	4962	94.14	94.31	0.17	100.00	0.17	0.00	0.00	0.00
	I	4963	94.31	94.57	0.26	100.00	0.00	0.26	0.00	0.00
	I	4964	94.57	97.16	2.13	82.24	1.98	0.15	0.46	0.00
	I	4965	97.16	97.69	0.53	100.00	0.00	0.53	0.00	0.00
	I	4966	97.69	98.94	0.83	66.40	0.83	0.00	0.31	0.11
	H	4967	127.24	128.12	0.78	88.64	0.78	0.00	0.10	0.00
	H	4968	128.12	129.43	1.31	100.00	1.16	0.15	0.00	0.00
	H	4969	129.43	129.81	0.38	100.00	0.19	0.19	0.00	0.00
	G	4970	155.24	156.14	0.56	62.22	0.56	0.00	0.34	0.00
	G	4971	156.14	156.31	0.17	100.00	0.00	0.17	0.00	0.00
	G	4972	156.31	158.13	1.67	91.76	1.36	0.31	0.15	0.00
	G	4973	158.13	158.53	0.40	100.00	0.00	0.40	0.00	0.00
	G	4974	158.53	159.18	0.60	92.31	0.54	0.06	0.05	0.00
	F	4975	182.38	183.07	0.69	100.00	0.69	0.00	0.00	0.00
	F	4976	183.07	183.70	0.38	60.32	0.16	0.22	0.00	0.25
	F	4977	183.70	184.56	0.86	100.00	0.86	0.00	0.00	0.00
	E UPPER	4978	205.28	206.14	0.78	90.70	0.78	0.00	0.08	0.00
	E LOWER	4979	208.17	209.45	1.11	86.72	0.99	0.12	0.17	0.00

GULF CANADA RESOURCES INC. - COAL DIVISION
 24/JAN/83 COMPOSITE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82003												
	K	16	4958	4958	28.90	32.79	2.97	76.35	2.83	0.14	0.82	0.10
	J	17	4959	4961	44.06	46.62	1.85	72.27	1.71	0.14	0.71	0.00
	I	18	4964	4966	94.57	98.94	3.49	79.86	2.81	0.68	0.77	0.11
	H	19	4967	4969	127.24	129.81	2.47	96.11	2.13	0.34	0.10	0.00
	G	20	4970	4972	155.24	158.13	2.40	83.04	1.92	0.48	0.49	0.00
	G	21	4973	4974	158.13	159.18	1.00	95.24	0.54	0.46	0.05	0.00
	F	22	4975	4977	182.38	184.56	1.93	88.53	1.71	0.22	0.00	0.25
	E UPPER	23	4978	4978	205.28	206.14	0.78	90.70	0.78	0.00	0.08	0.00
	E LOWER	24	4979	4979	208.17	209.45	1.11	86.72	0.99	0.12	0.17	0.00

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
27.87			0.12	59	04956			
28.53		(0.01)	(0.07)	84	04957			
28.90		0.04	0.01					
			(0.14)					
			0.27					
		0.02	(0.12)					
			1.31	76	04958	16	2.06 / 0.18 2.24	2.06 / 0.18 2.24
		0.05	0.02					
		0.03	0.05					
32.79		(0.06)	(0.15)					
								

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-003 SEAM K		
PREPARED BY: C. L.	SCALE 1: 40	
APPROVED BY: J. M. D.	DATE: NOV. 82	DRAWING No.

DENSITY

RESISTIVITY

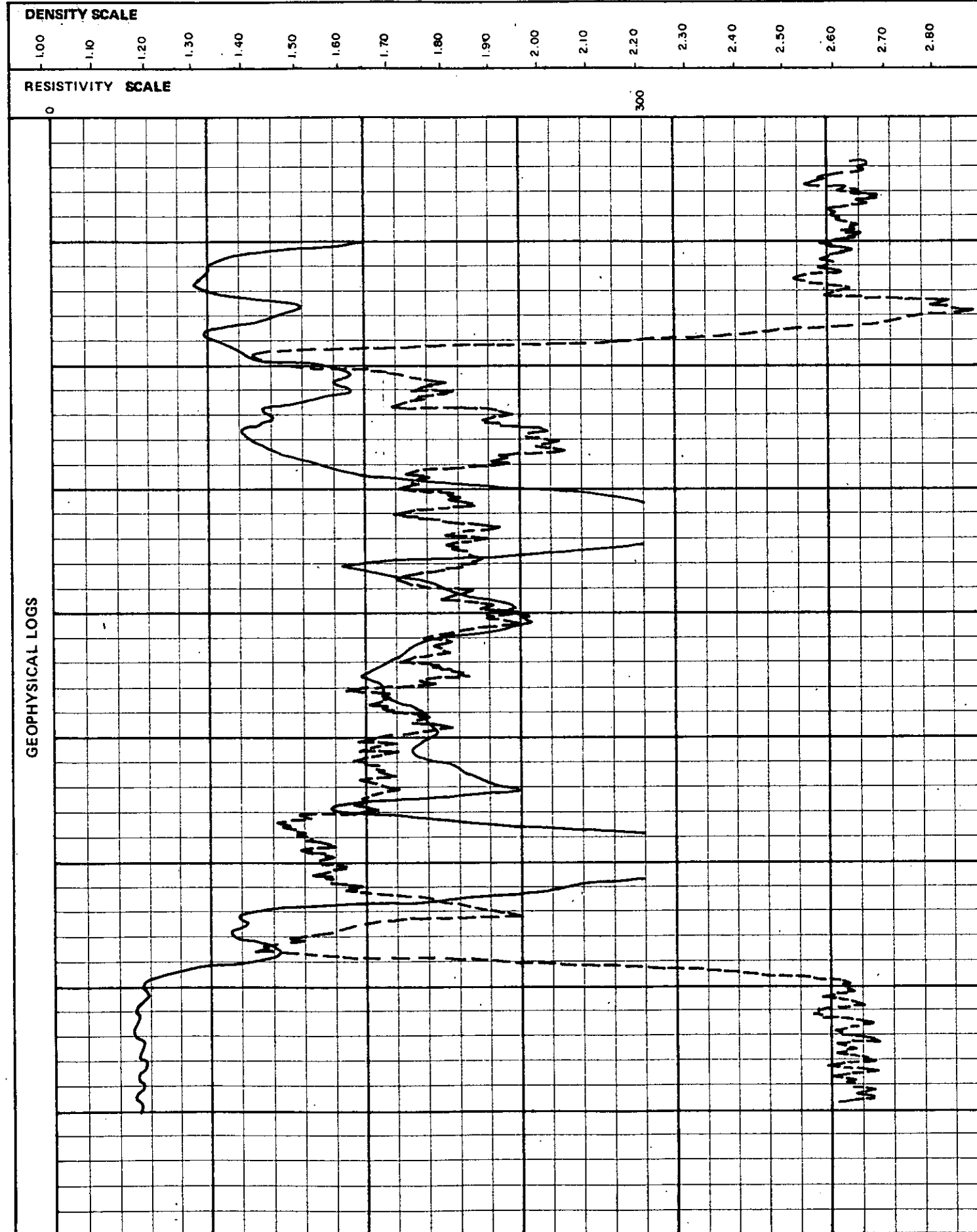
DRILL NO. DDH - 82 - 003

SEAM

K

SEAM INTERVAL

SCALE 1:40



SEAM COMP. 1 2 3 4 5 6	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S'	CAL. VAL. MJ/kg	FSI		
	27.87			0.39												
	28.53		0.06	(0.27)	59	04956										
	28.90		0.16	0.07	83.8	04957										
			0.08	(0.38)												
				0.61												
			0.03	(0.25)												
				2.14	76.4	04958	16	1.67	35.46	7.80	55.07	20.93				
			0.07	0.02												
			0.04	0.06												
			(0.10)	(0.19)												
	32.79															

Seam Interval (m): 27.87 - 32.79
Seam True Thickness (Coal/Rock): 2.26/0.26
Total 2.52

GEOPHYSICAL LOGS

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL/ROCK TOTAL	COAL/ROCK TOTAL		
44.06								
44.78			0.44	71	04959	↑ 17 ↓	↑ 2.21 / 0.12 2.33 ↓	↑ 2.21 / 0.12 2.33 ↓
45.07			(0.18)	100	04960			
			0.68	68	04961			
46.62			(0.47)					
			0.32					

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



**MT. KLAPPAN COAL PROJECT
SEAM DETAIL
TRUE THICKNESS
DDH-82-003
SEAM J**

PREPARED BY: C. L.

SCALE: 1:40

APPROVED BY: J. M. D.

DATE: NOV. '82 DRAWING No.

DENSITY

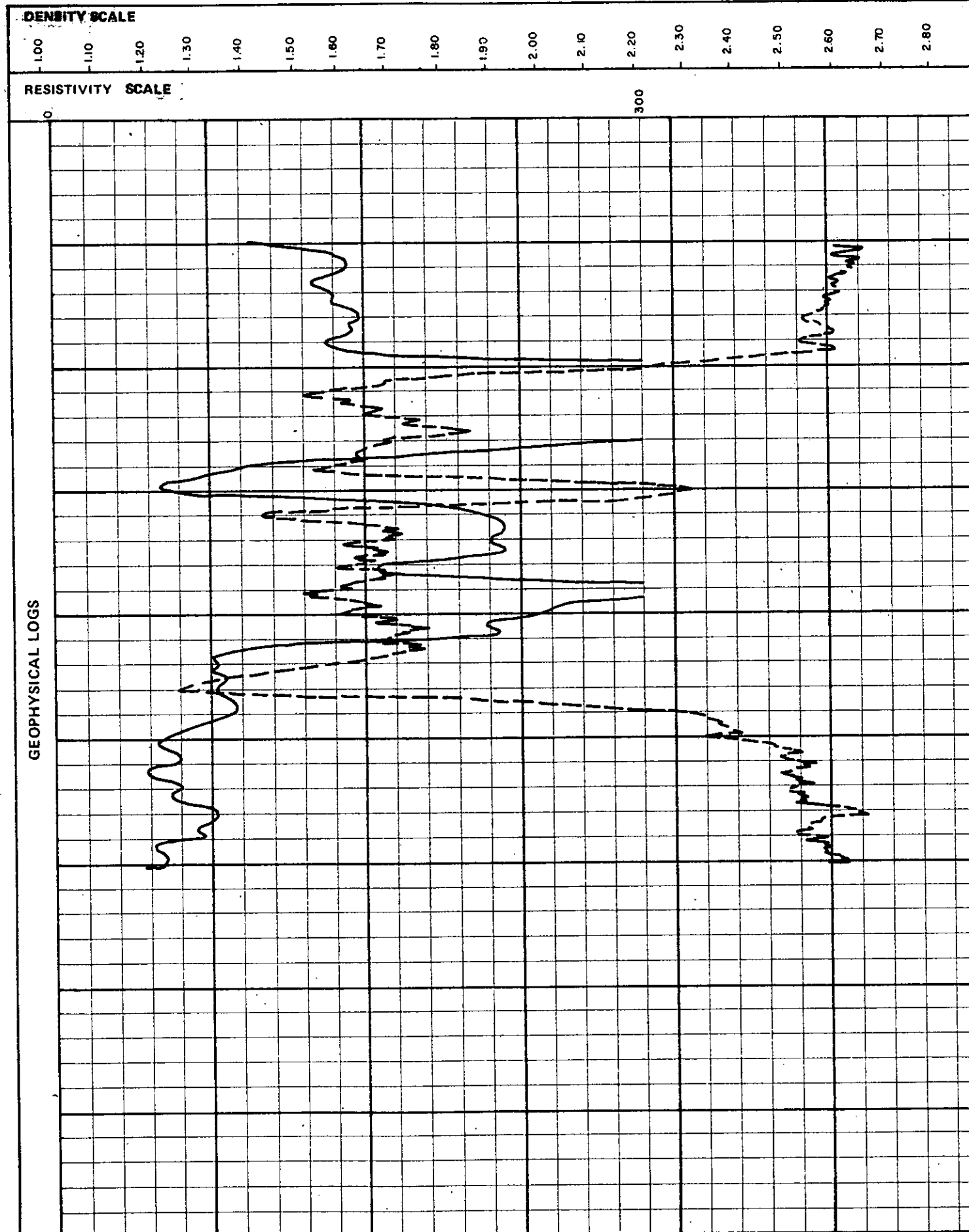
RESISTIVITY

DRILL NO. DDH - 82 - 003

SEAM J

SEAM INTERVAL

SCALE 1:40



SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL. MJ/kg	FSI		
	44.06			0.51	70.8	04959										
	44.78			(0.21)												
	45.07		0.06	0.08	100	04960										
	45.07		0.08	0.07												
	45.07			0.71				1.7	1.31	26.53	8.64	63.52		24.90		
	45.07			0.50	67.7	04961										
	45.07			0.34												
	46.62															

Seam Interval (m): 44.06 - 46.62
 Seam True Thickness (Coal/Rock): 2.21/0.12
 Total 2.33

GEOPHYSICAL LOGS

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL/ROCK TOTAL	COAL/ROCK TOTAL		
94.14			0.16	100	04962			
94.31				100	04963			
94.57		0.24						
			0.67					
		0.05						
			0.33					
		0.04		82	04964			
			0.60					
		0.03	0.04					
			(0.40)					
		0.02	0.14			18	3.21 / 0.71	3.21 / 0.71
97.16		0.47		100	04965		3.92	3.92
97.69		(0.10)						
			(0.28)					
			0.75	66	04966			
98.94								

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-003 SEAM I		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. 82	DRAWING No.

DENSITY

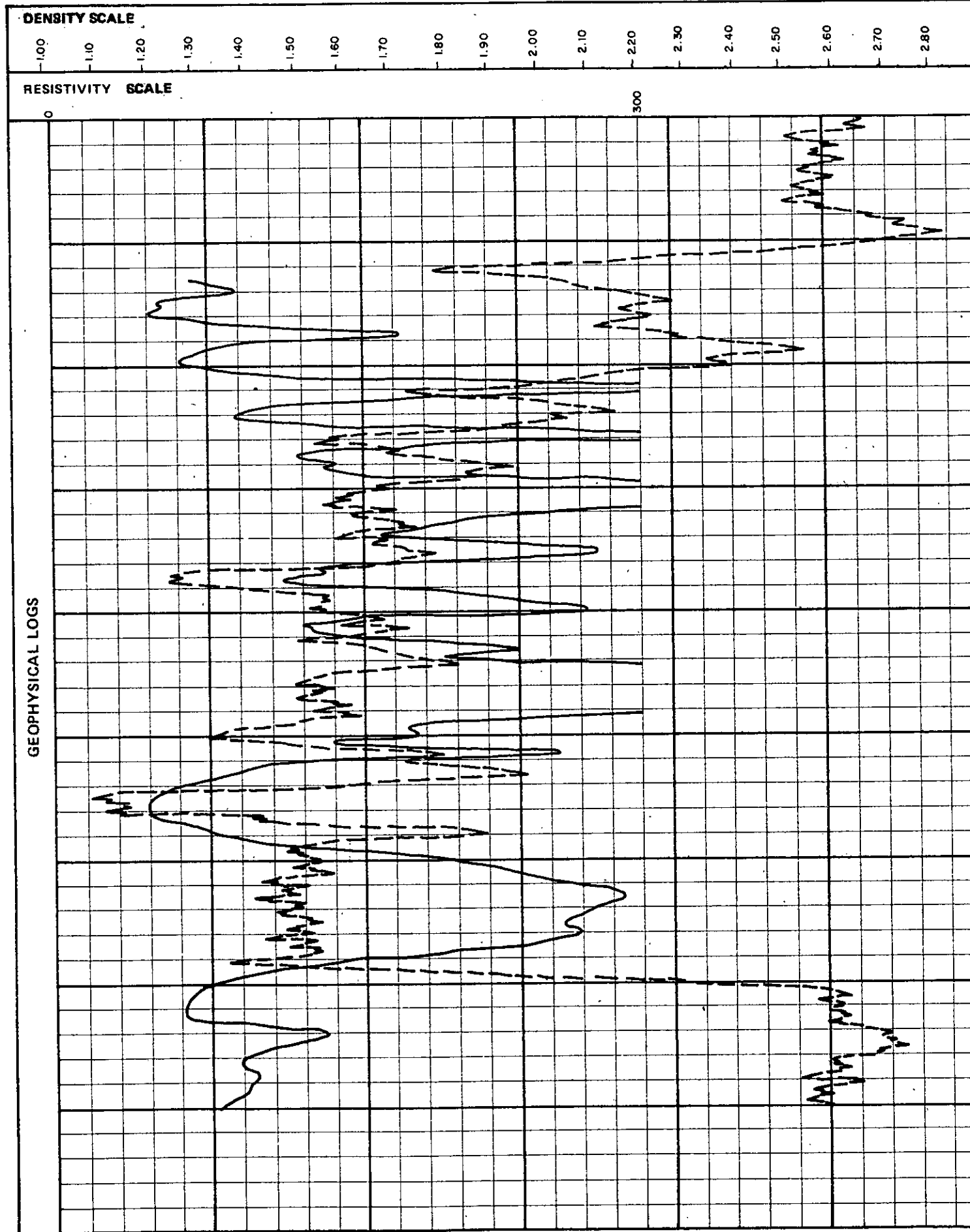
RESISTIVITY

DRILL NO. DDH - 82 - 003

SEAM 1

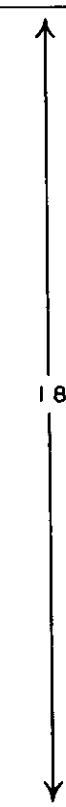
SEAM INTERVAL

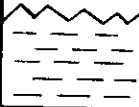





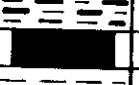
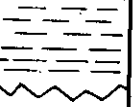
SCALE 1:40




GEOPHYSICAL LOGS

SEAM COMP. 1 2 3 4 5 6	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL. MJ/kg	FSI		
	94.14			0.17	100	04962										
	94.31		0.26		100	04963										
	94.57			0.73												
			0.05													
				0.36												
			0.05		82.2	04964										
				0.69												
			0.03	0.05												
				(0.46)												
			0.02	0.15												
	97.16		0.53		100	04965										
	97.69		0.11	0.31												
				0.83	66.4	04966										
	98.94															
								Seam Interval (m): 94.14 - 98.94								
								Seam True Thickness (Coal/Rock): 3.37/0.95								
								Total		4.32						



DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS.		
127.24								
			0.32 (0.10) 0.46	87	04967	↑	↑	↑
128.12		0.05 0.02 0.03	0.04 0.06					
		0.02	0.29			19	2.23/0.34 2.57	2.23/0.34 2.57
		0.03	0.32	100	04968			
129.43			0.45					
		0.19		100	04969	↓	↓	↓
129.81			0.19					

GULF CANADA RESOURCES INC.		
CALGARY	Coal Division ALBERTA	
MT. KLAPPAN COAL PROJECT		
SEAM DETAIL		
TRUE THICKNESS		
DDH- 82- 003		
SEAM H		
PREPARED BY: C. L.	SCALE 1: 40	
APPROVED BY: J. M. D.	DATE: NOV. 82	DRAWING No.

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

P-267 (12-80)
Apparent Thickness

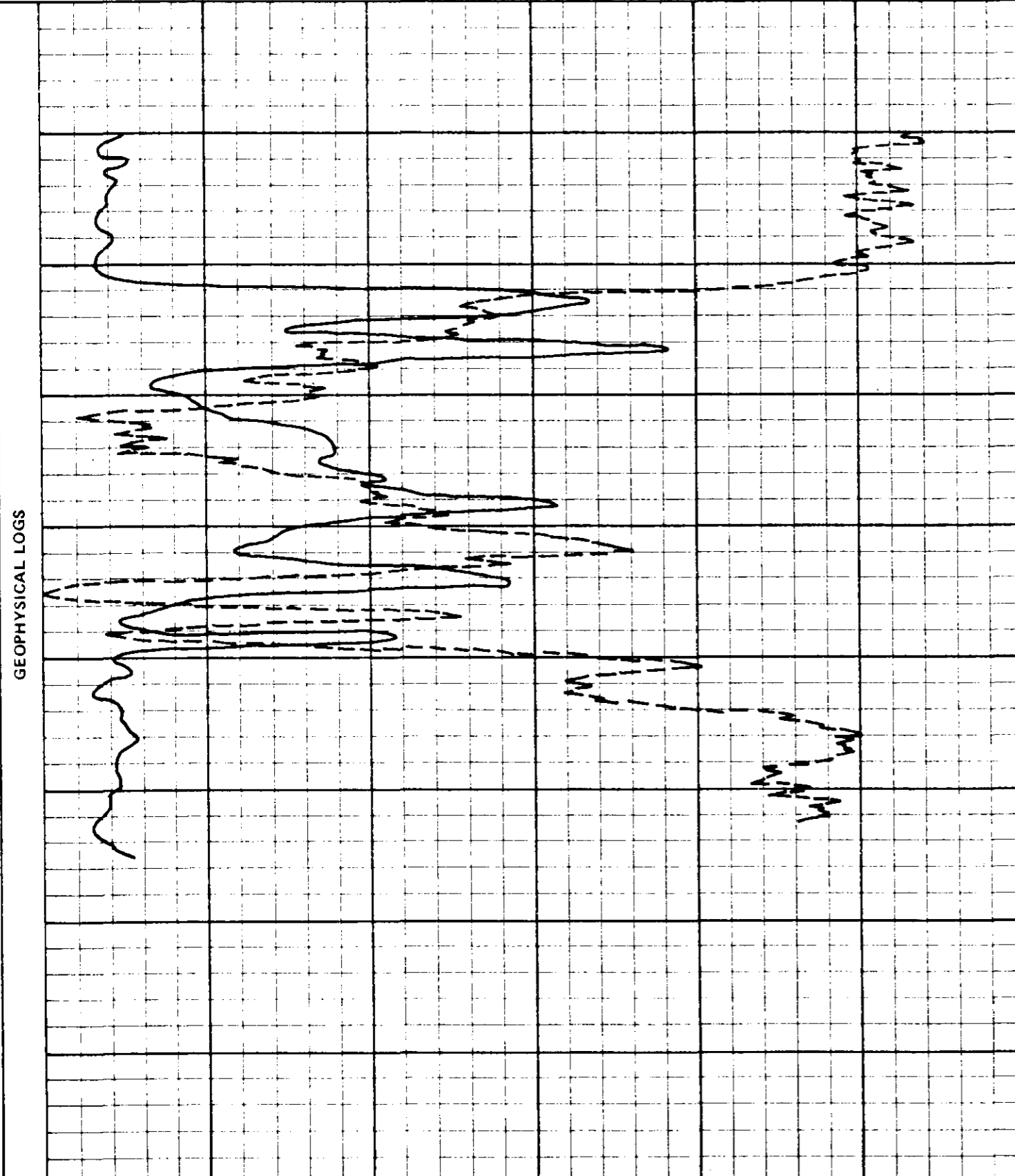
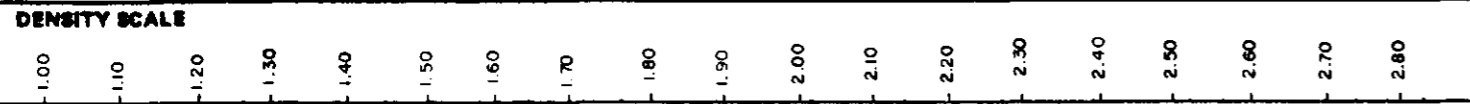
DENSITY 

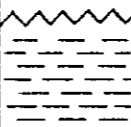



RESISTIVITY 

DRILL NO. DDH - 82 - 003
SCALE 1:40

SEAM H

SEAM INTERVAL



SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS											
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S'	CAL. VAL. MJ/kg	FSI					
123456																			
	127.24			0.32 (0.10)	88.6	04967	19	1.39	38.87	9.31	50.43	19.67							
	128.12		0.05 0.02 0.03	0.04 0.04		04968													
			0.02	0.29	100														
			0.05	0.32															
	129.43			0.45															
	129.81			0.19	100	04969													
			Seam Interval (m): 127.24 - 129.81 Seam True Thickness (Coal/Rock): 2.33/0.34 Total 2.57																

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS		
155.24			0.27					
			(0.34)	62	04970	↑		↑
156.14			0.29					
156.31		0.17		100	04971			
			0.24					
		0.04	0.08					
		0.08	(0.15)			20	2.41/0.48 2.89	
			0.29					
		0.06		92	04972	↓		3.00/0.94 3.94
			0.24					
		0.06	0.18					
		0.07						
158.13			0.33					
		0.40		100	04973	↑		
158.53			0.33				0.59/0.46 1.05	
		0.06		92	04974	↓		
159.18			0.21 (0.05)					
		0.12	0.07					
159.46		0.05	0.04					

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



MT. KLAPPAN COAL PROJECT

SEAM DETAIL

TRUE THICKNESS

DDH-82-003

SEAM G

PREPARED BY: C. J.

SCALE: 1:100

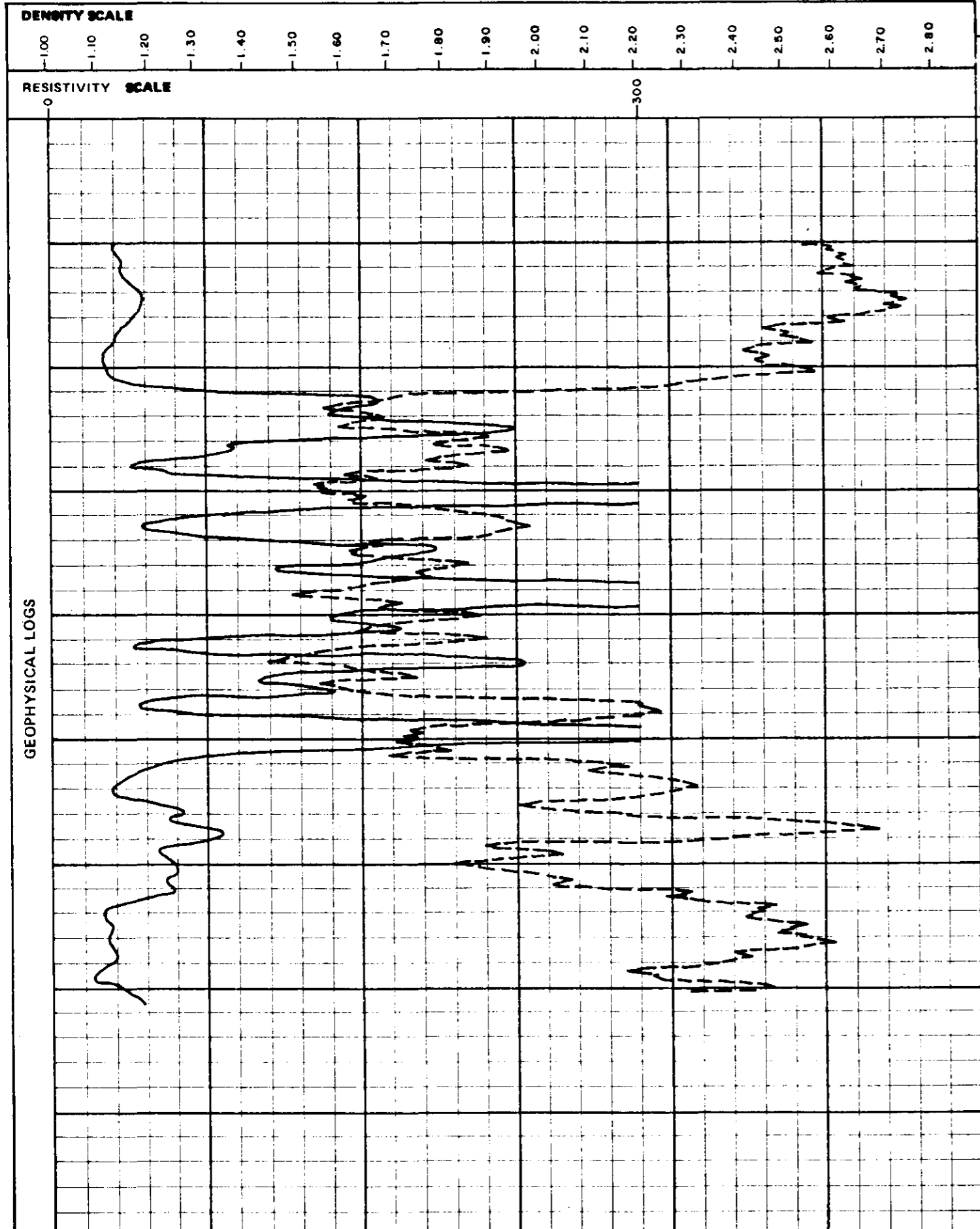
COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

P-267 (12-80)
Apparent Thickness

DENSITY RESISTIVITY

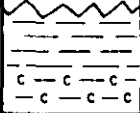


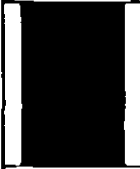
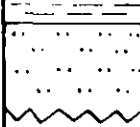

DRILL NO. DDH - 82 - 003 SEAM G SEAM INTERVAL
SCALE 1:40



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS	MOIST	ASH	VM	FC	S	CAL. VAL MJ/kg	FSI			
1 2 3 4 5 6																	
	155.24			0.27													
				0.34	62.2	04970											
				0.29													
	156.14																
	156.31		0.17		100	04971											
			0.04	0.24													
			0.08	0.08			20	1.41	33.19	8.04	57.36		21.66				
				(0.15)													
			0.06	0.29													
			0.06	0.24	91.8	04972											
			0.06	0.18													
			0.07														
	158.13			0.33													
	158.53		0.40		100	04973											
				0.33													
			0.06		92.3	04974											
				0.21													
	159.18		0.12	0.07													
				(0.03)													
			0.05	0.07													
	159.46			0.04													

Seam Interval (m): 155.24 - 159.46
Seam True Thickness (Coal/Rock) : 3.11/1.11
Total 4.22

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL/ROCK TOTAL	COAL/ROCK TOTAL		
182.38								
183.07			0.69	100	04975	↑	↑	↑
183.70		0.04 0.06	0.09 0.11	60	04976	22	1.70/0.47 2.17	1.70/0.47 2.17
184.56		(0.25)				↓	↓	↓
			0.85	100	04977			
								

GULF CANADA RESOURCES INC.
 Coal Division
 CALGARY ALBERTA



MT. KLAPPAN COAL PROJECT
 SEAM DETAIL
 TRUE THICKNESS
 DDH-82-003
 SEAM F

PREPARED BY: C. L. SCALE 1:40

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

Apparent Thickness p-267 (12.80)

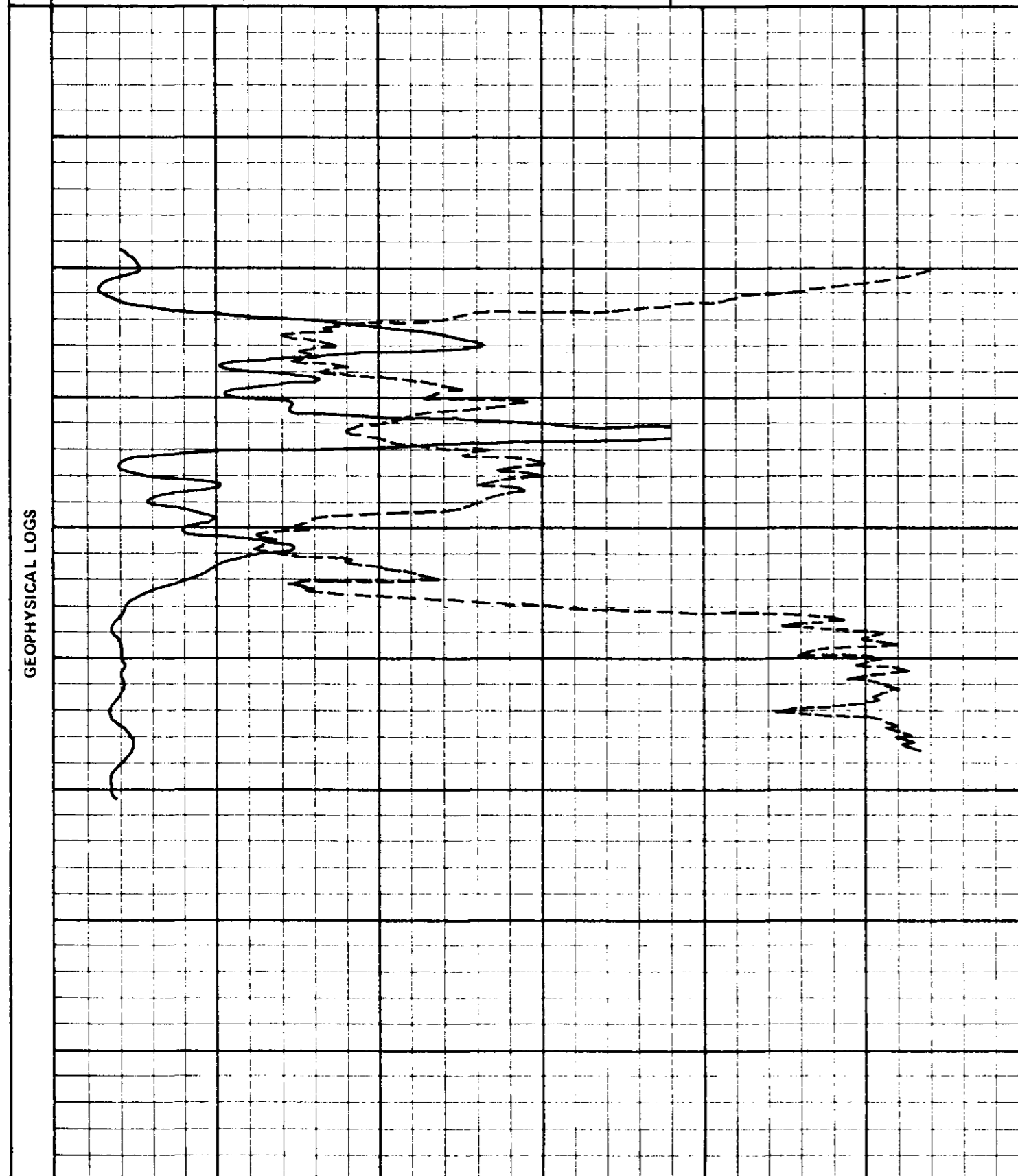
DENSITY

RESISTIVITY

DRILL NO. DDH - 82 - 003
SCALE 1:40

SEAM F

SEAM INTERVAL



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL MJ/kg	FSI			
123456	182.38																
	183.07			0.69	100	04975											
	183.70			0.12 (0.25)	63.0	04976	22	1.42	37.18	10.56	50.81		20.72				
	184.56			0.86	100	04977											
			Seam Interval (m) : 182.38 - 184.56 Seam True Thickness (Coal/Rock) : 1.70/0.47 Total 2.17														

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL/ROCK TOTAL	COAL/ROCK TOTAL		
205.28			0.24 (0.08)	91	04978	23	0.86/0.00 0.86	0.86/0.00 0.86
206.14			0.54					
208.17		2.01	0.60 (0.17) 0.09	87	04979	24	1.16/0.12 1.28	1.16/0.12 1.28
209.45			0.02					

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-003 SEAM E		
PREPARED BY: C. L.	SCALE 1:40	

5

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

P-267 (12-80)

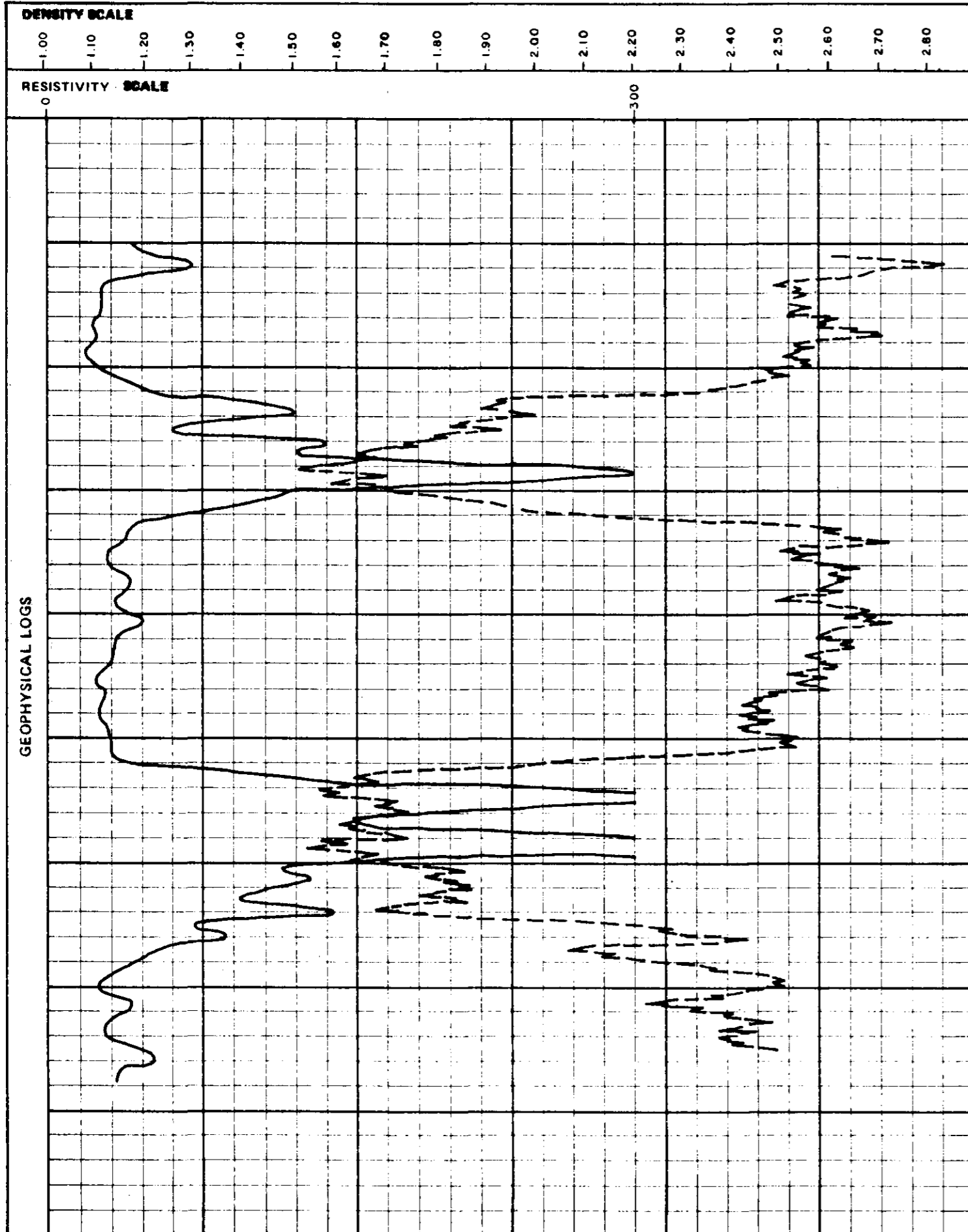
Apparent Thickness

DENSITY RESISTIVITY

DRILL NO. DDH - 82 - 003
SCALE 1:40

SEAM E

SEAM INTERVAL



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL MJ/kg	FSI			
								Seam Interval (m): 205.28 - 206.14 Seam True Thickness (Coal/Rock): 0.86/0.00 Total 0.86									
	205.28			0.24													
				0.08	90.7	04978	23	1.37	33.87	10.94	53.82		21.23				
	206.14			0.54													
			2.03														
	208.17		0.02	0.07													
				0.60	86.7	04979	24	1.23	23.11	10.98	64.68		25.67				
			0.17	0.09													
	209.45		0.10	0.23													
								Seam Interval (m): 208.17 - 209.45 Seam True Thickness (Coal/Rock): 1.16/0.12 Total 1.28									

gcri coal division history proj KPN blk BC ds DDH82004

 dy mo yr
start date 15/08/82
end date 18/08/82

contractor J.T.THOMAS operator GCRI
geologist LOUIE surveyor _____

remarks GEOPHYSICAL LOG MEASURED FROM GROUND LEVEL + APPRO
 X. 0.6M

gcri coal division location proj KPN blk BC ds DDH82004

choose one location input number, 1 province BC
then enter location elevation (M) 1470.00

1 utm: zone 09 northing 6344510.00 easting 0513515.00
2 lat-long: lat 571443 long 1284634

gcri coal division orientation proj KPN blk BC ds DDH82004

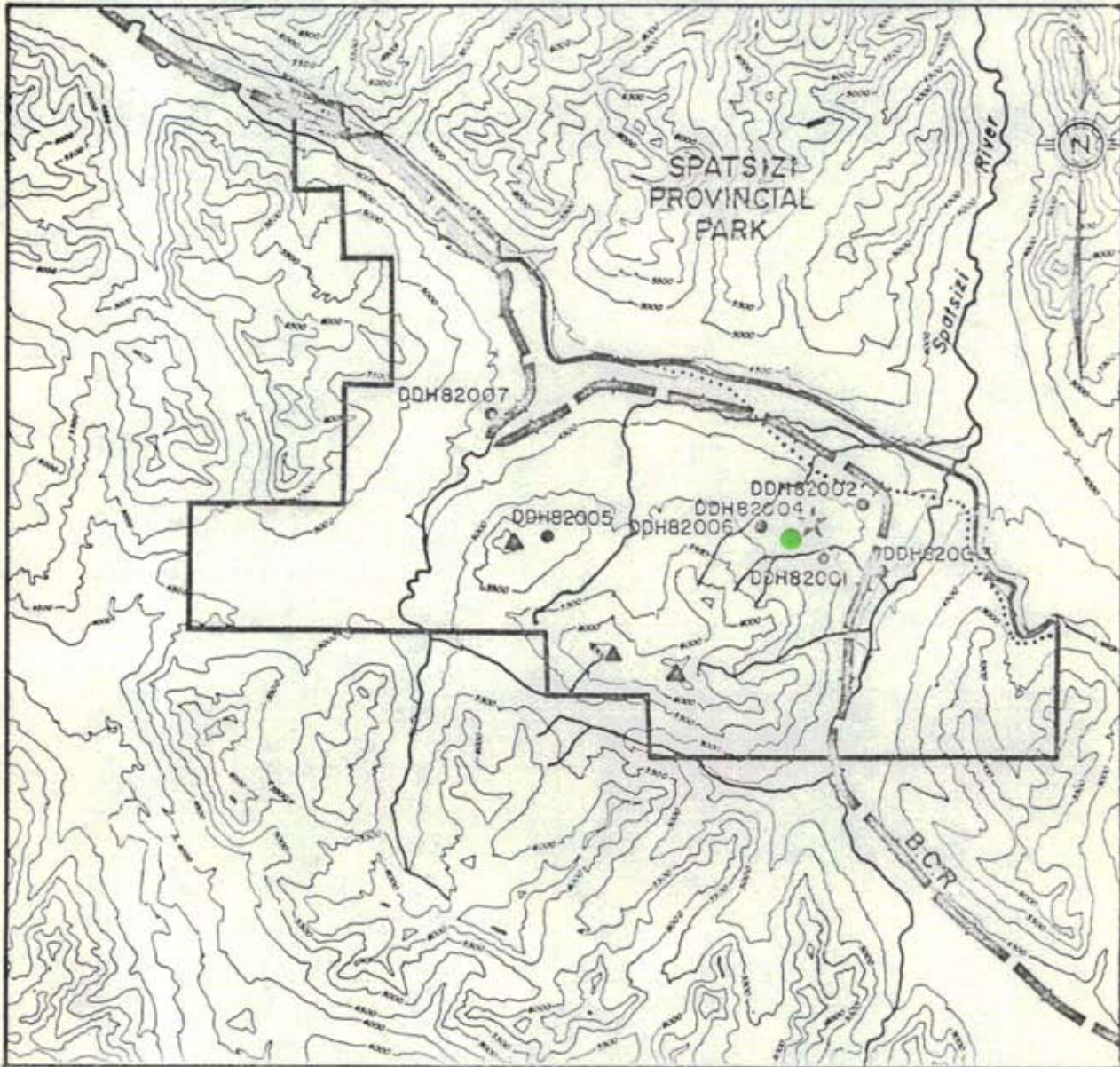
dimensions and orientation:

length (M) 157.58 inclination 60.0 azimuth 40.0
size width 95.8 size height
roof strike dip dir
floor strike dip dir

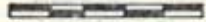
casing depth (M) 13.65 cement(y,_) _ plug(Y,_) Y piez(Y,_) _
aquifer depths (M) ----- -----
loss cir depths(M) ----- -----





MT. KLAPPAN COAL PROPERTY

DIAMOND DRILL HOLES



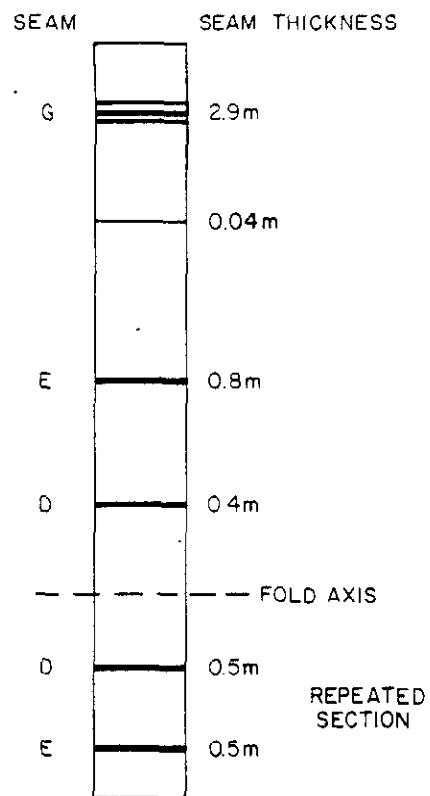
0 1 2 3 4 5 Km



-  Prepared Rail Bed
-  Provincial Park Boundary
-  Camp
-  Diamond Drill Hole
-  Redefined Property Boundary
-  Peaks

MT. KLAPPAN COAL PROPERTY

DDH82004



SCALE - 1:1000

LAB SAMPLE SUMMARY

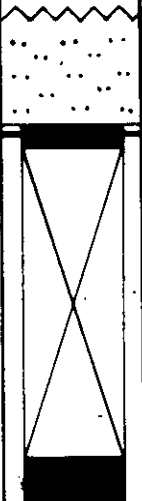
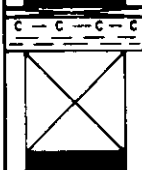
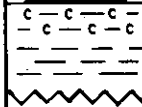
DATA SOURCE	SEAM	GULF SAMPLE I.D.	CYCLONE SAMPLE I.D.	GROSS COAL	NET COAL	DRILLED INTERVAL
KPNBCDDH82004	G	25	s1-342-556	2.88	2.62	24.73 - 29.60
	E	26	s1-342-557	0.75	0.68	90.39 - 91.67
	D	27	s1-342-558	0.35	0.35	114.46 - 114.96
	D repeat	28	s1-342-559	0.50	0.41	139.84 - 140.34
	E repeat	29	s1-342-560	0.45	0.45	150.36 - 150.81


GULF CANADA RESOURCES INC. - COAL DIVISION
 24/JAN/83 SIMPLE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82004										
	G	3508	24.73	29.60	1.13	23.20	0.77	0.36	3.64	0.10
	E	3509	90.39	91.67	1.14	89.06	1.02	0.12	0.14	0.00
	D	3510	114.46	114.96	0.21	42.00	0.21	0.00	0.29	0.00
	D REPEAT	3511	139.84	140.34	0.48	96.00	0.39	0.09	0.02	0.00
	E REPEAT	3512	150.36	150.81	0.37	82.22	0.37	0.00	0.08	0.00

GULF CANADA RESOURCES INC. - COAL DIVISION
 24/JAN/83 *COMPOSITE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC.	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82004												
	G	25	3508	3508	24.73	29.60	1.13	23.20	0.77	0.36	3.64	0.10
	E	26	3509	3509	90.39	91.67	1.14	89.06	1.02	0.12	0.14	0.00
	D	27	3510	3510	114.46	114.96	0.21	42.00	0.21	0.00	0.29	0.00
	D REPEAT	28	3511	3511	139.84	140.34	0.48	96.00	0.39	0.09	0.02	0.00
	E REPEAT	29	3512	3512	150.36	150.81	0.37	82.22	0.37	0.00	0.08	0.00

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
24.73		0.02	0.04 0.06					
			(1.63)	23.2	03508	25	2.62/0.26 2.88	2.62/0.26 2.88
			0.26					
		(0.05) 0.19	(0.53)					
29.60			0.10					

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-004 SEAM G		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

COAL SEAM DATA SHEET

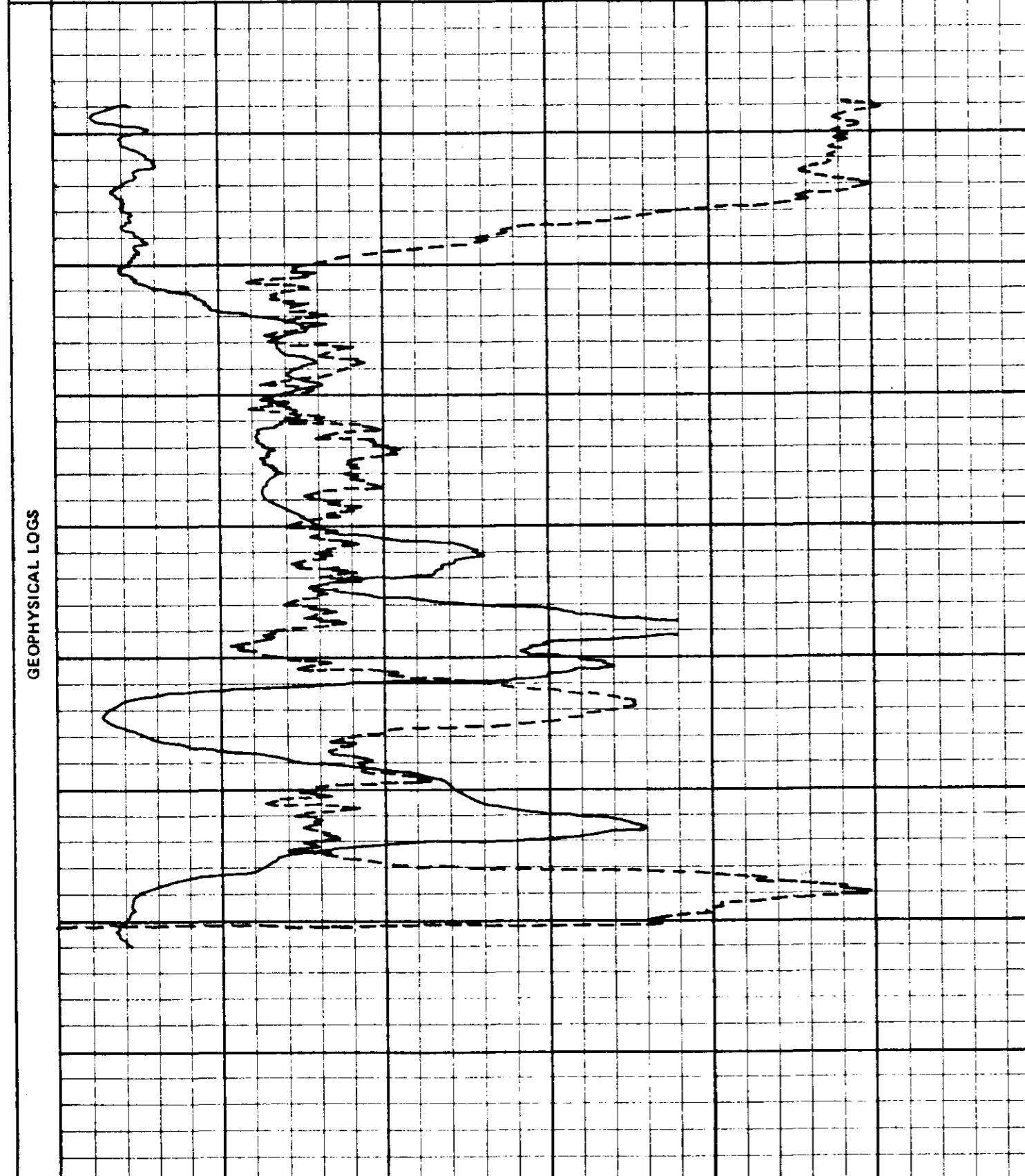
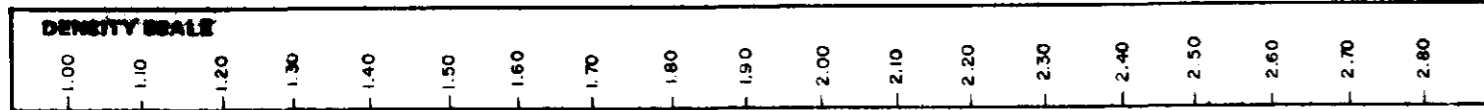
GULF CANADA RESOURCES INC.
COAL DIVISION

P-267 (12-80)

Apparent Thickness

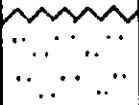



DENSITY RESISTIVITY

DRILL NO. DDH-82-004 SEAM G SEAM INTERVAL _____
SCALE 1:40



SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL. MJ/kg	FSI			
1 2 3 4 5 6	24.73		0.05	0.09 0.12													
				(2.75)	23.2	03508	25	1.63	42.48	12.65	43.24		15.59				
				0.41													
			(0.10)	0.31													
				(0.89)													
	29.60			0.15													

Seam Interval (m): 24.73 - 29.60
Seam True Thickness (Coal/Rock) : 2.62/0.26
Total 2.88

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
90.39								
			0.40	89.1	03509	26	0.68/0.07 0.75	0.68/0.07 0.75
91.67		0.07	0.20					
								

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



MT. KLAPPAN COAL PROJECT
SEAM DETAIL
 TRUE THICKNESS
 DDH-82-004
 SEAM E

PREPARED BY: _____

SCALE: 1:40

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

P-267 (12.80)
Apparent Thickness

DENSITY

RESISTIVITY

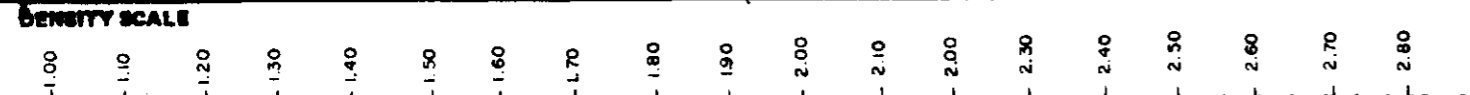
DRILL NO. DDH-82-004

SEAM E

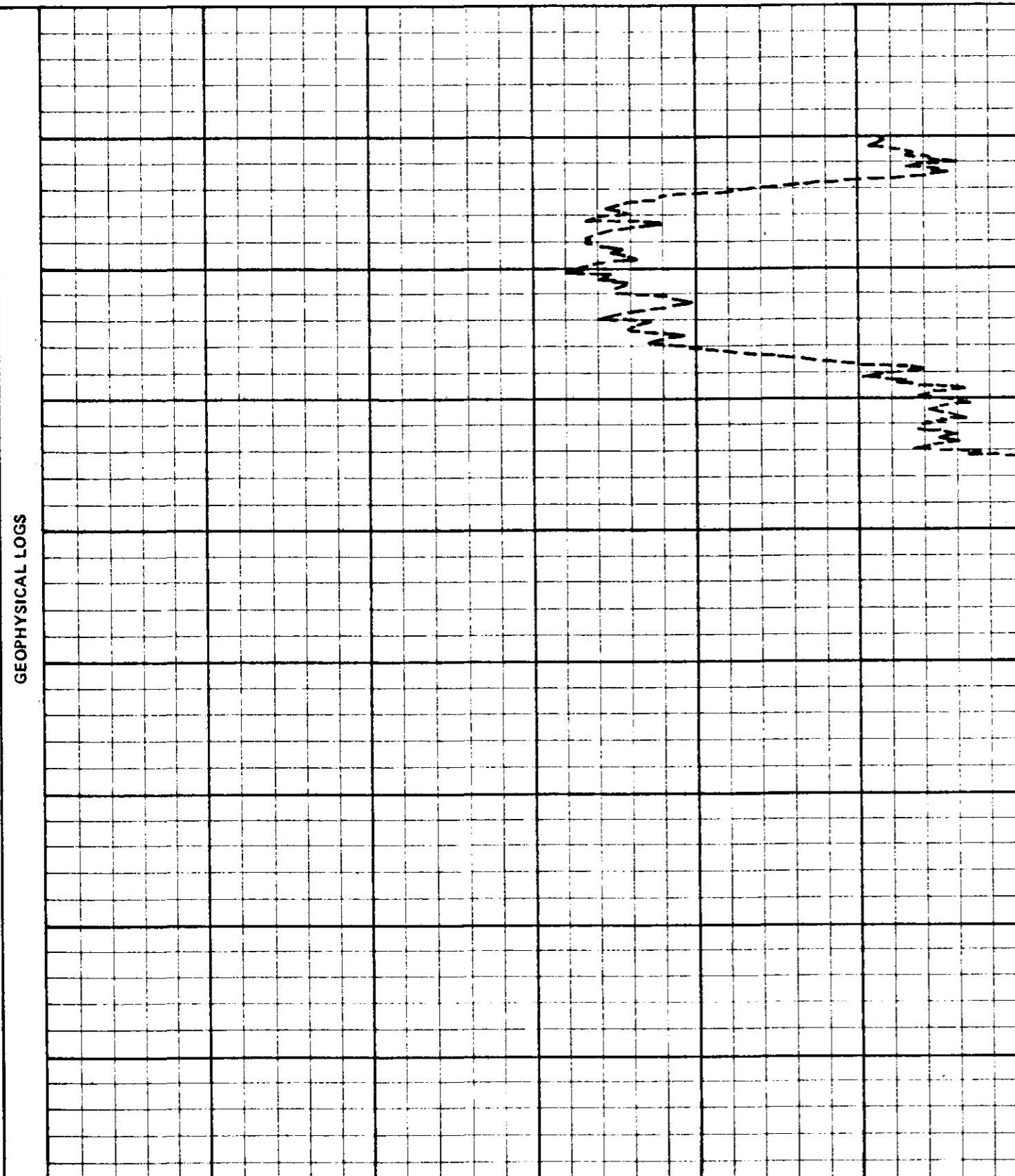
SEAM INTERVAL

SCALE 1:40

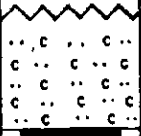

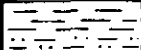


Logged Through Drill Rods



RESISTIVITY SCALE Density Scale Does Not Apply



SEAM COMP. 1 2 3 4 5 6	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S'	CAL VAL. MJ/kg	FSI
	90.39			0.67	89.1	03509	26	1.34	27.16	7.94	63.96	24.93		
			(0.14)											
	91.67		0.12	0.35										
Seam Interval (m): 90.39 - 91.67 Seam True Thickness (Coal/Rock): 0.68/0.07 Total 0.75														

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL/ROCK TOTAL	COAL/ROCK TOTAL		
113.65			0.07					
		(0.23)						
114.46		0.28						
114.96			0.15 (0.20)	43.8	03510	27	0.35 / 0.00 0.35	0.35 / 0.00 0.35
								

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



MT. KLAPPAN COAL PROJECT
SEAM DETAIL
TRUE THICKNESS
DDH-82-004
SEAM D

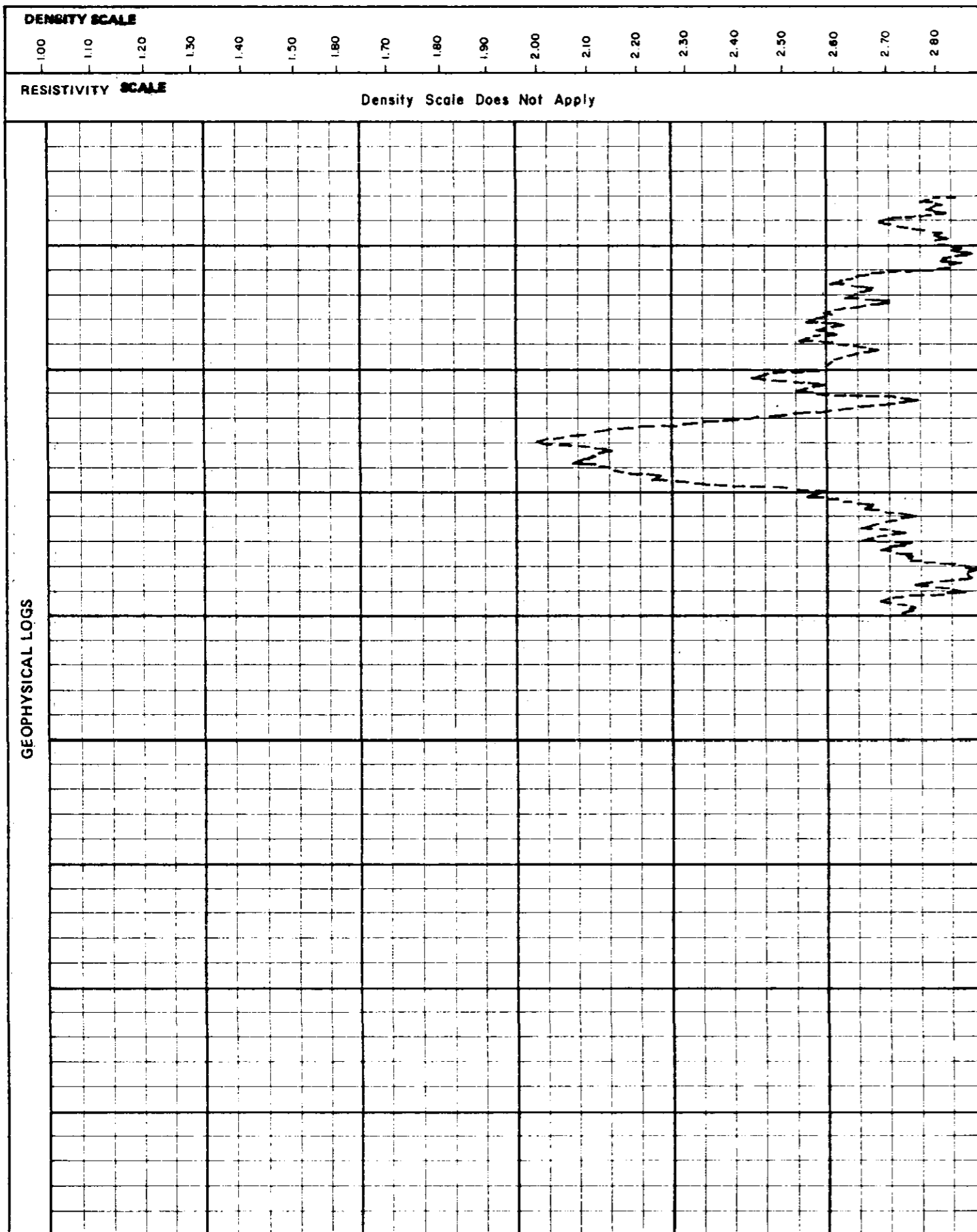
PREPARED BY: C.L.

SCALE 1:40

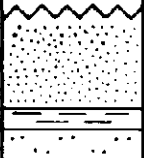

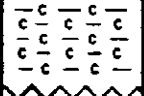

DENSITY


RESISTIVITY

DRILL NO. DDH-82-004 SEAM D SEAM INTERVAL _____
SCALE 1:40 Logged Through Drill Rods



SEAM COMP. 1 2 3 4 5 6	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL MJ/kg	FSI		
	113.65			0.10												
			(0.32)													
	114.46		0.39													
	114.96			0.21	44	03510	↑ 27 ↓	1.25	35.82	8.92	54.01		21.14			
				(0.29)												
			Seam Interval (m): 114.46 - 114.96 Seam True Thickness (Coal/Rock): 0.35/0.00 Total 0.35													

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL/ROCK TOTAL	COAL/ROCK TOTAL		
139.84								
		0.03	0.11					
			0.26	96	03511	28	0.41 / 0.09	0.41 / 0.09
140.34		0.06	(0.02) - 0.02				0.50	0.50
								

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-004 SEAM D REPEAT		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. '82 DRAWING No.	

DENSITY

RESISTIVITY

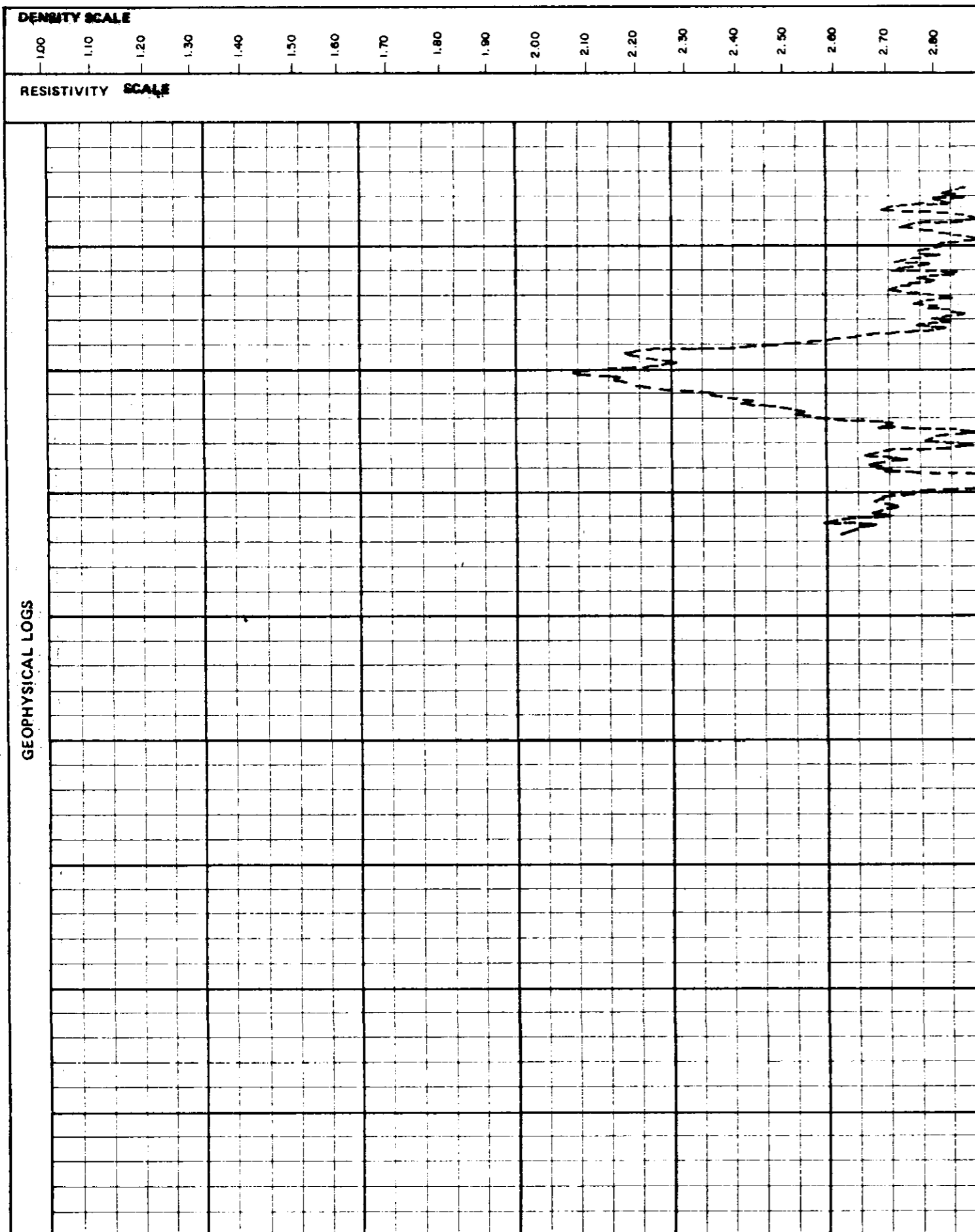
DRILL NO. DDH - 82 - 004

SEAM D Repeat

SEAM INTERVAL




SCALE 1:40


Logged Through Drill Rods



GEOPHYSICAL LOGS

SEAM COMP. 1 2 3 4 5 6	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL. MJ/kg	FSI
	139.84		0.03	0.11	96	03511	↑ 28 ↓	1.47	38.69	8.03	51.81		19.25	
	140.34		0.06	0.26 (0.02) 0.02										
Seam Interval (m): 139.84 - 140.34 Seam True Thickness (Coal/Rock): 0.41/0.09 Total 0.50														

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
150.36								
150.81			0.18 (0.08) 0.19	82	03512	↑ 29 ↓	↑ 0.45/0.00 0.45 ↓	↑ 0.45/0.00 0.45 ↓
								

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-004 SEAM E REPEAT		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. 82	DRAWING No.

DENSITY

RESISTIVITY

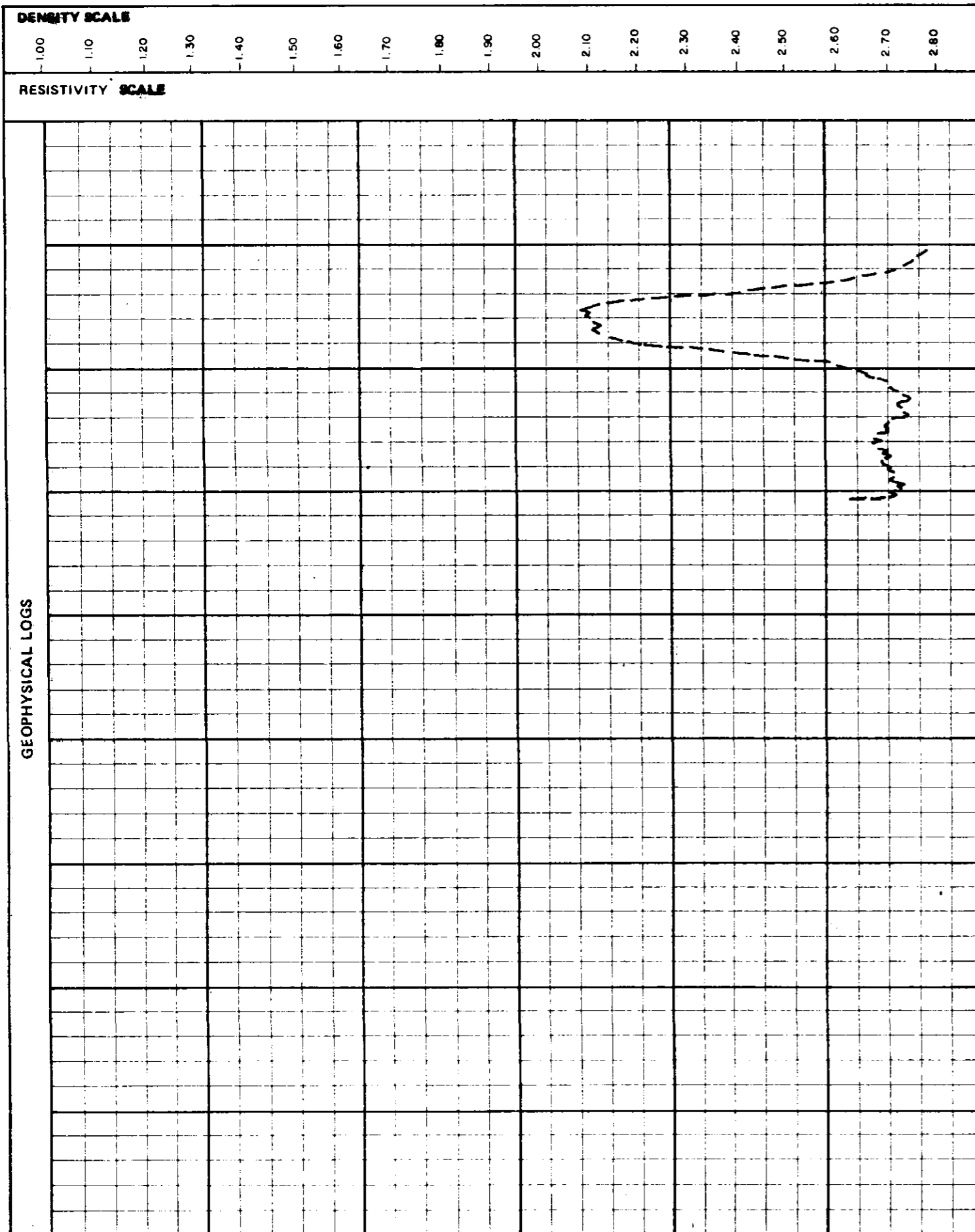
DRILL NO. DDH-82-004

SEAM E Repeat

SEAM INTERVAL

SCALE 1:40

Logged Through Drill Rods



SEAM COMP. 1 2 3 4 5 6	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL. MJ/kg	FSI
	150.36			0.18 (0.08)	82	03512	↑ 29	1.10	28.37	9.34	61.19		24.11	
	150.81			0.19			↓							
Seam Interval (m): 150.36 - 150.81 Seam True Thickness (Coal/Rock): 0.45/0.00 Total 0.45														

gcri coal division history proj KPN blk LR ds DDH82005

start date 22/08/82
end date 28/08/82

contractor J.T.THOMAS operator GCRI
geologist JENNER surveyor _____

remarks CASING PLACED AT 7.9M BUT KEPT SLIPPING DOWN THE D
RILL HOLE. TOTAL OF 34.4M CASING PLACED. ANGLE OF
DRILL HOLE DEVIATED APPROXIMATELY 030 DEGREES. GEO
PHYSICAL LOG MEASURED FROM GROUND LEVEL + APPROX.
0.6m

gcri coal division location proj KPN blk LR ds DDH82005

choose one location input number, 1 province BC
then enter location elevation (M) 1815.00

1 utm: zone 09 northing 6344340.00 easting 0506120.00
2 lat-long: lat 571438 long 1285355

gcri coal division orientation proj KPN blk LR ds DDH82005

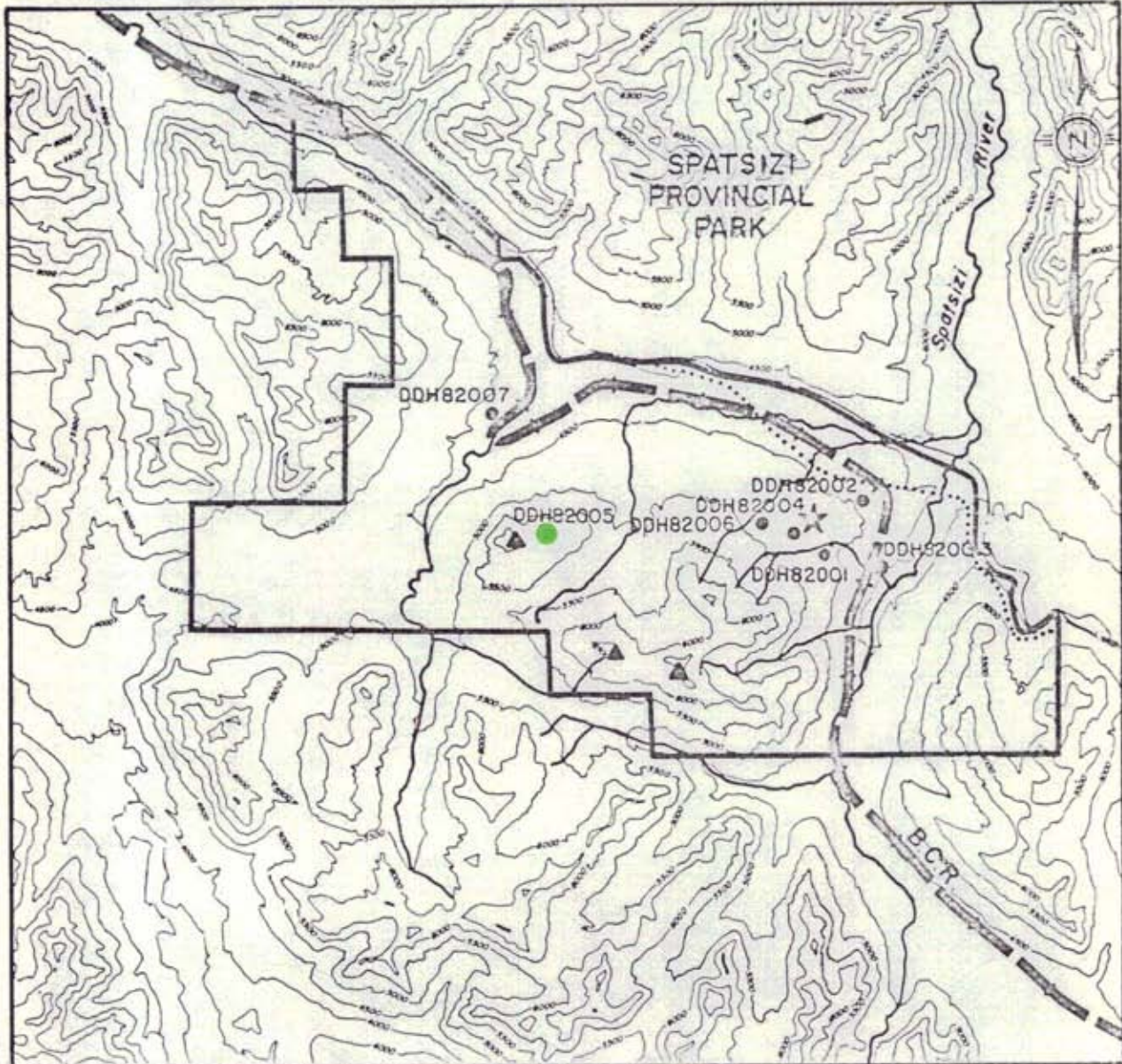
dimensions and orientation:

length (M) 243.59 inclination 60.0 azimuth 55.0
size width 95.8 size height
roof strike dip dir
floor strike dip dir

casing depth (M) 34.40 cement(y,_) _ plug(Y,_) _ piez(Y,_) _
aquifer depths (M) _____
loss cir depths(M) _____


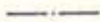


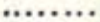

MT. KLAPPAN COAL PROPERTY

DIAMOND DRILL HOLES



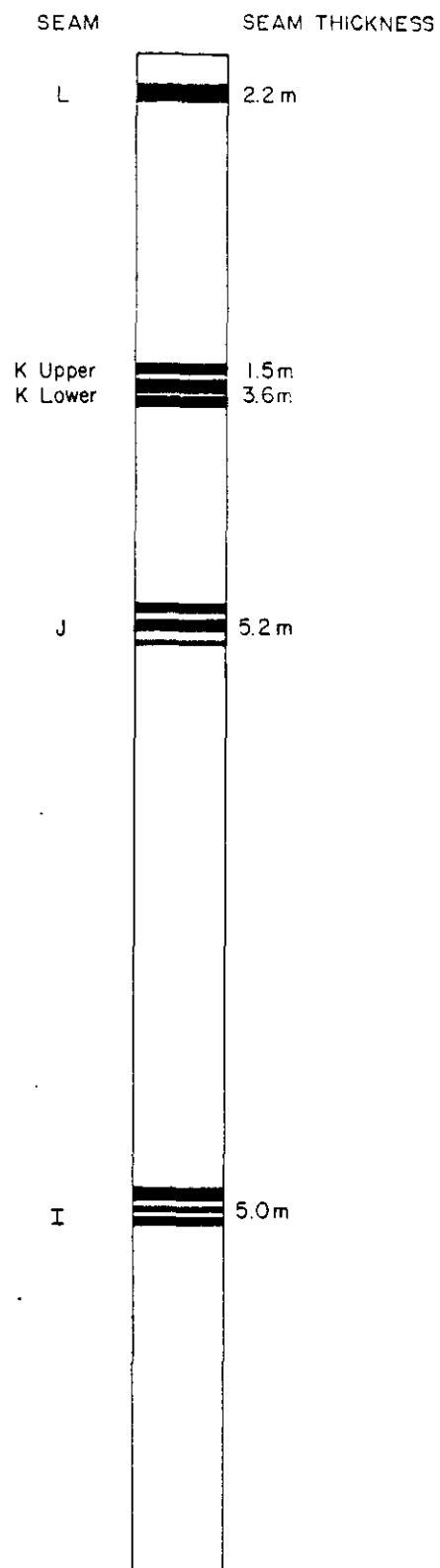
0 1 2 3 4 5 Km



-  Prepared Rail Bed
-  Provincial Park Boundary
-  Camp
-  Diamond Drill Hole
-  Redefined Property Boundary
-  Peaks

MT. KLAPPAN COAL PROPERTY

DDH82005



SCALE - 1:1000

LAB SAMPLE SUMMARY

DATA SOURCE	SEAM	GULF SAMPLE I.D.	CYCLONE SAMPLE I.D.	GROSS COAL	NET COAL	DRILLED INTERVAL
KPNLRDDH82005	I	30	s1-342-561	2.99	2.82	54.02 - 57.79
	I	31	s1-342-562	1.99	1.44	57.79 - 60.30
	J	32	s1-342-563	0.85	0.74	148.09 - 149.10
	J	33	s1-342-564	0.55	0.21	150.42 - 151.10
	J	34	s1-342-565	2.69	2.34	151.10 - 154.34
	K	35	s1-342-566	4.29	1.78	186.89 - 192.09
	K	36	s1-342-567	1.46	0.97	192.09 - 193.81
	L	37	s1-342-568	0.41	0.34	236.14 - 236.62
	L	38	s1-342-569	0.90	0.80	236.80 - 237.95
L	39	s1-342-570	0.93	0.29	236.62 - 236.80* 237.95 - 238.92*	

*Composite erroneously split

GULF CANADA RESOURCES INC. - COAL DIVISION
 24/JAN/83 SIMPLE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82005										
	I	4884	54.02	57.79	2.65	70.29	2.58	0.07	1.02	0.10
	I	4885	57.79	58.53	0.56	75.68	0.22	0.34	0.00	0.18
	I	4886	58.53	60.30	1.67	94.35	1.50	0.17	0.10	0.00
	J	4887	148.09	149.10	0.83	82.18	0.82	0.01	0.06	0.12
	J	4888	149.10	149.56	0.35	76.09	0.00	0.35	0.00	0.11
	J	4889	150.42	151.10	0.41	60.29	0.14	0.27	0.12	0.15
	J	4890	151.10	154.34	1.66	51.23	1.45	0.21	1.38	0.20
	K LOWER	4891	186.89	187.74	0.59	69.41	0.47	0.12	0.26	0.00
	K LOWER	4892	187.74	189.09	0.97	71.85	0.18	0.79	0.00	0.38
	K LOWER	4893	189.09	189.52	0.43	100.00	0.43	0.00	0.00	0.00
	K LOWER	4894	189.52	191.27	1.52	86.86	0.66	0.86	0.17	0.06
	K	4895	191.27	192.09	0.82	100.00	0.03	0.79	0.00	0.00
	K UPPER	4896	192.09	192.73	0.56	87.50	0.24	0.32	0.00	0.08
	K UPPER	4897	192.73	193.81	1.08	100.00	0.89	0.19	0.00	0.00
	L	4737	236.14	236.62	0.32	66.67	0.24	0.08	0.16	0.00
	L	4898	236.62	236.80	0.18	100.00	0.00	0.18	0.00	0.00
	L	4738	236.80	237.95	1.15	100.00	1.03	0.12	0.00	0.00
	L	4739	237.95	238.92	0.50	51.55	0.12	0.38	0.24	0.23

GULF CANADA RESOURCES INC. - COAL DIVISION
 25/JAN/83 COMPOSITE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82005												
	I	30	4884	4884	54.02	57.79	2.65	70.29	2.55	0.10	1.02	0.10
	I	31	4885	4886	57.79	60.30	2.23	88.84	1.72	0.51	0.10	0.18
	J	32	4887	4887	148.09	149.10	0.83	82.18	0.82	0.01	0.06	0.12
	J	33	4889	4889	150.42	151.10	0.41	60.29	0.14	0.27	0.12	0.15
	J	34	4890	4890	151.10	154.34	1.66	51.23	1.45	0.21	1.38	0.20
	K	35	4891	4895	186.89	192.09	4.33	83.27	1.77	2.56	0.43	0.44
	K	36	4896	4897	192.09	193.81	1.64	95.35	1.13	0.51	0.00	0.08
	L	37	4737	4737	236.14	236.62	0.32	66.67	0.24	0.08	0.16	0.00
	L	38	3738	3738	236.80	237.95	1.15	100.00	1.03	0.12	0.00	0.00
	L	39	4739	4898	237.95	238.92	0.50	51.55	0.12	0.38	0.24	0.23

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL / ROCK TOTAL	COAL / ROCK TOTAL		
54.02								
			0.65					
			(0.67)					
		0.02	0.21					
			0.56	70.3	04884	30	2.82/0.17	
			(0.49)				2.99	
		(0.08)						
		0.06						
		0.01	0.13					4.26/0.72
			0.45					4.98
			(0.26)					
57.79								
		(0.10)						
		0.07						
		0.01	0.10	75.7	04885			
			0.08					
58.53								
		0.19						
		(0.04)						
			(0.08)					
		0.01	0.41	94.4	04886	31	1.44/0.55	
			0.59				1.99	
60.30								
		0.12						
		0.01	0.08					
			0.10					

SECTION OVERTURNED

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-005 SEAM I		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. 82 DRAWING No.	

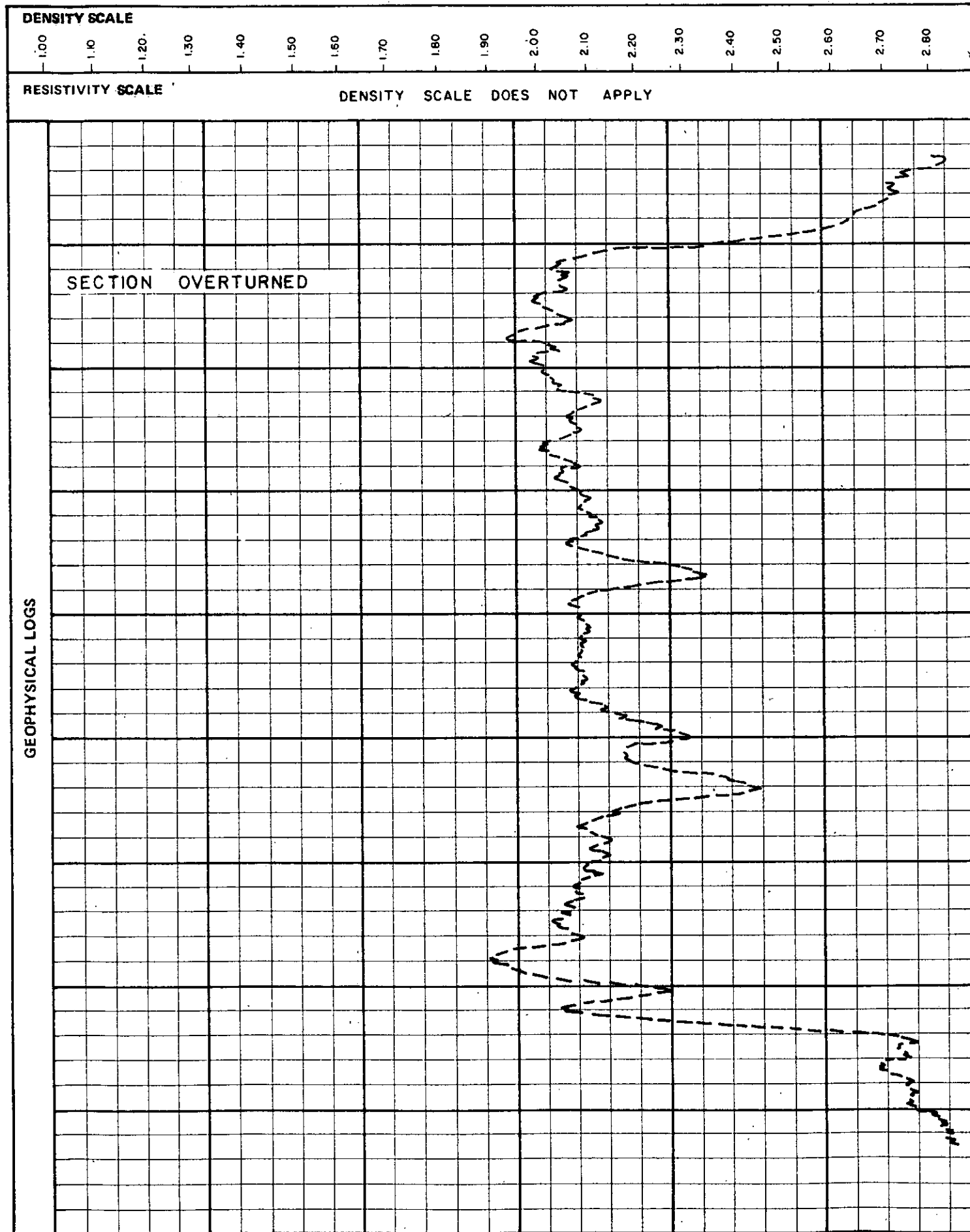
DENSITY

RESISTIVITY

APPARENT THICKNESS

DRILL NO. DDH-82-005 SEAM I SEAM INTERVAL _____

SCALE 1:40 Logged Through Drill Rods



SEAM COMP. 1 2 3 4 5 6	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL MJ/kg	FSI			
	54.02			0.85													
				(0.09) 0.27													
			0.02	0.70													
				(0.60)		70.3	048 84	30	2.52	14.21	7.44	75.83		29.13			
				(0.10) 0.07													
			0.01	0.16													
				0.57													
	57.79			(0.33)													
				(0.13) 0.09													
			0.01	0.12 0.10		75.7	048 85										
	58.53			0.24 (0.05)													
				(0.10)													
			0.01	0.53													
				0.75		94.4	048 86	31	2.46	34.58	7.34	55.62		21.71			
				0.15 0.01													
	60.30			0.10 0.12													

Seam Interval (m): 54.02 - 60.30
Seam True Thickness (Coal/Rock): 4.26/0.72
Total 4.98

GEOPHYSICAL LOGS

DEPTH	COAL SEAM LOG	INTERVAL		# REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
148.09		0.01	0.03	82.2	04887	32	0.74/0.11 0.85	3.99/1.17 5.16
		(0.10)	0.26					
149.10			0.40	76.1	04888			
149.56		0.28	(0.05)					
150.42		0.19	(0.70)	60.3	04889	33	0.21/0.34 0.55	
151.10		(0.12)	0.11					
		0.03	(0.10)	51.2	04890	34	2.34/0.35 2.69	
		0.01	0.04					
		0.02	0.03					
		0.01	0.16					
		0.02	0.14					
		0.01	0.37					
		0.04	(0.17)					
			(0.57)					
			0.33					
			(0.41)					
154.34		0.10	0.12					

SECTION OVERTURNED

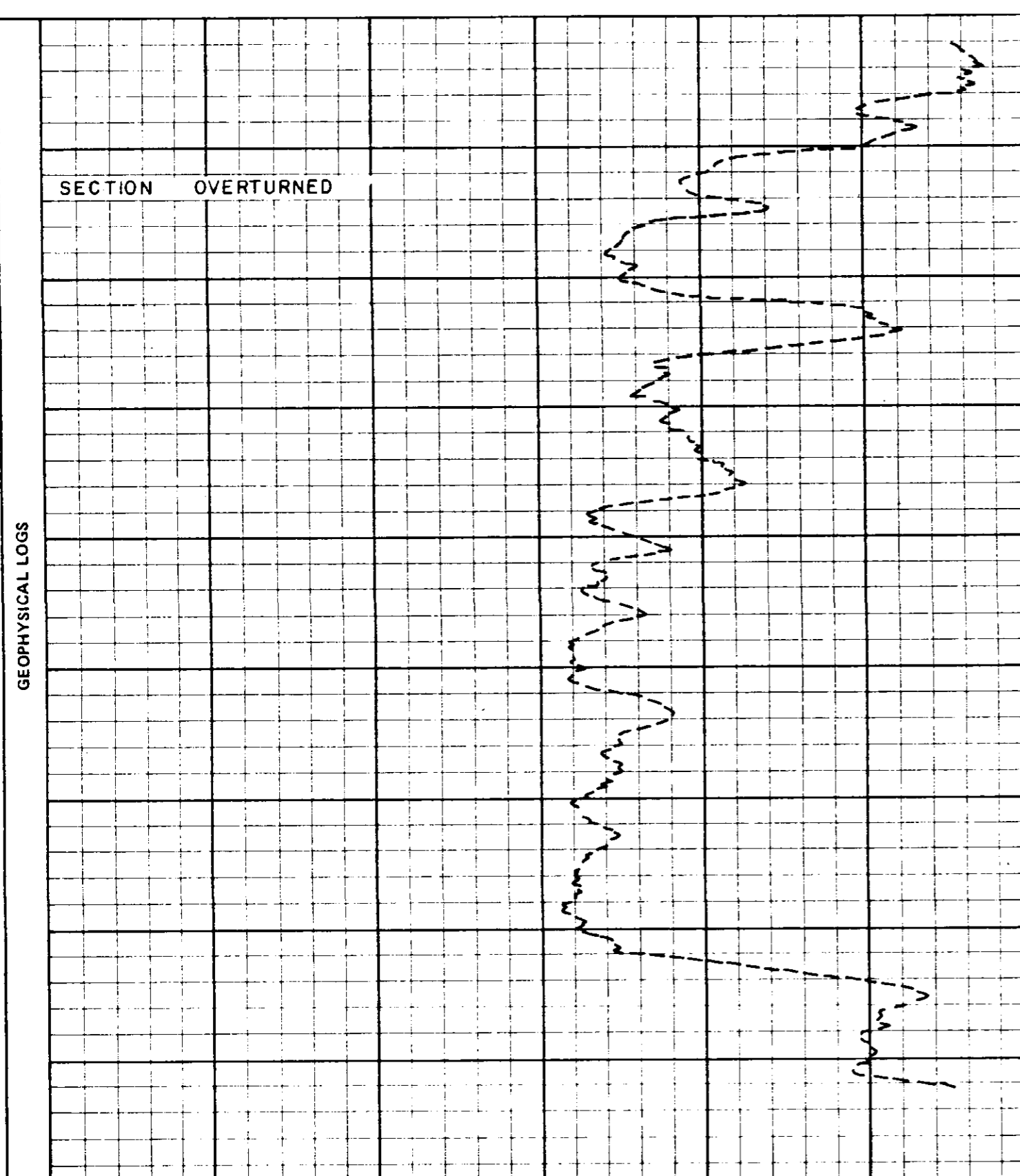
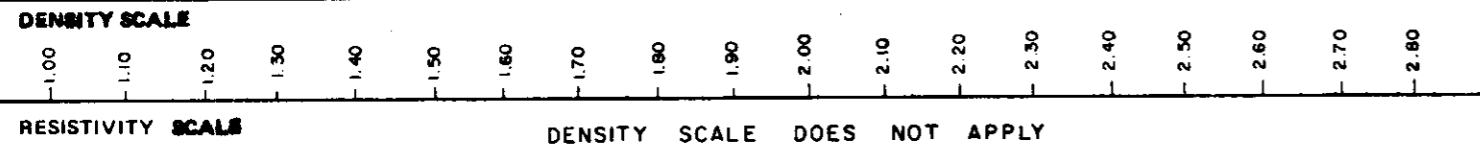
GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-005 SEAM J		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

DENSITY RESISTIVITY

DRILL NO. DDH - 82 - 005 SEAM J SEAM INTERVAL
SCALE 1:40 Logged Through Drill Rods APPARENT THICKNESS



SEAM COMP. 2 3 4 5 6	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL MJ/kg	FSI			
	148.09		0.01	0.04													
			(0.12)	0.31	82.2	04887	32	1.90	19.64	9.84	68.62		26.62				
	149.10		0.35	0.47	76.1	04888											
	149.56		(0.11)	(0.86)													
	150.42		0.23	0.14	60.3	04889	33	1.61	60.19	13.04	25.16		10.15				
	151.10		(0.15)	(0.12)													
			0.01	0.93													
			0.02	0.19													
			0.01	0.17													
			0.05	0.45													
			(0.20)	(0.69)	51.2	04890	34	2.37	19.52	7.99	70.12		26.88				
				0.40													
				(0.49)													
	154.34		0.12	0.15													

Seam Interval (m): 148.09 - 154.34
Seam True Thickness (Coal/Rock): 3.99/1.17
Total 5.16

GEOPHYSICAL LOGS

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS.		
186.89								
		0.02	0.02	69.4	04891	↑	↑	↑
		0.01	0.18					
		0.02	0.02					
187.74			0.12	71.9	04892	↑	↑	↑
		(0.15)	(0.21)					
		0.20						
			0.09					
		(0.17)						
		0.08	0.03					
		0.11	0.02					
189.09		0.27						
189.52			0.35	100	04893	35	1.78/2.51 4.29	↑
		0.11	0.01					
		0.06	0.12					
		0.34		86.9	04894	↑	↑	2.75/3.00 5.75
			(0.14)					
		0.06	0.06					
		(0.05)	0.11					
		0.15						
191.27			0.24					
		0.13	0.02	100	04895	↓	↓	↓
		0.07	0.01					
		0.46						
192.09			0.10	87.5	04896	↑	↑	↑
		0.01	0.05					
		(0.07)	0.02					
		0.12	0.02					
192.73		0.07	0.02					
			0.29	100	04897	36	0.97/0.49 1.46	↓
		0.02	0.03					
		0.02	0.04					
		0.02	0.02					
193.81			0.27					
		0.01	0.02					

1

SECTION OVERTURNED

GULF CANADA RESOURCES INC.		
CALGARY	ALBERTA	
Coal Division		
MT. KLAPPAN COAL PROJECT		
SEAM DETAIL		
TRUE THICKNESS		
DDH-82-005		
SEAM K		
PREPARED BY: C. L.	SCALE 1: 40	
APPROVED BY: J. M. D.	DATE: NOV. 82	DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
236.14			0.06 (0.13) 0.08	66.7	04737	37	0.34/0.07 0.41	1.43/0.81 2.24
236.62		0.07	0.07	100	0489B	39		
236.80		0.15	0.44	100	04738	38	0.80/0.10 0.90	
237.95		0.08	0.32	100	04738	38		
237.95		0.02	0.04					
		0.22						
		(0.11)	(0.12)	51.5	04739	39	0.29/0.64 0.93	
			0.10					
238.92		0.09 (0.07)	(0.07)					

SECTION OVERTURNED

GULF CANADA RESOURCES INC.		
CALGARY	ALBERTA	
<p>Coal Division</p> <p>MT. KLAPPAN COAL PROJECT</p> <p>SEAM DETAIL</p> <p>TRUE THICKNESS</p> <p>DDH-82-005</p> <p>SEAM L</p>		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

4

COAL SEAM DATA SHEET

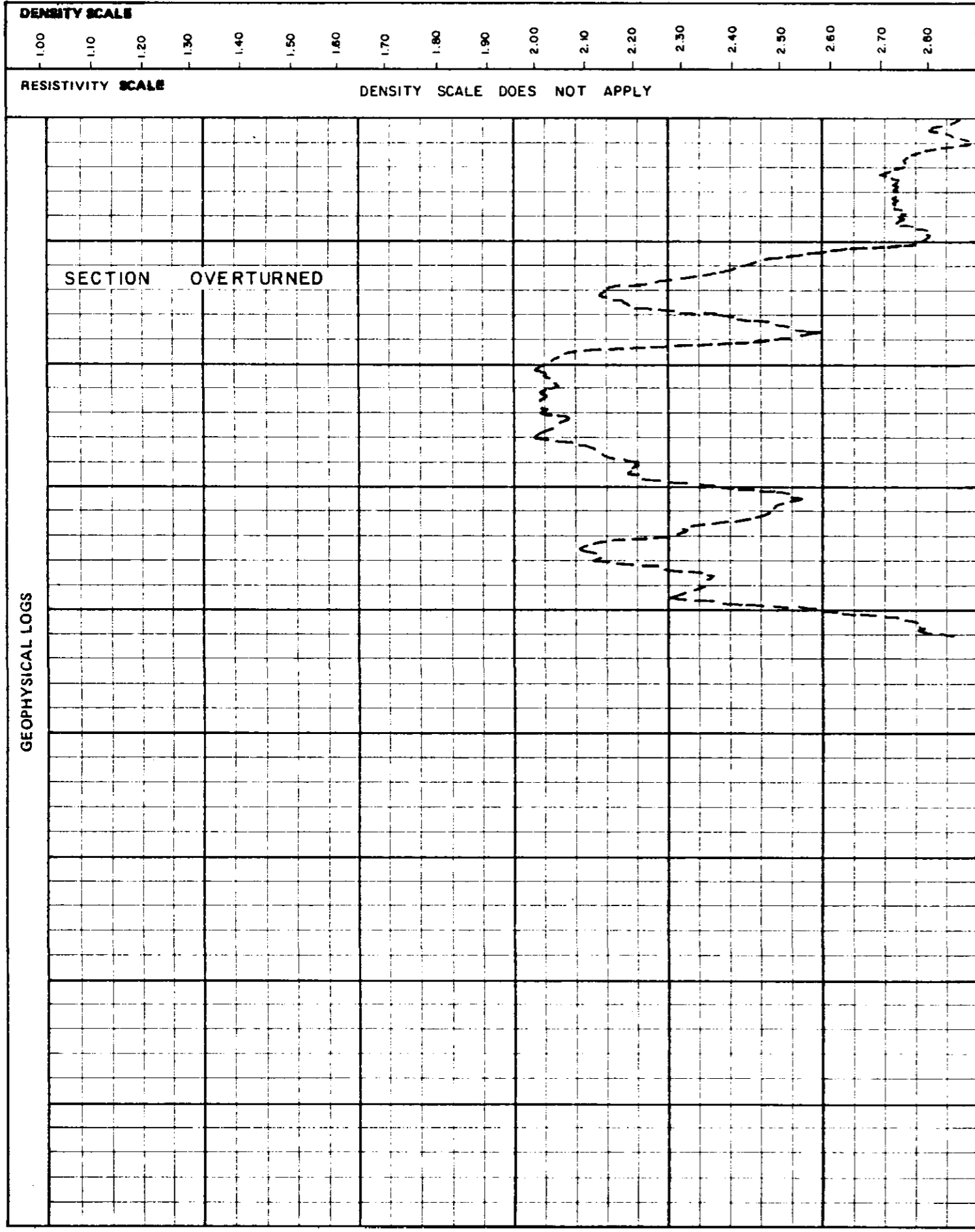
GULF CANADA RESOURCES INC.
COAL DIVISION

P-267 (12-80)

Apparent Thickness

DENSITY RESISTIVITY

DRILL NO. DDH-82-005 SEAM L SEAM INTERVAL _____
SCALE 1:40 Logged Through Drill Rods



SEAM COMP. 1 2 3 4 5 6	DEPTH meters	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	Cal. Val. MJ/kg	FSI			
	236.14																
	236.62		0.08	0.07 (0.16) 0.09	66.7	04737	↑ 37 ↓	0.89	43.57	14.01	41.53		16.95				
	236.80		0.18		100	04898											
	237.95		0.10	0.57 0.41	100	04738	↑ 38 ↓	0.84	21.02	7.11	71.03		27.03				
	238.92		0.11 (0.09)	0.27 (0.14) 0.12	51.5	04739	↑ 39 ↓	0.29	54.93	31.34	13.44		5.54				

Seam Interval (m): 236.14 - 238.92
Seam True Thickness (Coal/Rock): 1.43/0.81
Total 2.24

5

gcri coal division history proj KPN blk BC ds DDH82006

start date dy mo yr
 30/08/82
end date 01/09/82

contractor J.T.THOMAS operator GCRI
geologist SWANBERGSON surveyor _____

remarks ANGLED HOLE AT 060

gcri coal division location proj KPN blk BC ds DDH82006

choose one location input number, 1 province BC
then enter location elevation (M) 1489.00

1 utm: zone 09 northing 6344865.00 easting 0512650.00
2 lat-long: lat 571455 long 1284725

gcri coal division orientation proj KPN blk BC ds DDH82006

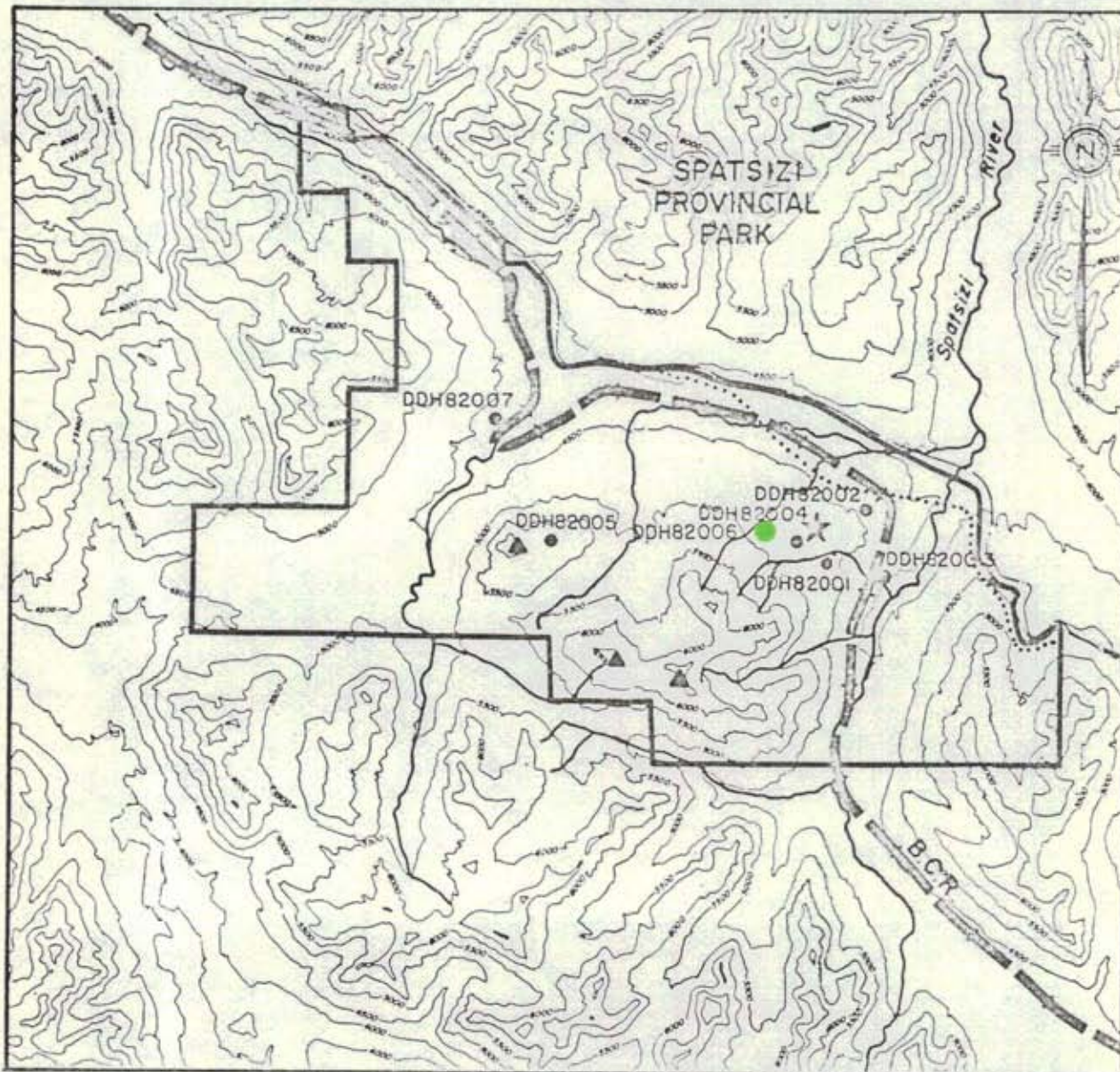
dimensions and orientation:

length (M) 172.98 inclination 60.0 azimuth 345.0
size width 95.8 size height
roof strike dip dir
floor strike dip dir

casing depth (M) 3.66 cement(y,_) _ plug(Y,_) Y piez(Y,_) _
aquifer depths (M) _____ _____
loss cir depths(M) _____ _____


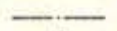




MT. KLAPPAN COAL PROPERTY

DIAMOND DRILL HOLES



0 1 2 3 4 5 Km

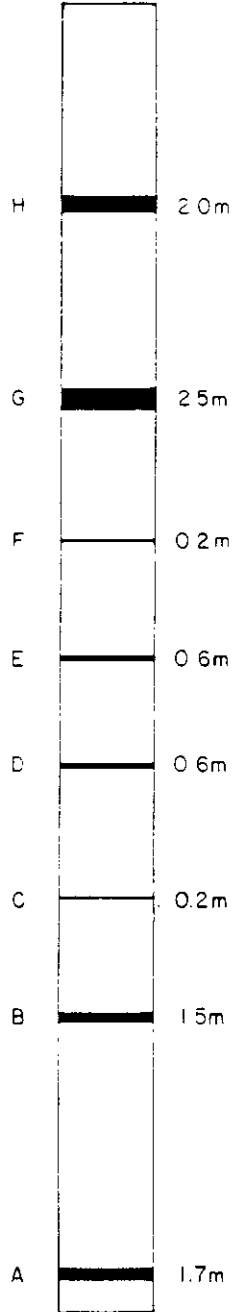


-  Prepared Rail Bed
-  Provincial Park Boundary
-  Camp
-  Diamond Drill Hole
-  Redefined Property Boundary
-  Peaks

MT. KLAPPAN COAL PROPERTY

DDH82006

SEAM SEAM THICKNESS



SCALE - 1:1000

LAB SAMPLE SUMMARY

DATA SOURCE	SEAM	GULF SAMPLE I.D.	CYCLONE SAMPLE I.D.	GROSS COAL	NET COAL	DRILLED INTERVAL
KPNBCDDH82006	H	40	sl-342-571	2.01	1.31	26.09 - 28.10
	G	41	sl-342-572	1.24	1.16	51.15 - 52.39
	G	42	sl-342-573	1.21	0.68	52.39 - 53.60
	E	43	sl-342-574	0.63	0.61	85.88 - 86.51
	D	44	sl-342-575	0.59	0.52	99.38 - 99.97
	D	45	sl-342-576	1.50	1.26	132.35 - 133.85
	A	46	sl-342-577	1.67	1.62	166.31 - 168.37

GULF CANADA RESOURCES INC. - COAL DIVISION
 24/JAN/83 SIMPLE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	REC CORE	PERCLNT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82006										
	H	4872	26.09	26.93	0.56	69.05	0.47	0.11	0.26	0.00
	H	4873	26.93	27.62	0.21	30.43	0.02	0.19	0.26	0.22
	H	4874	27.62	28.10	0.22	45.85	0.15	0.07	0.15	0.11
	C	4875	51.15	52.39	1.06	67.10	1.00	0.08	0.16	0.00
	G	4876	52.39	52.67	0.15	53.57	0.00	0.15	0.00	0.13
	G	4877	52.67	53.13	0.35	76.09	0.35	0.00	0.11	0.00
	G	4878	53.13	53.60	0.43	91.49	0.18	0.25	0.04	0.00
	E	4879	85.86	86.51	0.47	74.60	0.45	0.02	0.16	0.00
	D	4880	99.38	99.97	0.53	89.83	0.46	0.07	0.06	0.00
	B	4881	132.35	132.90	0.55	100.00	0.53	0.02	0.00	0.00
	B	4882	132.90	133.85	0.62	65.26	0.55	0.07	0.18	0.15
	A	4883	166.31	168.37	2.06	100.00	2.01	0.05	0.00	0.00

GULF CANADA RESOURCES INC. - COAL DIVISION

25/JAN/83

COMPOSITE SAMPLE SUMMARY

PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DH82006												
	H	40	4872	4874	26.09	28.10	1.01	50.25	0.64	0.37	0.67	0.33
	G	41	4875	4875	51.15	52.39	1.08	87.10	1.00	0.08	0.16	0.60
	G	42	4876	4878	52.39	53.60	0.93	78.88	0.53	0.40	0.15	0.13
	E	43	4879	4879	85.88	86.51	0.47	74.60	0.45	0.02	0.16	0.00
	D	44	4880	4880	99.38	99.97	0.53	89.63	0.46	0.07	0.06	0.00
	H	45	4881	4882	132.35	133.85	1.17	78.00	1.08	0.09	0.18	0.15
	A	46	4883	4883	166.31	168.37	2.06	100.00	2.01	0.05	0.00	0.00

DRILLING DEPTH	SEAM NAME	INTERVAL		NET	SAMPLE		COMPOSITE	MINING SECTION	
		ROCK	COAL		NUMBER	COMPOS	COAL/ROCK TOTAL	COAL/ROCK TOTAL	
25.54			0.14						
25.68		(0.07)							
		0.31							
26.09		0.02	0.14						
			0.04	(0.26)	69	04872			
		0.09	0.17						
26.93		(0.12)	0.12						
			(0.26)		67.7	04873	40	1 31 / 0 70 2 01	1 31 / 0 70 2 01
27.62		0.01 0.02 0.17	0.02						
		0.03	0.05 0.04	(0.15)	45.8	04874			
28.10	(0.11) 0.04	0.06							

GULF CANADA RESOURCES INC.		
CALGARY	Coal Division	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-006 SEAM H		
PREPARED BY: C. L.	SCALE: 1:40	
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

DENSITY

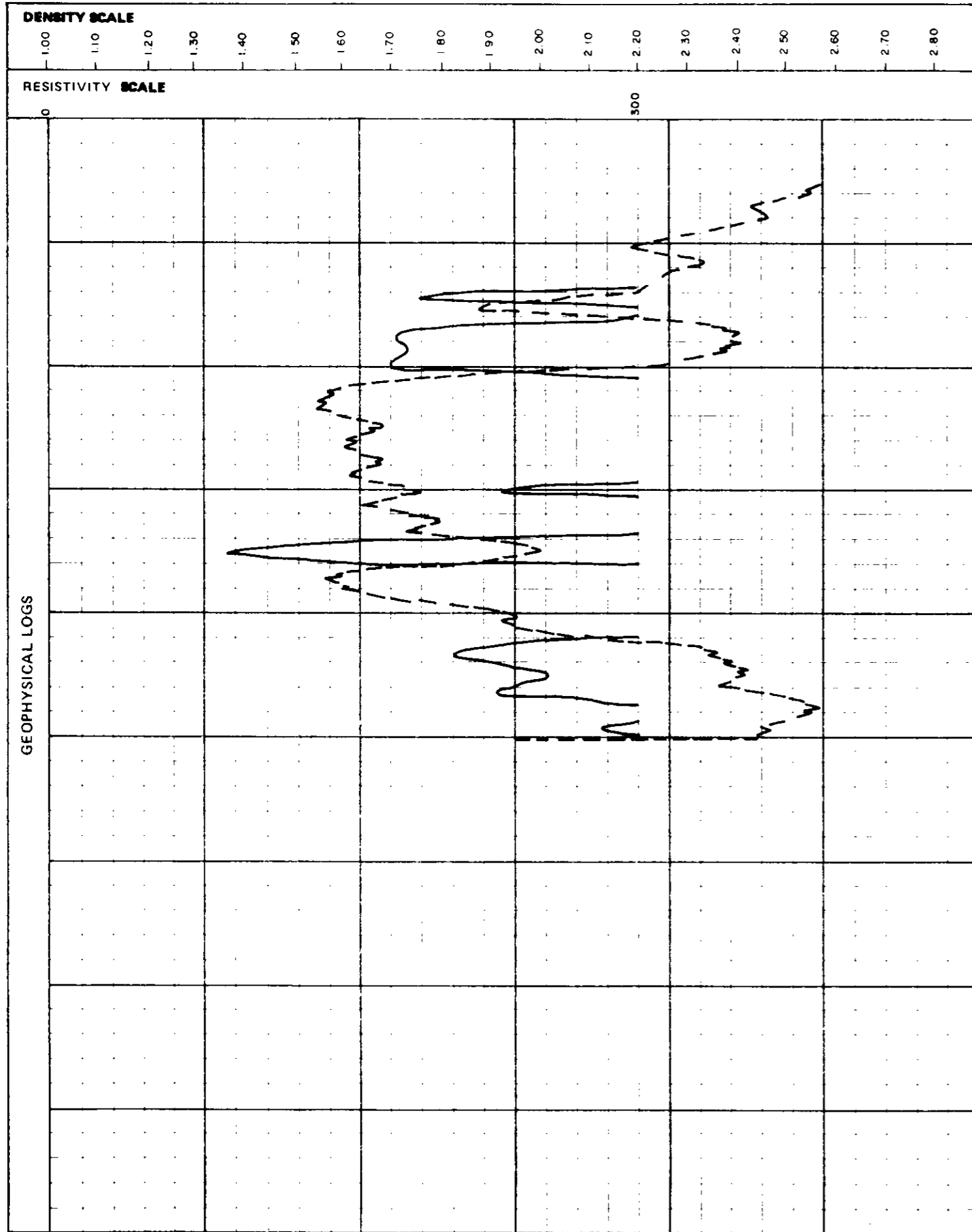
RESISTIVITY

DRILL NO DDH - 82 - 006

SEAM H

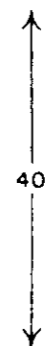
SEAM INTERVAL

SCALE 1:40



GEOPHYSICAL LOGS

SEAM COMP	DEPTH meters	COAL SEAM LOG	INTERVAL		REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS	MOIST	ASH	VM	FC	S	Cal. Vol. MJ/kg	FSI			
1	25.54			0.14													
			(0.07)														
	26.09			0.14													
			0.34														
	26.93		0.02	0.04	69	04872											
			0.09	0.17													
	27.62		0.10	0.02	67.7	04873											
			0.17	0.02													
	28.10		0.03	0.05	45.8	04874											
			(0.11)	0.04													
			0.04	0.06													



Seam Interval (m): 26.09 - 28.10
Seam True Thickness (Coal/Rock): 1.31/0.70
Total 2.01

0.71 45.68 9.46 44.15 17.16

DEPTH	GAL SEAM LOG	INTERVAL		RF	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	THICKNESS		NUMBER	COMPOS	COAL/ROCK TOTAL	COAL/ROCK TOTAL
51.15			(0.16)					
			0.22					
		0.05						
		0.01	0.20	87.1	04875	41	1.16 / 0.08	
			0.31				1.24	
		0.01						
		0.01	0.10					
52.39			0.17					1.84 / 0.61
		0.15		53.6	04876			2.45
52.67		(0.13)						
			0.35	76.1	04877	42	0.68 / 0.53	
							1.21	
53.13		0.12						
			0.09					
		0.13		91.5	04878			
53.60								

GULF CANADA RESOURCES INC.		
CALGARY	ALBERTA	
Coal Division MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-006 SEAM G		
PREPARED BY: C. L.	DATE: NOV 82	SCALE 1:40
APPROVED BY: J. M. D.	DRAWING No.	

DENSITY

RESISTIVITY

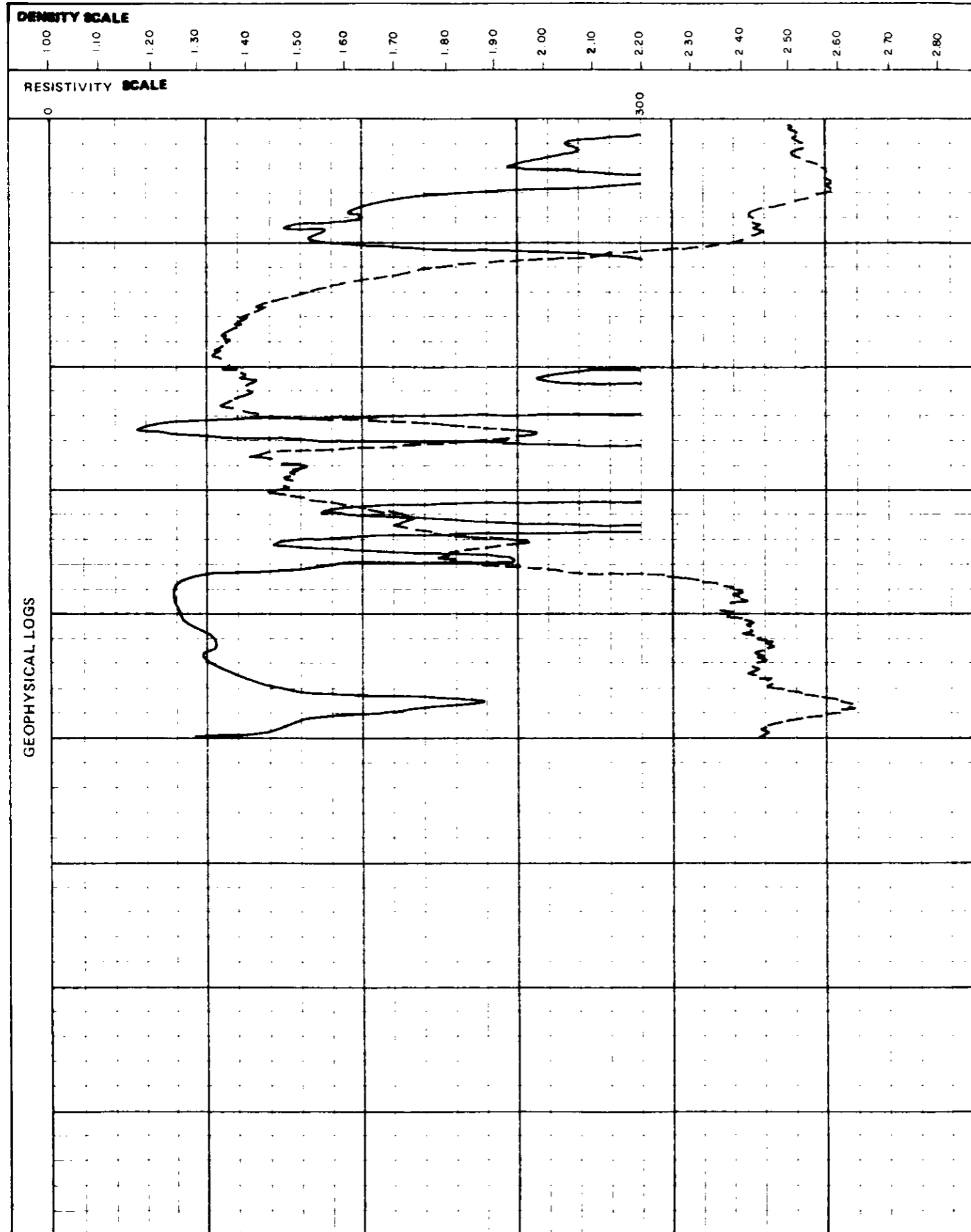
DRILL NO DDH - 82 - 006

SEAM

G

SEAM INTERVAL

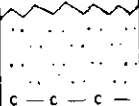

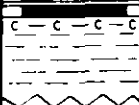
SCALE 1:40




SEAM COMP	DEPTH meters	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS	MOIST	ASH	VM	FC	S	Cal. Val. MJ/kg	FSI			
1 2 3 4 5 6	51.15			(0.16) 0.22													
			0.05	0.20	87.1	04875	41	0.97	18.48	6.65	43.90		28.37				
	52.39		0.01	0.31													
	52.67		0.01	0.10													
	53.13		0.15	0.17	53.6	04876	42	1.26	41.16	9.81	47.77		18.64				
	53.60		(0.13) 0.12	(0.11) 0.09	76.1	04877											
			0.13	0.09	91.5	04878											
				0.09 (0.04)													

Seam Interval (m): 51.15 - 53.60
Seam True Thickness (Coal/Rock): 1.84/0.61
Total 2.45

GEOPHYSICAL LOGS

DEPTH	COAL SEAM LOG	INTERVAL		REC	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS	COAL/ROCK TOTAL	COAL/ROCK TOTAL
85.88			0.16 (0.11)					
			0.21 (0.08)	74.6	04879	43	0.61/0.02 0.63	0.61/0.02 0.63
86.51		0.02						

GULF CANADA RESOURCES INC.		
CALGARY	ALBERTA	
<p>MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-006 SEAM E</p>		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

DENSITY

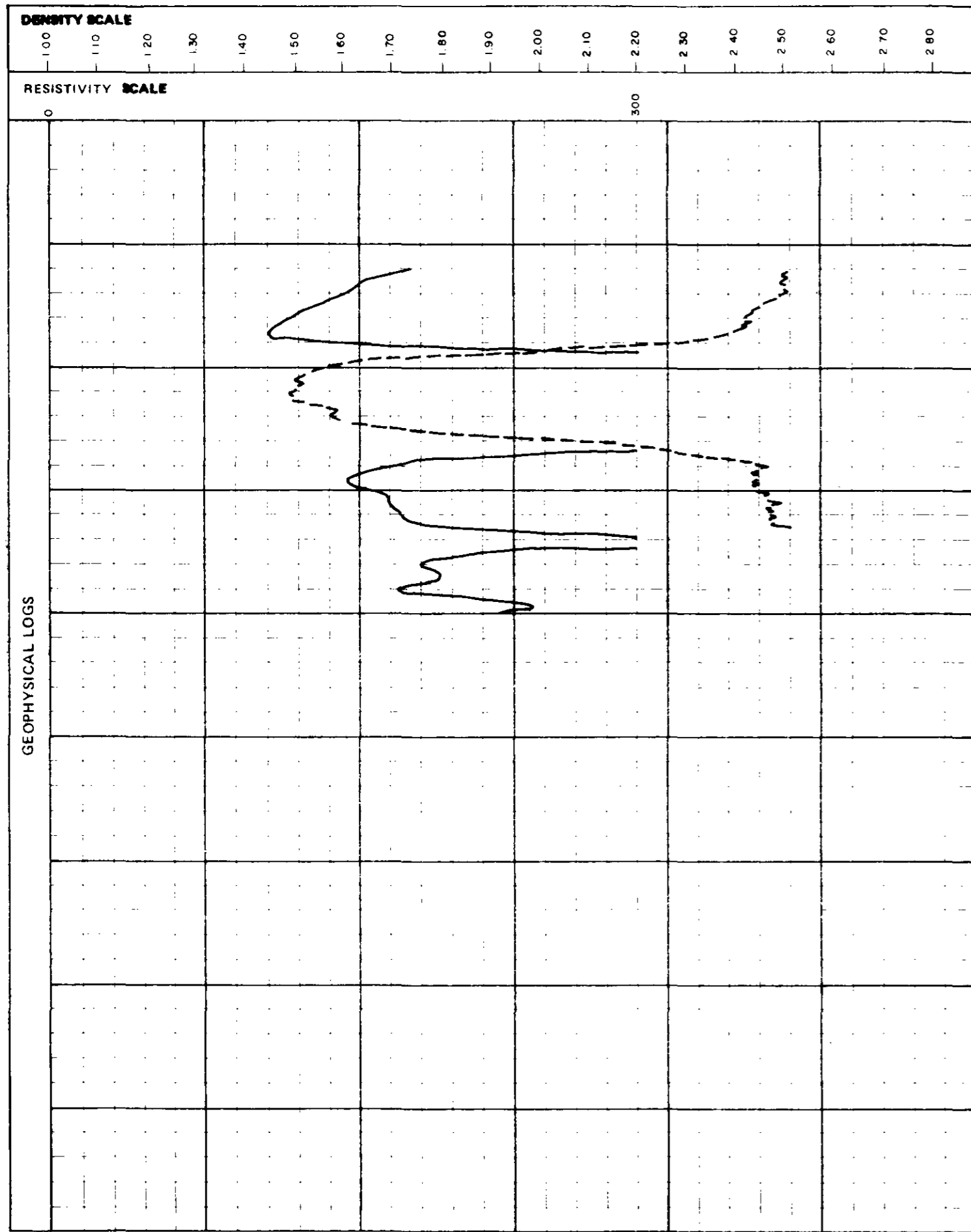
RESISTIVITY

DRILL NO DDH - 82 - 006

SEAM E

SEAM INTERVAL


SCALE 1:40




GEOPHYSICAL LOGS

SEAM CAP	DEPTH meters	COAL SEAM LOG	INTERVAL		REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS	MOIST	ASH	VM	FC	S	Cal Val. MJ/kg	FSI			
1	85.88																
2	86.51		0.02	0.16 (0.11) 0.21 0.05 0.08	74.6	04879	43	0.96	30.94	8.62	59.48	23.17					

Seam Interval (m): 85.88 - 86.51
Seam True Thickness (Coal/Rock): 0.61/0.02
Total 0.63

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		REC	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS	COAL/ROCK TOTAL	COAL/ROCK TOTAL
99.38			0.19					
		0.03	0.21	89 8	04880	↑ 44 ↓	↑ 0.52/0.07 0.59 ↓	↑ 0.52/0.07 0.59 ↓
99.97		0.03 0.01	0.02 0.04					

GULF CANADA RESOURCES INC.		
Calgary	Coal Division	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-006 SEAM D		
PREPARED BY: C. L.	SCALE 1/40	
APPROVED BY: J. M. D.	DATE: NOV '82	DRAWING No.

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC
COAL DIVISION

DENSITY

RESISTIVITY

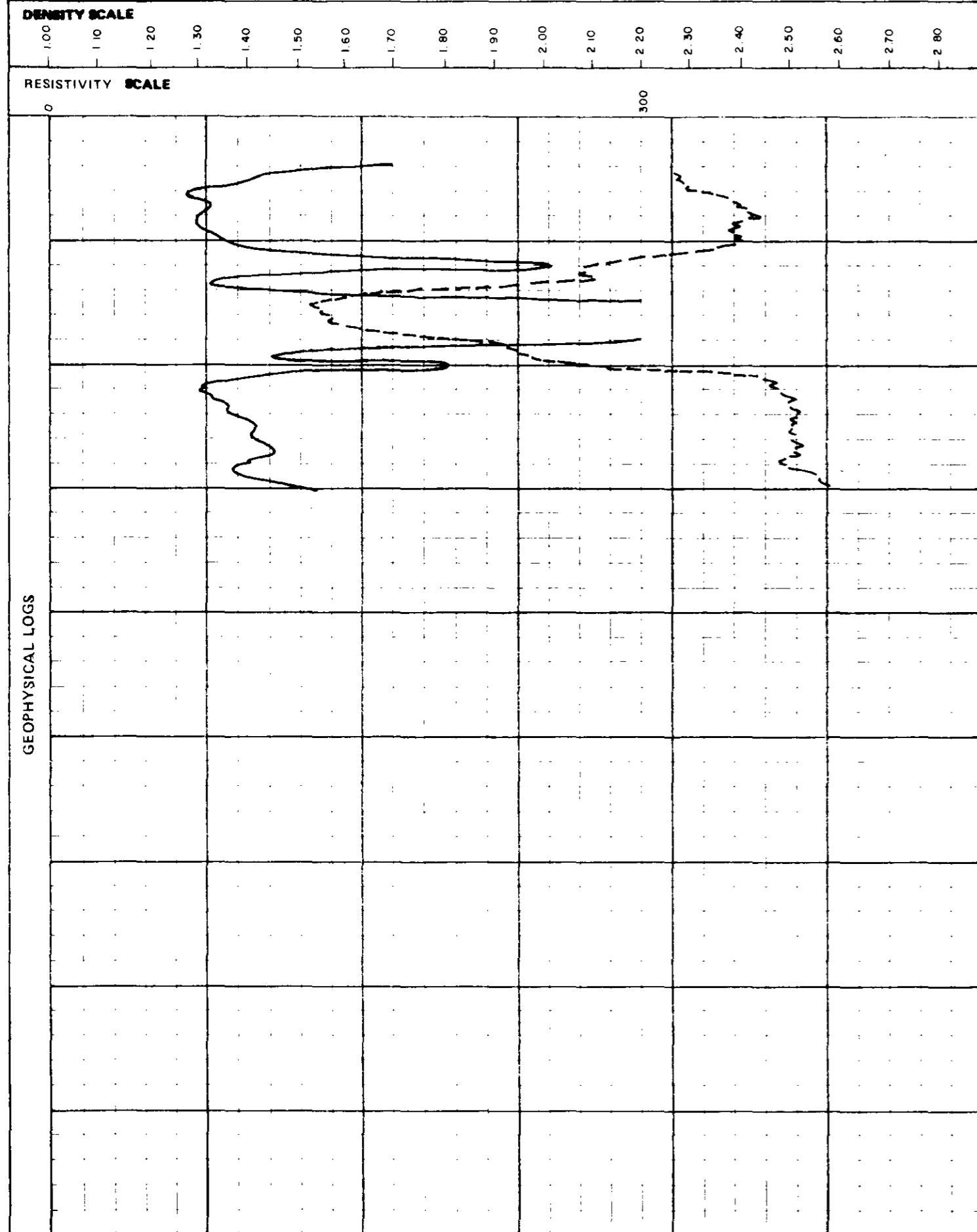
BORING NO DDH - 82 - 006

SEAM

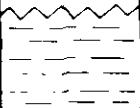

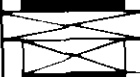


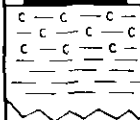
D


Apparent Thickness

SEAM INTERVAL



SEAM THICKNESS 123456	DEPTH meters	COAL SEAM LOG	INTERVAL		REC	SAMPLE NUMBER	COMPOS.	PROXIMATE ANALYSIS					
			ROCK	COAL				MOIST	ASH	VM	FC	S	Cal. Val. MJ/kg
	99.38		0.03	0.19	89.8	04880	44	1.57	35.78	7.40	55.25	21.06	
	99.97		8.83	8.82									
			Seam Interval (m): 99.38 - 99.97					Seam True Thickness (Coal/Rock): 0.52/0.07					
								Total 0.59					

DEPTH	COAL SEAM LOG	INTERVAL		% REC	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS	COAL/ROCK TOTAL	COAL/ROCK TOTAL
132.35			0.37	100	04881	↑	↑	↑
132.90		0.02	0.16					
		(0.15)	(0.18)			45	1.26 / 0.24	1.26 / 0.24
		0.02	0.30	77.5	04882	↓	↓	↓
		0.05	0.19					
133.85								

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-006 SEAM B		
PREPARED BY: C. L.	SCALE 1: 40	
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

DENSITY

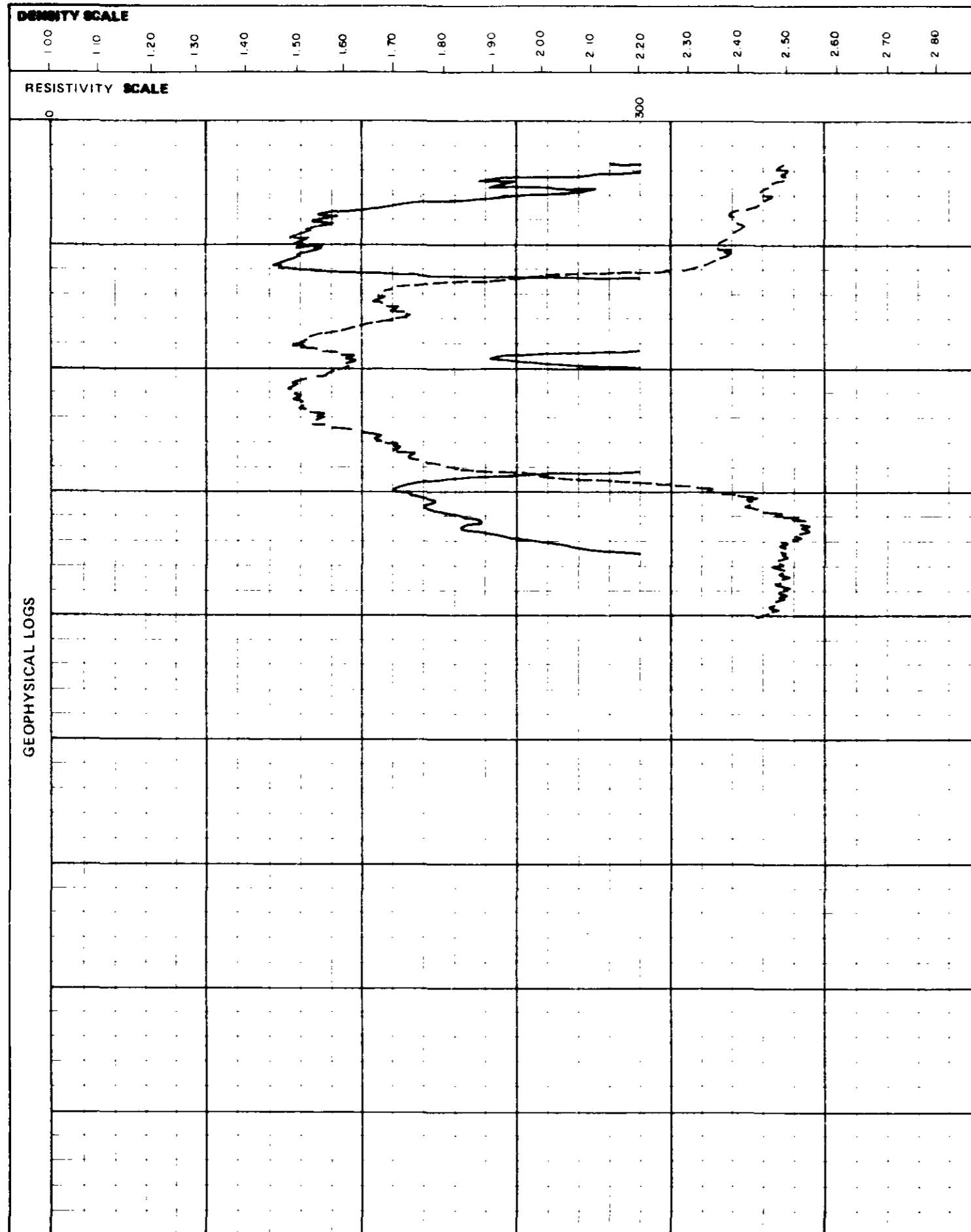
RESISTIVITY

DRILL NO DDH - 82 - 006

SEAM B

SEAM INTERVAL

SCALE 1:40



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH meters	COAL SEAM LOG	INTERVAL		REC	SAMPLE		PROXIMATE ANALYSIS								
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	Cal Val. MJ/kg	FSI		
1	132.35			0.37	100	04881										
2	132.90		0.02	0.16												
			(0.15)	(0.18)												
3	133.85		0.02	0.30	65.3	04882										
			0.05	0.19												
							Seam Interval (m): 132.35-133.85 Seam True Thickness (Coal/Rock): 1.26/0.24 Total 1.50									

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS	COAL/ROCK TOTAL	COAL/ROCK TOTAL
166.31		0.04 0.01	0.13 0.28 1.21	100	04883	46	1.62/0.05 1.67	1.62/0.05 1.67
168.37								

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-006 SEAM A		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. 82	DRAWING No.

Apparent Thickness

DENSITY

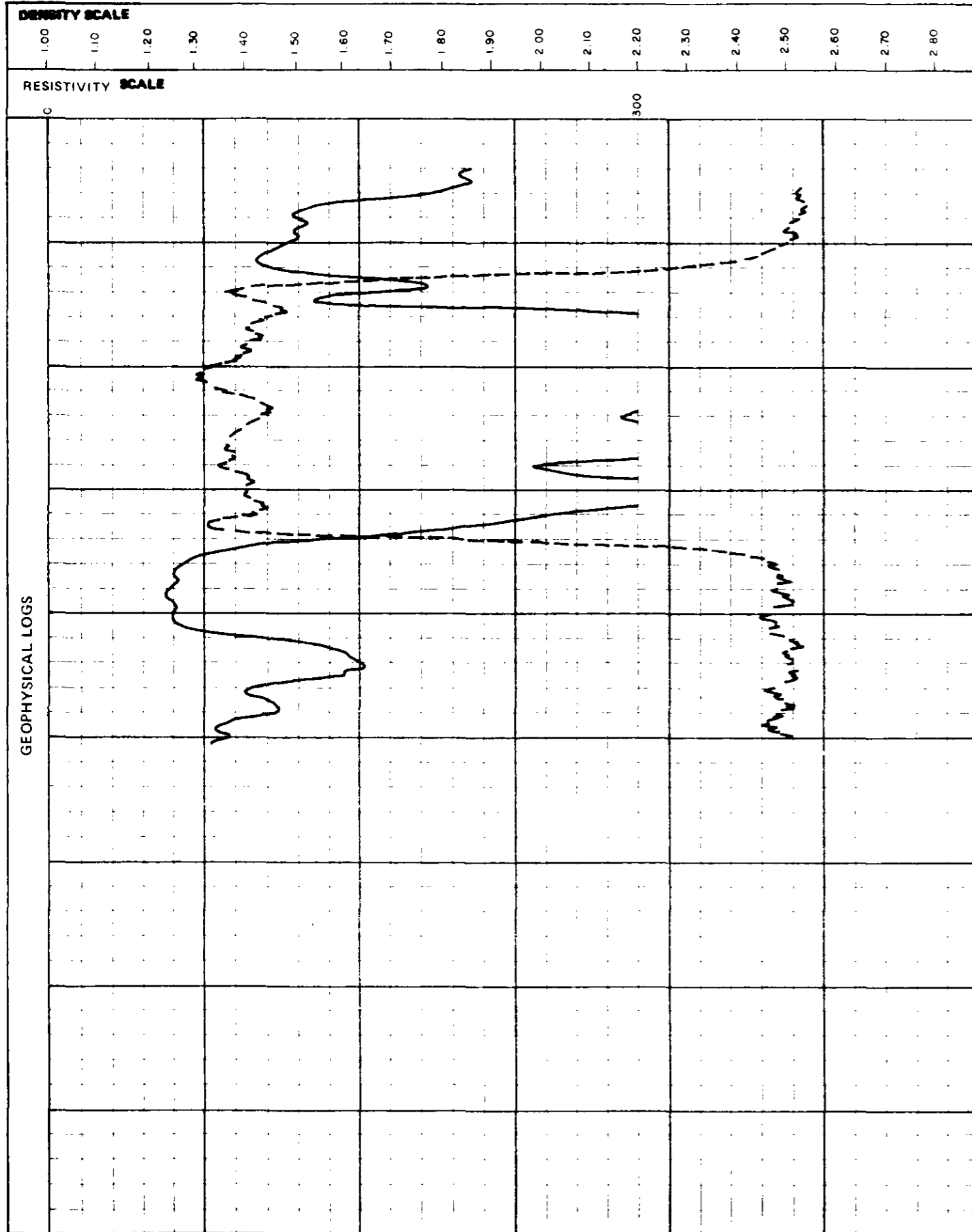
RESISTIVITY

DRILL NO DDH - 82 - 006

SEAM A

SEAM INTERVAL

SCALE 1:40



GEOPHYSICAL LOGS

SEAM COMP	DEPTH meters	COAL SEAM LOG	INTERVAL		REC	SAMPLE		PROXIMATE ANALYSIS								
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	Cal. Val. MJ/kg	FSI		
1 2 3 4 5 6	166.31		0.04	0.14												
			0.01	0.31												
				1.56	100	04883	46	0.75	17.19	8.54	73.52		28.33			
	168.37															

Seam Interval (m): 166.31 - 168.37
Seam True Thickness (Coal/Rock): 1.62/0.05
Total 1.67

gcri coal division history proj KPN blk SS ds DDH82007

start date 04/09/82
 end date 06/09/82

contractor J.T.THOMAS operator GCRI
 geologist INNIS surveyor

remarks INCLINED HOLE

gcri coal division location proj KPN blk SS ds DDH82007

choose one location input number, 1 province BC
 then enter location elevation (M) 1315.00

1 utm: zone 09 northing 6347475.00 easting 0504420.00
 2 lat-long: lat 571620 long 1285536

gcri coal division orientation proj KPN blk SS ds DDH82007

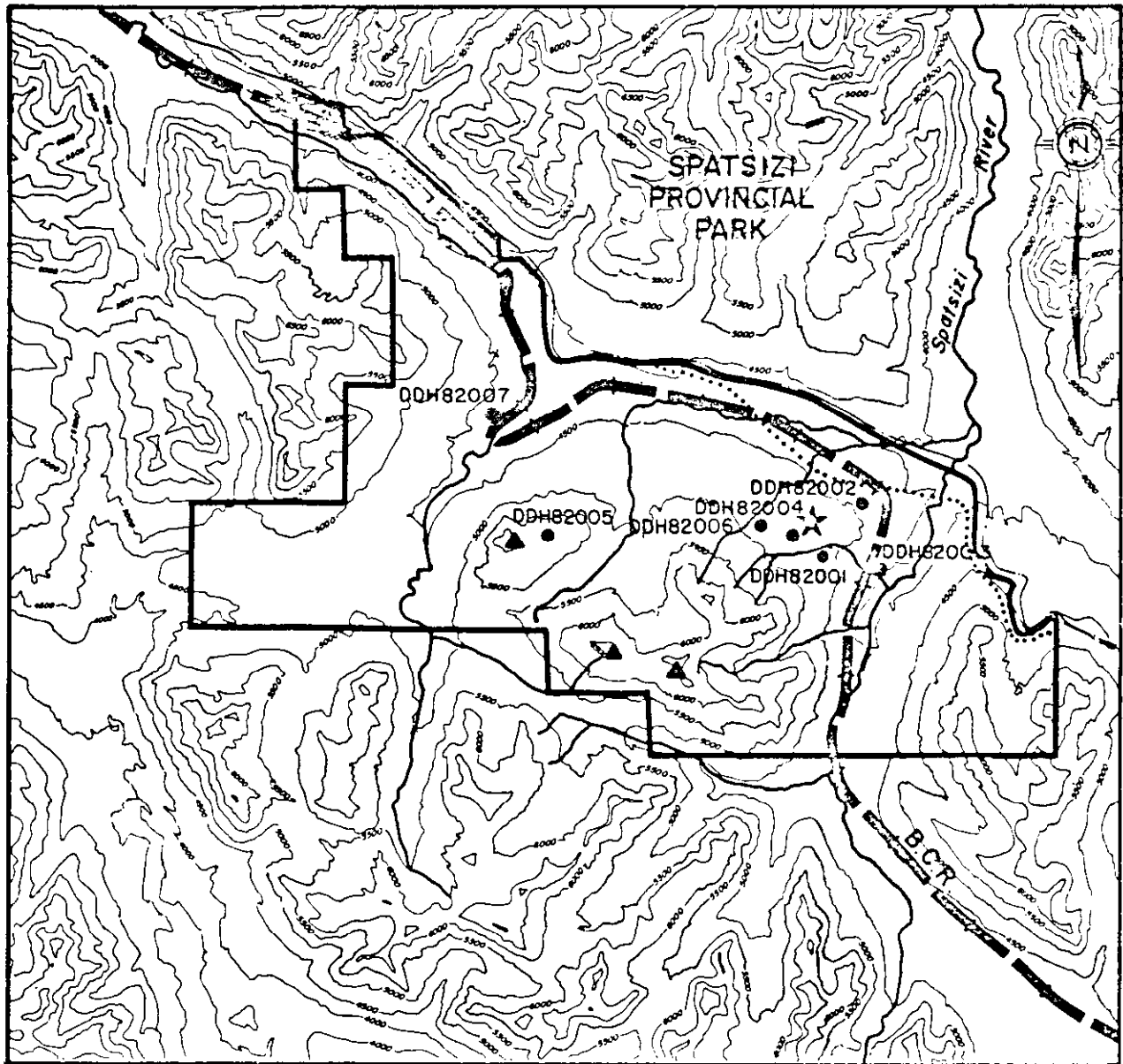
dimensions and orientation:

length (M) 130.15 inclination 70.0 azimuth 5.0
 size width 95.8 size height
 roof strike dip dir
 floor strike dip dir

casing depth (M) 3.05 cement(y,_) _ plug(Y,_) Y piez(Y,_) _
 aquifer depths (M)
 loss cir depths(M)







MT. KLAPPAN COAL PROPERTY

DIAMOND DRILL HOLES



0 1 2 3 4 5 Km

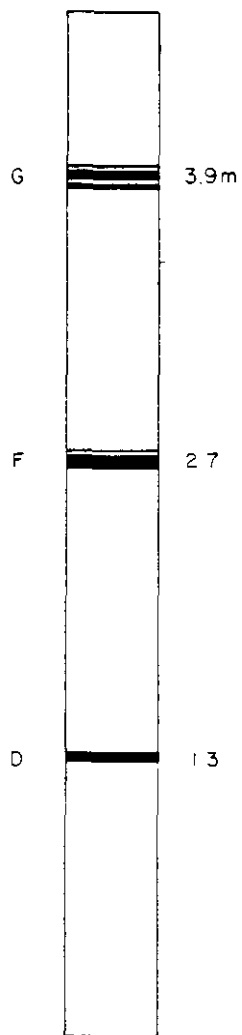


-  Prepared Rail Bed
-  Provincial Park Boundary
-  Camp
-  Diamond Drill Hole
-  Redefined Property Boundary
-  Peaks

MT. KLAPPAN COAL PROPERTY

DDH82007

SEAM SEAM THICKNESS



SCALE - 1 1000

LAB SAMPLE SUMMARY

DATA SOURCE	SEAM	GULF SAMPLE I.D.	CYCLONE SAMPLE I.D.	GROSS COAL	NET COAL	DRILLED INTERVAL
KPNSSDDH82007	G	47	s1-342-578	3.91	2.31	19.19 - 23.10
	F	48	s1-342-579	2.71	1.95	57.14 - 59.85
	D	49	s1-342-580	1.29	0.80	96.56 - 97.85

GULF CANADA RESOURCES INC. - COAL DIVISION
 24/JAN/83 SIMPLE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82007										
	G	4740	19.19	19.55	0.36	100.00	0.14	0.22	0.00	0.00
	G	4741	19.55	23.10	2.30	64.79	1.78	0.52	0.39	0.86
	F	4742	57.14	58.09	0.25	26.32	0.22	0.03	0.52	0.18
	F	4743	58.09	58.62	0.29	54.72	0.05	0.24	0.00	0.24
	F	4744	58.62	59.85	0.85	69.11	0.78	0.07	0.38	0.00
	D	4745	96.56	97.85	1.23	95.35	0.80	0.43	0.00	0.06

GULF CANADA RESOURCES INC. - COAL DIVISION
 25/JAN/83 COMPOSITE SAMPLE SUMMARY

PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82007												
	G	47	4740	4741	19.19	23.10	2.66	68.03	1.92	0.74	0.39	0.86
	F	48	4742	4744	57.14	59.85	1.39	51.29	1.05	0.34	0.90	0.42
	D	49	4745	4745	96.56	97.85	1.23	95.35	0.80	0.43	0.00	0.06

DEPTH	COAL SEAM LOG	INTERVAL		REC	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS.		
19.06			0.02					
19.19	c-c-c-c	0.11	0.05	100	04740	↑	↑	↑
		0.04	0.03					
19.55	c-c-c-c	0.14	0.08					
		0.02	0.18					
			0.31					
		0.05	0.10					
		0.01	0.14					
		0.01	0.16					
		0.02	0.02					
		0.08	0.03					
		0.02	0.44	65.1	04741	47	2.31/1.60 3.91	2.31 / 1.60 3.91
		0.01	(0.16)					
		(0.17)	0.19					
		0.03	0.13					
		0.05	0.02					
		(0.30)	(0.17)					
		(0.37)						
			0.15					
23.10	c-c-c-c	0.08	0.02			↓	↓	↓
			(0.08)					
		0.19	0.03					
23.49	c-c-c-c	0.15	0.02					

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-007 SEAM G		
PREPARED BY: C. L.	SCALE 1: 40	
APPROVED BY: J. M. D.	DATE: NOV. 82	DRAWING No.

DENSITY

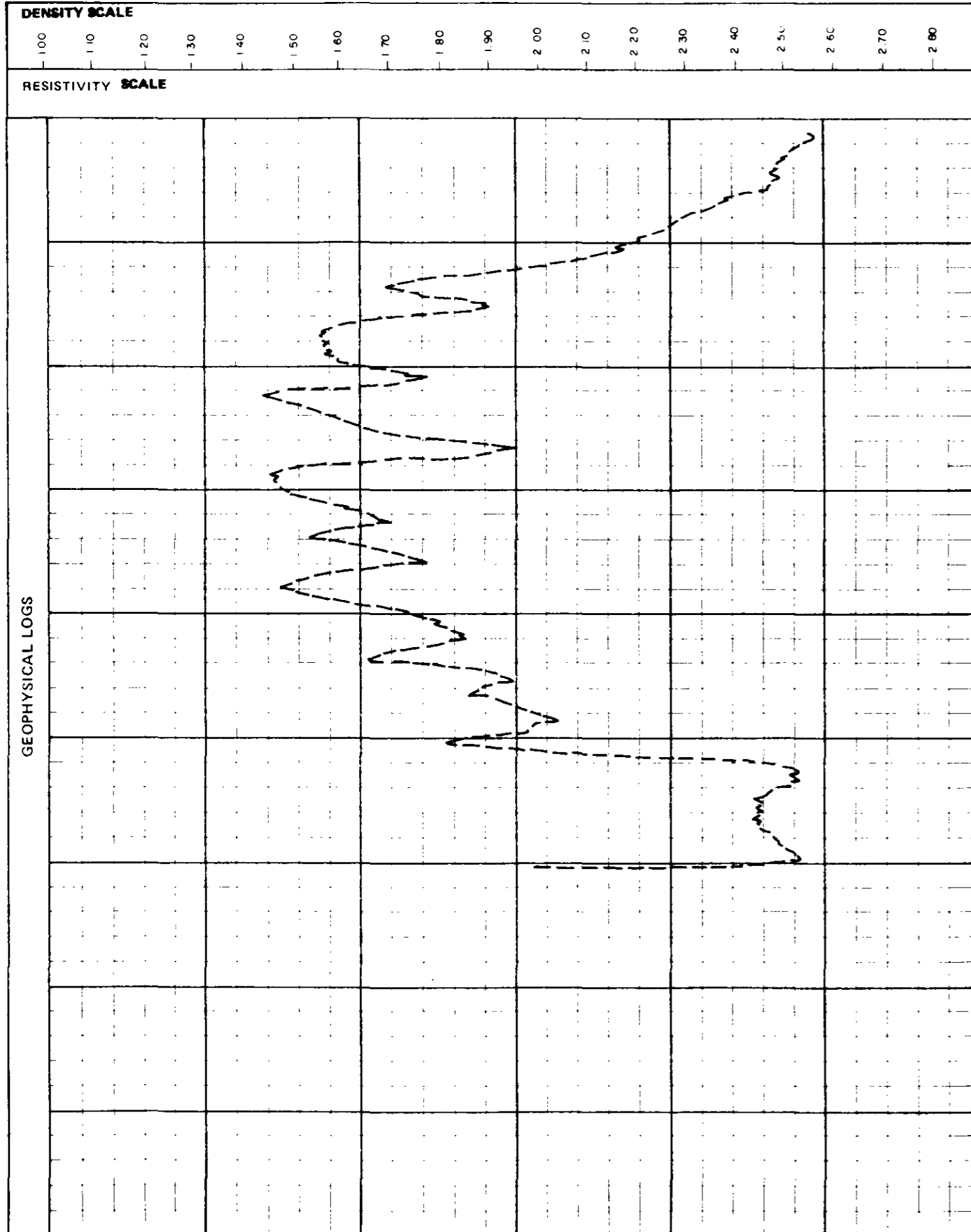
RESISTIVITY

DRILL NO DDH - 82 - 007

SEAM G

SEAM INTERVAL

SCALE 1:40



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL VAL. MJ/kg	FSI			
1 2 3 4 5 6	19.06																
	19.19	c-c-c-c	0.11	0.02													
			0.04	0.05	100	04740											
			0.04	0.03													
	19.55	c-c-c-c	0.14	0.08													
			0.02	0.18													
				0.31													
			0.05	0.10													
			0.01	0.14													
			0.01	0.16													
			0.02	0.02													
			0.06	0.03													
			0.05														
			(0.02)														
				0.44													
			0.01	(0.16)	65.1	04741	47	1.54	32.04	7.84	58.58		21.72				
			(0.17)														
			0.03	0.19													
			0.05	0.13													
			(0.30)	0.02													
			(0.17)														
			(0.37)														
		c-c-c-c	0.15	0.02													
	23.10	c-c-c-c	0.06	(0.06)													
		c-c-c-c	0.19	0.03													
	23.49	c-c-c-c	0.15	0.02													
		c-c-c-c															

Seam Interval (m) : 19.19 - 23.10
Seam True Thickness (Coal/Rock) : 2.31/1.60
Total 3.91

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		REC	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS	COAL/ROCK TOTAL	COAL/ROCK TOTAL
57.14		(0 16)		23	04742	↑	↑	↑
			(0 30)					
		(0 18)						
			(0 22)					
58.09		0 22	0 22	55	04743	48	1.95/0.76 2.71	1.95/0.76 2.71
		(0 24)	0 22					
58.62		0 14	0 14	69	04744	↓	↓	↓
		0 03	0 03					
		0 02	0 02					
		0 17	0 17					
59.85		(0 19)	(0 19)					
		0 24	0 24					
		0 02	0 02					
		0 13	0 13					
		(0 19)	0 22					

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-007 SEAM F		
PREPARED BY: C. L.	SCALE: 1:40	
APPROVED BY: J. M. D.	DATE: NOV '82	DRAWING No.

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

P-267 (12-80)

Apparent Thickness

DENSITY

RESISTIVITY

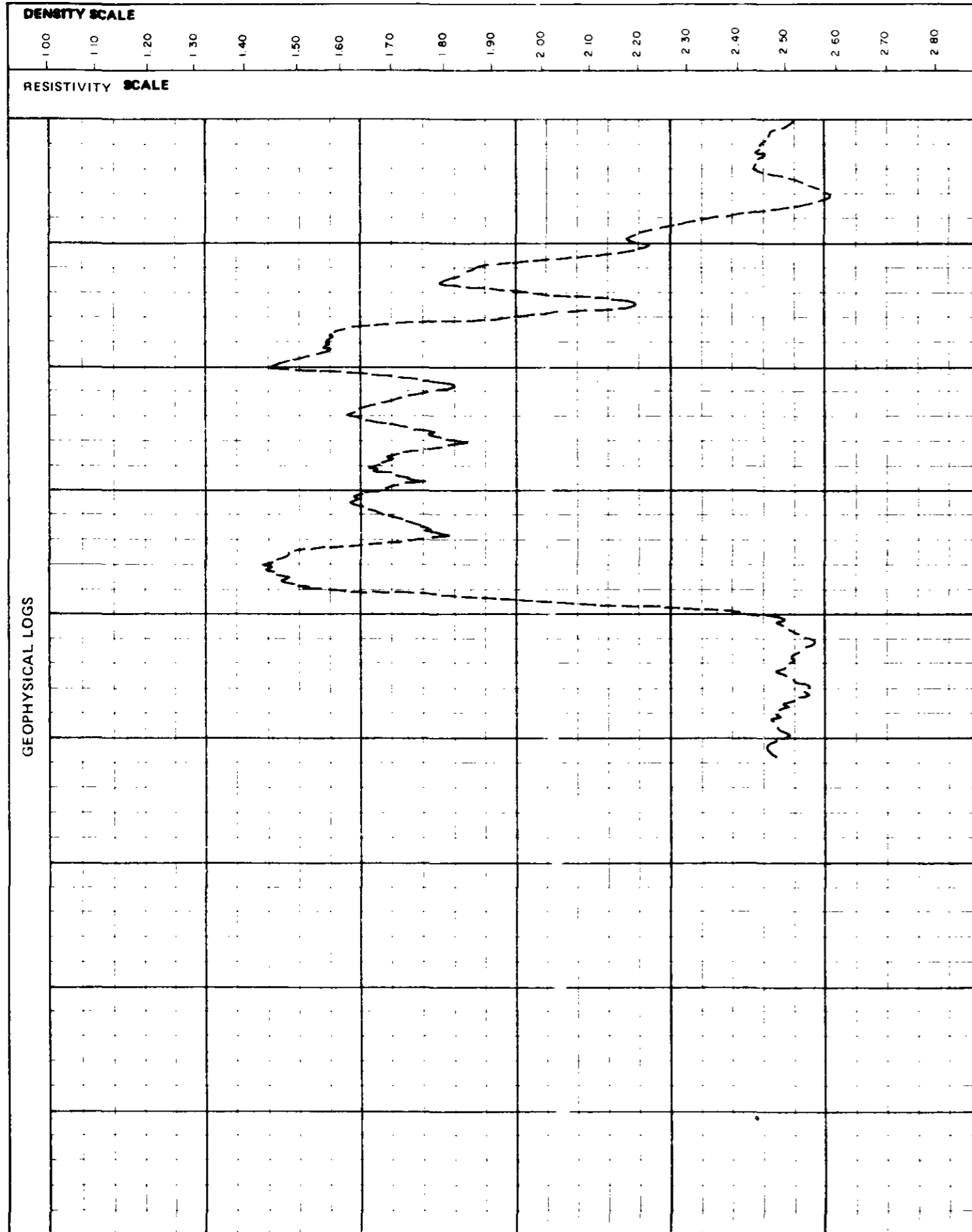
DRILL NO. DDH - 82 - 007

SEAM

F

SEAM INTERVAL

SCALE 1:40



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC	SAMPLE		PROXIMATE ANALYSIS								
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL. MJ/kg	FSI		
	57.14		(0.16)													
			(0.18)	(0.30)		23	04742									
	58.09		0.03	0.22												
			(0.24)			55	04743									
	58.62		0.01	8.81												
			0.14	8.81				48	1.28	37.67	5.96	55.09		20.36		
			0.03													
			0.05	0.24		69	04744									
			0.02	0.13												
	59.85		(0.19)	0.22												

Seam Interval (m): 57.14 - 59.85
 Seam True Thickness (Coal/Rock): 1.95/0.76
 Total 2.71

DENSITY

RESISTIVITY

DRILL NO DDH - 82 - 007

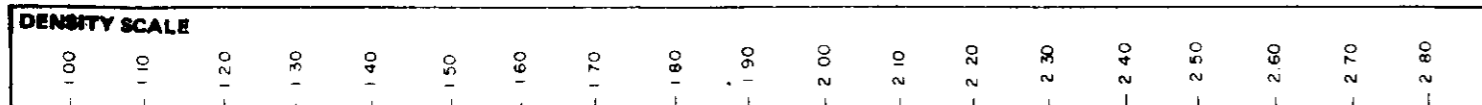
SEAM

D

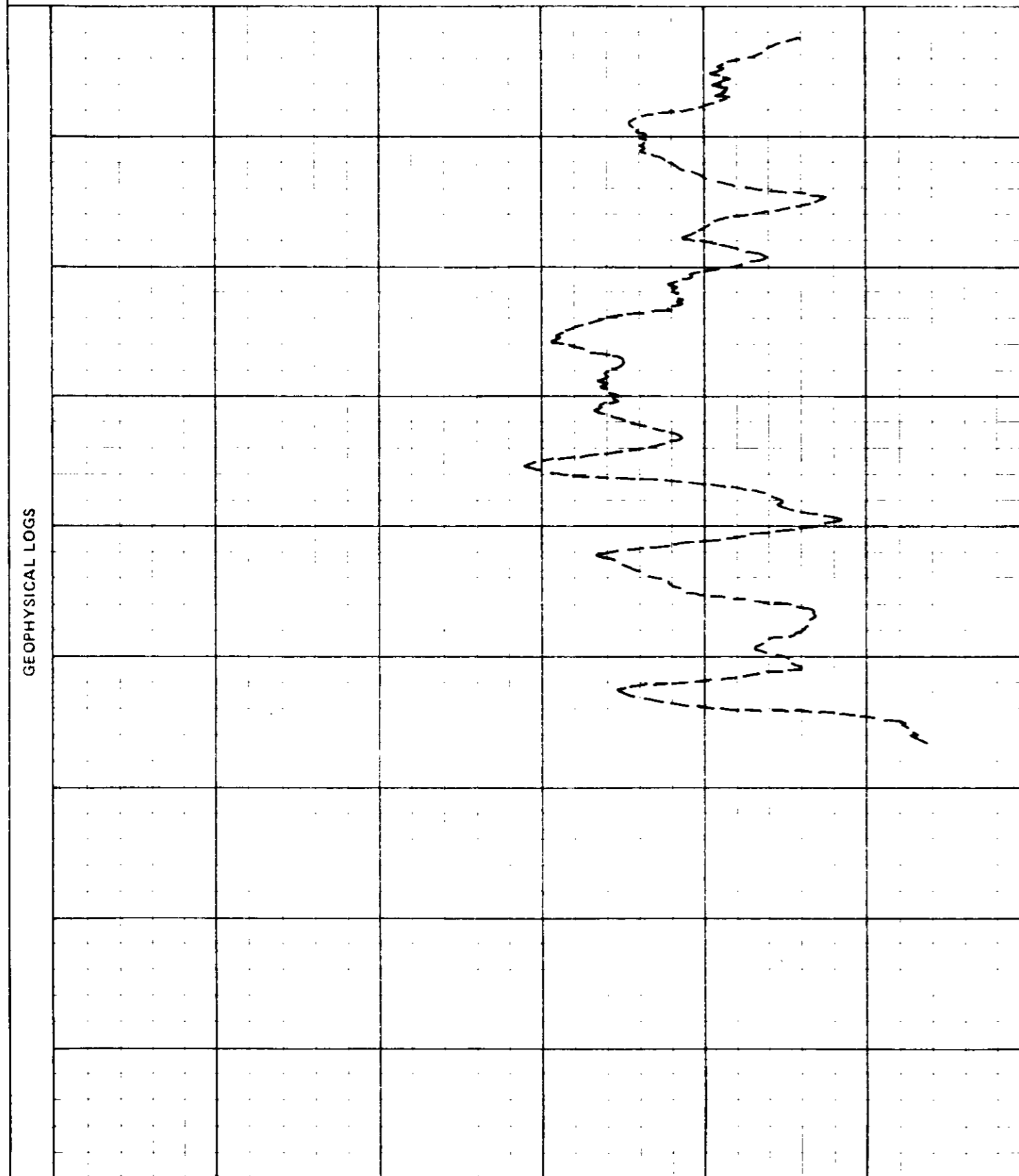
SEAM INTERVAL

SCALE 1:40

Logged Through Drill Rods



RESISTIVITY SCALE Density Scale Does Not Apply



SEAM COMP	DEPTH metres	COAL SEAM LOG	INTERVAL		REC.	SAMPLE		PROXIMATE ANALYSIS										
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL VAL MJ/kg	FSI				
23456	94.85			0.02														
			0.22	0.02														
			0.19	0.02														
			0.07	0.01														
			1.16															
		96.56			0.15													
				0.10	0.19													
				0.02	0.11													
				0.03	0.10	95	04745	49	1.68	36.39	6.66	55.27	20.55					
				0.03	0.02													
			0.03	0.15														
	97.85			0.06														
			0.24	0.06														
			0.01	0.02														
			0.07	0.02														
			0.06	0.10														
			0.17	0.01														
			0.29	0.01														
			0.21	0.01														
			0.06	0.01														
			0.03	0.07														
	99.35			0.10														
			0.01	0.01														

Seam Interval (m) : 96.56 - 97.85
Seam True Thickness (Coal/Rock) : 0.80 / 0.49
Total 1.29

DDH182006

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - H

SAMPLE ID - 4872

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00 ASH % -			
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		37.60	22.04	37.60	22.04	62.40	56.48	26.18	26.18
2.60		62.40	56.48	100.00	43.53			12.25	17.49

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - H

SAMPLE ID - 4873

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		WT%	ASH%	WT%	ASH%	C.V.	CUM.	C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)		C.V.	
1.70		15.79	20.99	15.79	20.99	84.21	72.52	26.91		26.91	
2.60		84.21	72.52	100.00	64.38			6.01		9.31	

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - H

SAMPLE ID - 4874

WASHABILITY ID - WAI

ANALYSIS TYPE - FLDAT

FRACTION	SIZE(MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		62.78	16.04	62.78	16.04	37.22	46.65	29.03	29.03
2.60		37.22	46.65	100.00	27.43			13.40	23.21

```

GCRI COAL DIVISION  HEAD      PROJ  KPN    BLK  BC    DS  DDH82006
=====
SAMPLE ID           40          DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID    HD1          DATE ANALYSED  22/10/82
ANALYSIS BASIS TYPE (AD,DB,AR,EM)  AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)  ASTM

TOP SIZE (MM)                10.00
SURFACE MOISTURE %<AD,AR>    ---
TOTAL MOISTURE %             ---
EQUILIBRIUM MOISTURE %      ---
RESIDUAL MOISTURE %<AD,EM>   0.71
ASH %                        45.68
VOLATILE MATTER %           9.46
FIXED CARBON %              44.15

TOTAL SULPHUR %              0.52
PHOSPHOROUS %               ---
CHLORINE (PPM)              00234
SPECIFIC GRAVITY            1.73
FSI                          ---
HGI                          53.0
CO2 %                        4.06

GROSS CALORIFIC VALUE (MJ/KG) 17.16
NET CALORIFIC VALUE (MJ/KG)  ---

```

```

GCRI COAL DIVISION  SIZE      PROJ  KPN    BLK  BC    DS  DDH82006
=====
SAMPLE ID           40          DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID    SZ1          DATE ANALYSED  22/10/82
FRACTION SIZE      WT%    ASH%    FSI    CAL    RM    VM    TS
  (MM) TO (MM)
10.00  0.60  79.94  48.40  ---    16.39  1.21  9.64  0.31
  0.60  0.15  12.32  38.36  ---    20.11  1.22  8.11  0.43
  0.15  0.00   7.74  43.06  ---    18.40  1.21  7.71  0.43

```

```

GCRI COAL DIVISION  ULTIMATE  PROJ  KPN    BLK  BC    DS  DDH82006
=====
SAMPLE ID           40          DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SAMPLE PRODUCT ID   SP1          DATE ANALYSED  03/11/82
SPLIT SAMPLE ID     UL1
ANALYSIS BASIS TYPE (DAF,DB,AD)  AD

WATER    %    0.71
CARBON   %    47.62
HYDROGEN %    1.89
SULPHUR  %    0.52
NITROGEN %    0.71
ASH      %    45.68
OXYGEN   %    2.87

```


GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82006

SAMPLE ID 40
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 04/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1255.0
 SOFTENING TEMP.(C) 1290.0
 HEMISPHERICAL TEMP.(C) 1320.0
 FLUID TEMP.(C) 1375.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1200.0
 SOFTENING TEMP.(C) 1235.0
 HEMISPHERICAL TEMP.(C) 1255.0
 FLUID TEMP.(C) 1305.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82006

SAMPLE ID 40
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	54.56
ALUMINIUM OXIDE %	(AL2O3)	19.52
FERRIC OXIDE %	(FE2O3)	7.86
TITANIUM DIOXIDE %	(TI02)	0.58
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.37
CALCIUM OXIDE %	(CAO)	4.54
MAGNESIUM OXIDE %	(MGO)	3.41
SULPHUR TRIOXIDE %	(SO3)	2.34
SODIUM OXIDE %	(NA2O)	1.27
POTASSIUM OXIDE %	(K2O)	1.70

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82006

SAMPLE ID 40
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	46.00
SULPHATE	%	2.00
ORGANIC	%	52.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - H

SAMPLE ID - 40

WASHABILITY ID - #A1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT % - 79.94		ASH % - 48.40	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.	TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40		3.75	3.86	3.75	3.86	96.25	45.72	34.22	34.22
1.50		7.91	11.80	11.66	9.25	88.34	48.76	31.06	32.08
1.60		10.14	21.39	21.80	14.89	78.20	52.30	26.37	29.42
1.70		18.48	30.02	40.28	21.83	59.72	59.20	23.11	26.53
1.80		8.41	35.92	48.69	24.27	51.31	63.02	20.44	25.47
1.90		9.10	41.59	57.79	26.99	42.21	67.63	18.06	24.31
2.00		5.43	47.33	63.22	28.74	36.78	70.63	15.20	23.53
2.10		6.80	52.52	70.02	31.05	29.98	74.74	12.85	22.49
2.20		2.27	58.22	72.29	31.90	27.71	76.09	10.42	22.11
2.30		3.78	62.44	76.07	33.42	23.93	78.25	8.81	21.45
2.60		23.93	78.25	100.00	44.15			2.78	16.98

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	0.60 X		0.15		RELATIVE WEIGHT % - 12.32		ASH % - 38.36	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.	TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40		17.55	3.47	17.55	3.47	82.45	44.57	34.49	34.49
1.50		18.63	8.26	36.18	5.94	63.82	55.17	31.66	33.03
1.60		8.92	20.11	45.10	8.74	54.90	60.87	24.60	31.36
1.70		8.53	26.64	53.63	11.59	46.37	67.17	24.18	30.22
1.80		4.67	33.83	58.30	13.37	41.70	70.90	21.26	29.50
1.90		4.53	40.31	62.83	15.31	37.17	74.63	18.65	28.72
2.00		4.11	46.87	66.94	17.25	33.06	78.08	15.54	27.91
2.10		2.89	55.52	69.83	18.83	30.17	80.24	12.30	27.27
2.20		1.85	61.26	71.68	19.93	28.32	81.48	10.55	26.83
2.30		2.05	66.38	73.73	21.22	26.27	82.66	7.60	26.30
2.60		26.27	82.66	100.00	37.36			0.00	19.39

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - H

SAMPLE ID - 40

WASHABILITY ID - WA1

FRACTION SIZE (MM)		ANALYSIS TYPE - FROTH				RELATIVE WEIGHT % - 7.74 ASH % - 43.06			
S.G.TME	0.15 X	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00		59.36	20.75	59.36	20.75	40.64	75.48	27.35	27.35
45.00		4.56	46.84	63.92	22.61	36.08	79.10	15.32	26.49
60.00		3.34	61.57	67.26	24.55	32.74	80.89	11.21	25.73
90.00		3.17	68.96	70.43	26.54	29.57	82.17	8.26	24.95
120.00		3.00	77.62	73.43	28.63	26.57	82.68	4.66	24.12
300.00		26.57	82.68	100.00	42.99			0.00	17.71

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK BC DS DDH82006

SAMPLE ID 40 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ----

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.70	40.28	32.20
0.60	0.15	1.60	45.00	5.56
0.15	0.00	30.00	59.36	4.59

GCRI COAL DIVISION COALCOMP PROJ KPN BLK BC DS DDH82006

SAMPLE ID 40 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 25/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	----	TOTAL SULPHUR %	0.46
TOTAL MOISTURE % (AR)	----	PHOSPHOROUS %	-----
EQUILIBRIUM MOISTURE %	----	CHLORINE (PPM)	-----
RESIDUAL MOISTURE (AD,EM)	0.98	SPECIFIC GRAVITY	1.55
ASH %	21.51	FSI	-----
VOLATILE MATTER %	7.14	HGI	-----
FIXED CARBON %	70.37	CO2 %	0.40

GROSS CALORIFIC VALUE (MJ/KG) 26.54
 NET CALORIFIC VALUE (MJ/KG) ----

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDH82006

SAMPLE ID 40 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.13
CARBON	%	70.84
HYDROGEN	%	2.80
SULPHUR	%	0.46
NITROGEN	%	0.79
ASH	%	21.51
OXYGEN	%	2.47

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDHS2006

SAMPLE ID 40
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 01/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1215.0
 SOFTENING TEMP.(C) 1400.0
 HEMISPHERICAL TEMP.(C) 1435.0
 FLUID TEMP.(C) 1465.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1210.0
 SOFTENING TEMP.(C) 1400.0
 HEMISPHERICAL TEMP.(C) 1435.0
 FLUID TEMP.(C) 1460.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDHS2006

SAMPLE ID 40
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 09/12/82

SILICON DIOXIDE %	(SI02)	64.95
ALUMINIUM OXIDE %	(AL2O3)	18.96
FERRIC OXIDE %	(FE2O3)	2.39
TITANIUM DIOXIDE %	(TI02)	0.92
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.12
CALCIUM OXIDE %	(CAO)	1.35
MAGNESIUM OXIDE %	(MGO)	1.56
SULPHUR TRIOXIDE %	(SO3)	0.85
SODIUM OXIDE %	(NA2O)	1.26
POTASSIUM OXIDE %	(K2O)	1.58

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDHS2006

SAMPLE ID 40
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 08/12/82

PYRITE	%	15.00
SULPHATE	%	2.00
ORGANIC	%	83.00

TOTAL 100.00

Gulf Canada Resources Inc.
Sample #4872-4874
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.25
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	4.60
VARIANCE	0.0224
STANDARD DEVIATION	0.1497
SKEWNESS	0.1514
KURTOSIS	2.5177

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
8	2.90	1	2.00
9	3.00	6	12.00
10	3.10	12	24.00
11	3.20	11	22.00
12	3.30	11	22.00
13	3.40	5	10.00
14	3.50	3	6.00
15	3.60	1	2.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - G

SAMPLE ID - 4875

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
	9.53	X 0.00	WT%	ASH%	WT%	ASH%	C.V.	CUM.	C.V.	CUM.
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70	79.12	11.44	79.12	11.44	20.88	46.68	30.59	30.59		
2.60	20.88	46.68	100.00	18.80			15.74	27.49		

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GCRI COAL DIVISION  HEAD      PROJ  KPN    BLK  BC    DS  DDHS2006
=====
SAMPLE ID           41          DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID    HD1          DATE ANALYSED  22/10/82
ANALYSIS BASIS TYPE (AD,DB,AR,EM)  AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)  ASTM

TOP SIZE (MM)                10.00
SURFACE MOISTURE %<AD,AR>    ---
TOTAL MOISTURE %             ---
EQUILIBRIUM MOISTURE %      ---
RESIDUAL MOISTURE %<AD,EM>   0.97
ASH %                        18.48
VOLATILE MATTER %           6.65
FIXED CARBON %              73.90

TOTAL SULPHUR %              1.38
PHOSPHOROUS %               ---
CHLORINE (PPM)              00279
SPECIFIC GRAVITY            1.51
FSI                          ---
HGI                          41.0
CO2 %                        0.68

GROSS CALORIFIC VALUE (MJ/KG) 28.37
NET CALORIFIC VALUE (MJ/KG)  ---

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GCRI COAL DIVISION  SIZE      PROJ  KPN    BLK  BC    DS  DDHS2006
=====
SAMPLE ID           41          DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID    SZ1          DATE ANALYSED  22/10/82

FRACTION SIZE      WT%      ASH%      FSI      CAL      RM      VM      TS
FROM (MM) TO (MM)
10.00  0.60  80.83  18.12  ---  28.46  1.02  6.66  1.38
0.60   0.15  10.71  22.31  ---  26.60  1.20  6.90  1.70
0.15   0.00   8.46  24.74  ---  25.83  1.07  6.13  1.21

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=====
GCRI COAL DIVISION  ULTIMATE  PROJ  KPN    BLK  BC    DS  DDHS2006
=====
SAMPLE ID           41          DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SAMPLE PRODUCT ID   SP1          DATE ANALYSED  03/11/82
SPLIT SAMPLE ID     UL1

ANALYSIS BASIS TYPE (DAF,DB,AD)  AD

WATER %              0.97
CARBON %             74.71
HYDROGEN %          2.58
SULPHUR %           1.38
NITROGEN %          0.82
ASH %               18.48
OXYGEN %            1.06

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GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82006

SAMPLE ID 41
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 08/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
 SOFTENING TEMP.(C) 1350.0
 HEMISPHERICAL TEMP.(C) 1365.0
 FLUID TEMP.(C) 1380.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1180.0
 SOFTENING TEMP.(C) 1240.0
 HEMISPHERICAL TEMP.(C) 1290.0
 FLUID TEMP.(C) 1355.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82006

SAMPLE ID 41
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	45.33
ALUMINIUM OXIDE %	(AL2O3)	26.34
FERRIC OXIDE %	(FE2O3)	9.80
TITANIUM DIOXIDE %	(TI02)	0.94
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.27
CALCIUM OXIDE %	(CAO)	2.37
MAGNESIUM OXIDE %	(MGO)	1.70
SULPHUR TRIOXIDE %	(SO3)	2.72
SODIUM OXIDE %	(NA2O)	1.52
POTASSIUM OXIDE %	(K2O)	1.39

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82006

SAMPLE ID 41
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	68.00
SULPHATE	%	1.00
ORGANIC	%	31.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - G

SAMPLE ID - 41

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	10.00	X	0.60	RELATIVE WEIGHT % - 80.83 ASH % - 18.12				
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	16.41	4.18	16.41	4.18	83.59	20.25	34.31	34.31	
1.50	47.48	8.38	63.89	7.30	36.11	35.85	32.15	32.70	
1.60	10.35	19.03	74.24	8.94	25.76	42.61	27.99	32.05	
1.70	5.81	26.40	80.05	10.20	19.95	47.34	23.96	31.46	
1.80	3.63	31.97	83.68	11.15	16.32	50.75	21.41	31.02	
1.90	2.94	34.64	86.62	11.95	13.38	54.30	19.56	30.64	
2.00	4.64	42.75	91.26	13.51	8.74	60.43	17.14	29.95	
2.10	2.55	51.06	93.81	14.53	6.19	64.28	13.96	29.51	
2.20	1.22	55.77	95.03	15.06	4.97	66.37	12.84	29.30	
2.30	0.56	58.29	95.59	15.31	4.41	67.40	9.75	29.19	
2.60	4.41	67.40	100.00	17.61			6.69	28.19	

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	0.60	X	0.15	RELATIVE WEIGHT % - 10.71 ASH % - 22.31				
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	18.57	3.06	18.57	3.06	81.43	25.13	33.82	33.82	
1.50	29.30	7.00	47.87	5.47	52.13	35.32	32.06	32.74	
1.60	11.78	15.14	59.65	7.38	40.35	41.21	28.48	31.90	
1.70	9.06	22.25	68.71	9.34	31.29	46.69	24.93	30.98	
1.80	6.78	28.59	75.49	11.07	24.51	51.70	22.28	30.20	
1.90	6.90	38.65	82.39	13.38	17.61	56.82	19.08	29.27	
2.00	5.63	42.07	88.02	15.22	11.98	63.75	17.25	28.50	
2.10	3.47	49.14	91.49	16.50	8.51	69.70	14.59	27.97	
2.30	2.90	59.48	94.39	17.82	5.61	74.99	11.47	27.47	
2.60	5.61	74.99	100.00	21.03			0.00	25.92	

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - G

SAMPLE ID - 41

WASHABILITY ID - WAI

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 8.46 ASH % - 24.74		C.V.	CUM.
	WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00	72.06	14.71	72.06	14.71	27.94	46.34	28.55	28.55
45.00	12.66	25.64	84.72	16.34	15.28	63.49	25.37	28.07
60.00	3.43	37.82	88.15	17.18	11.85	70.92	19.75	27.75
90.00	2.77	56.18	90.92	18.37	9.08	75.41	13.23	27.31
120.00	1.53	69.06	92.45	19.21	7.55	76.70	7.98	26.99
300.00	7.55	76.70	100.00	23.55			5.18	25.34

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK BC DS DDH82006

SAMPLE ID 41 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP3

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.68	79.12	63.95
0.60	0.15	1.74	71.29	7.64

GCRI COAL DIVISION COALCOMP PROJ KPN BLK BC DS DDH82006

SAMPLE ID 41 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.76
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	0.73	SPECIFIC GRAVITY	1.44
ASH %	10.37	FSI	---
VOLATILE MATTER %	7.04	HGI	38.0
FIXED CARBON %	81.86	CO2 %	0.16

GROSS CALORIFIC VALUE (MJ/KG) 30.88
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDH82006

SAMPLE ID 41 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 13/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.73
CARBON	%	81.89
HYDROGEN	%	3.07
SULPHUR	%	0.76
NITROGEN	%	0.96
ASH	%	10.37
OXYGEN	%	2.22

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82006

SAMPLE ID 41
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 10/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
 SOFTENING TEMP.(C) 1410.0
 HEMISPHERICAL TEMP.(C) 1425.0
 FLUID TEMP.(C) 1440.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
 SOFTENING TEMP.(C) 1400.0
 HEMISPHERICAL TEMP.(C) 1420.0
 FLUID TEMP.(C) 1440.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82006

SAMPLE ID 41
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 21/12/82

SILICON DIOXIDE % (SI02) 51.67
 ALUMINIUM OXIDE % (AL2O3) 26.74
 FERRIC OXIDE % (FE2O3) 7.09
 TITANIUM DIOXIDE % (TI02) 1.49
 PHOSPHOROUS PENTOXIDE % (P2O5) 2.24
 CALCIUM OXIDE % (CAO) 2.78
 MAGNESIUM OXIDE % (MGO) 0.57
 SULPHUR TRIOXIDE % (SO3) 0.79
 SODIUM OXIDE % (NA2O) 1.56
 POTASSIUM OXIDE % (K2O) 0.75

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82006

SAMPLE ID 41
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE % 42.00
 SULPHATE % 1.00
 ORGANIC % 57.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK BC DS DDH82006

SAMPLE ID 41 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.60	100.00	80.83
0.60	0.15	2.60	100.00	10.71
0.15	0.00	120.00	92.45	8.10

GCRI COAL DIVISION COALCOMP PROJ KPN BLK BC DS DDH82006

SAMPLE ID 41 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 25/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	1.45
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	0.64	SPECIFIC GRAVITY	1.50
ASH %	18.01	FSI	---
VOLATILE MATTER %	6.40	HGI	---
FIXED CARBON %	74.95	CO2 %	0.92

GROSS CALORIFIC VALUE (MJ/KG) 28.51
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDH82006

SAMPLE ID 41 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.64
CARBON	%	75.19
HYDROGEN	%	2.57
SULPHUR	%	1.45
NITROGEN	%	0.88
ASH	%	18.01
OXYGEN	%	1.26

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82006

SAMPLE ID 41
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 01/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1225.0
SOFTENING TEMP.(C) 1360.0
HEMISPHERICAL TEMP.(C) 1375.0
FLUID TEMP.(C) 1415.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1205.0
SOFTENING TEMP.(C) 1350.0
HEMISPHERICAL TEMP.(C) 1370.0
FLUID TEMP.(C) 1410.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82006

SAMPLE ID 41
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/12/82

SILICON DIOXIDE % (SI02) 50.43
ALUMINIUM OXIDE % (AL2O3) 23.36
FERRIC OXIDE % (FE2O3) 9.88
TITANIUM DIOXIDE % (TI02) 1.12
PHOSPHOROUS PENTOXIDE % (P2O5) 1.37
CALCIUM OXIDE % (CAO) 2.30
MAGNESIUM OXIDE % (MGO) 1.70
SULPHUR TRIOXIDE % (SO3) 2.11
SODIUM OXIDE % (NA2O) 1.68
POTASSIUM OXIDE % (K2O) 0.98

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82006

SAMPLE ID 41
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 08/12/82

PYRITE % 67.00
SULPHATE % 1.00
ORGANIC % 32.00

TOTAL 100.00

Gulf Canada Resources Inc.
Sample #4875
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.74
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	3.65
VARIANCE	0.0186
STANDARD DEVIATION	0.1363
SKEWNESS	0.2710
KURTOSIS	3.1973

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
5	3.40	2	4.00
6	3.50	2	4.00
7	3.60	17	34.00
8	3.70	15	30.00
9	3.80	7	14.00
10	3.90	6	12.00
12	4.10	1	2.00

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WASHABILITY REPORT 1

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DATA SOURCE - KPNBCDDH82006 SEAM - G

SAMPLE ID - 4876

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM.	
S.G.	TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	C.V.
1.70		6.51	13.64	6.51	13.64	93.49	76.48	29.70	29.70
2.60		93.49	76.48	100.00	72.39			5.74	7.30

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - G

SAMPLE ID - 4877

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT											
FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		C.V.
1.70		84.70	9.25	84.70	9.25	15.30	55.42	31.37		31.37	
2.60		15.30	55.42	100.00	16.31			8.76		27.91	

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WASHABILITY REPORT 1

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DATA SOURCE - KPNBCDDH82006 SEAM - G

SAMPLE ID - 4878

WASHABILITY ID - WA1

FRACTION SIZE (MM)		ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00			
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		ASH % -	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
	9.53 X 0.00								
1.70		27.09	17.58	27.09	17.58	72.91	61.77	27.79	27.79
2.60		72.91	61.77	100.00	49.80			10.36	15.08

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82006

SAMPLE ID 42
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 08/11/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1260.0	INITIAL TEMP.(C)	1195.0
SOFTENING TEMP.(C)	1290.0	SOFTENING TEMP.(C)	1235.0
HEMISPHERICAL TEMP.(C)	1315.0	HEMISPHERICAL TEMP.(C)	1285.0
FLUID TEMP.(C)	1380.0	FLUID TEMP.(C)	1335.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82006

SAMPLE ID 42
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SiO2)	46.28
ALUMINIUM OXIDE %	(AL2O3)	23.83
FERRIC OXIDE %	(FE2O3)	9.06
TITANIUM DIOXIDE %	(TiO2)	0.86
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.74
CALCIUM OXIDE %	(CAO)	4.20
MAGNESIUM OXIDE %	(MGO)	3.15
SULPHUR TRIOXIDE %	(SO3)	3.58
SODIUM OXIDE %	(NA2O)	1.85
POTASSIUM OXIDE %	(K2O)	1.43

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82006

SAMPLE ID 42
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	51.00
SULPHATE	%	1.00
ORGANIC	%	48.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - G

SAMPLE ID - 42

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	10.00 X	0.60	RELATIVE WEIGHT % - 83.00 ASH % - 41.52					
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	7.51	3.22	7.51	3.22	92.49	42.29	34.14	34.14	
1.50	29.00	8.98	36.51	7.80	63.49	57.51	31.65	32.16	
1.60	7.29	15.68	43.80	9.11	56.20	62.93	29.04	31.64	
1.70	3.73	23.19	47.53	10.21	52.47	65.76	25.56	31.17	
1.80	5.40	29.68	52.93	12.20	47.07	69.90	22.42	30.27	
1.90	2.33	39.40	55.26	13.35	44.74	71.49	18.97	29.80	
2.00	2.99	46.61	58.25	15.05	41.75	73.27	16.19	29.10	
2.10	1.70	54.57	59.95	16.17	40.05	74.06	12.54	28.63	
2.20	0.70	55.40	60.65	16.63	39.35	74.39	12.30	28.44	
2.30	2.98	62.37	63.63	18.77	36.37	75.38	9.15	27.54	
2.60	36.37	75.38	100.00	39.36			4.24	19.06	

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	0.60 X	0.15	RELATIVE WEIGHT % - 10.55 ASH % - 31.74					
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	26.37	4.08	26.37	4.08	73.63	40.70	34.04	34.04	
1.50	25.27	9.18	51.64	6.58	48.36	57.17	32.15	33.12	
1.60	7.48	16.78	59.12	7.87	40.88	64.56	28.26	32.50	
1.70	4.51	25.70	63.63	9.13	36.37	69.37	24.58	31.94	
1.80	3.06	33.92	66.69	10.27	33.31	72.63	21.89	31.48	
1.90	2.73	42.81	69.42	11.55	30.58	75.29	17.81	30.94	
2.10	3.48	50.76	72.90	13.42	27.10	78.44	15.03	30.18	
2.30	1.96	61.29	74.86	14.67	25.14	79.78	10.17	29.66	
2.60	25.14	79.78	100.00	31.04			0.00	22.20	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - G

SAMPLE ID - 42

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % -		6.45 ASH % - 36.40	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00	66.44	20.26	66.44	20.26	33.56	65.53	27.10	27.10
45.00	7.84	36.31	74.28	21.95	25.72	74.43	21.17	26.47
60.00	2.83	49.50	77.11	22.96	22.89	77.52	15.73	26.08
90.00	3.72	63.27	80.83	24.82	19.17	80.28	10.34	25.36
120.00	3.82	73.57	84.65	27.02	15.35	81.95	5.92	24.48
300.00	15.35	81.95	100.00	35.45			0.00	20.72

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK BC DS DDH82006

SAMPLE ID 42 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP3

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.68	46.78	38.83
0.60	0.15	1.78	66.16	6.98

GCRI COAL DIVISION COALCOMP PROJ KPN BLK BC DS DDH82006

SAMPLE ID 42 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %<AD,AR>	---	TOTAL SULPHUR %	---
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE <AD,EM>	0.65	SPECIFIC GRAVITY	1.44
ASH %	10.65	FSI	---
VOLATILE MATTER %	6.57	HGI	39.0
FIXED CARBON %	82.13	CO2 %	---

GROSS CALORIFIC VALUE (MJ/KG) 31.21
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDH82006

SAMPLE ID 42 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 13/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.65
CARBON	%	82.68
HYDROGEN	%	3.10
SULPHUR	%	0.78
NITROGEN	%	0.95
ASH	%	10.65
OXYGEN	%	1.19

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82006

SAMPLE ID 42
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 10/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1210.0
SOFTENING TEMP.(C) 1290.0
HEMISPHERICAL TEMP.(C) 1310.0
FLUID TEMP.(C) 1335.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1210.0
SOFTENING TEMP.(C) 1290.0
HEMISPHERICAL TEMP.(C) 1310.0
FLUID TEMP.(C) 1320.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82006

SAMPLE ID 42
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 21/12/82

SILICON DIOXIDE % (SI02) 48.28
ALUMINIUM OXIDE % (AL2O3) 23.50
FERRIC OXIDE % (FE2O3) 8.91
TITANIUM DIOXIDE % (TI02) 1.65
PHOSPHOROUS PENTOXIDE % (P2O5) 3.64
CALCIUM OXIDE % (CAO) 4.35
MAGNESIUM OXIDE % (MGO) 1.14
SULPHUR TRIOXIDE % (SO3) 1.35
SODIUM OXIDE % (NA2O) 1.35
POTASSIUM OXIDE % (K2O) 0.68

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82006

SAMPLE ID 42
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE % 32.00
SULPHATE % 1.00
ORGANIC % 67.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK BC DS DDH82006

SAMPLE ID 42 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.30	63.63	52.81
0.60	0.15	2.30	74.86	7.90
0.15	0.00	120.00	84.65	5.46

GCRI COAL DIVISION COALCOMP PROJ KPN BLK BC DS DDH82006

SAMPLE ID 42 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 29/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.95
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	1.55	SPECIFIC GRAVITY	1.61
ASH %	19.89	FSI	---
VOLATILE MATTER %	8.31	HGI	---
FIXED CARBON %	70.25	CO2 %	1.21

GROSS CALORIFIC VALUE (MJ/KG) 27.06
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDH82006

SAMPLE ID 42 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.55
CARBON	%	70.37
HYDROGEN	%	2.61
SULPHUR	%	0.95
NITROGEN	%	0.82
ASH	%	19.89
OXYGEN	%	3.81

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82006

SAMPLE ID 42
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 02/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
SOFTENING TEMP.(C) 1300.0
HEMISPHERICAL TEMP.(C) 1335.0
FLUID TEMP.(C) 1375.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1215.0
SOFTENING TEMP.(C) 1275.0
HEMISPHERICAL TEMP.(C) 1325.0
FLUID TEMP.(C) 1360.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82006

SAMPLE ID 42
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE % (SI02) 49.40
ALUMINIUM OXIDE % (AL2O3) 24.62
FERRIC OXIDE % (FE2O3) 7.62
TITANIUM DIOXIDE % (TI02) 0.85
PHOSPHOROUS PENTOXIDE % (P2O5) 1.37
CALCIUM OXIDE % (CAO) 3.79
MAGNESIUM OXIDE % (MGO) 1.63
SULPHUR TRIOXIDE % (SO3) 2.11
SODIUM OXIDE % (NA2O) 1.57
POTASSIUM OXIDE % (K2O) 1.37

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82006

SAMPLE ID 42
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 08/12/82

PYRITE % 53.00
SULPHATE % 1.00
ORGANIC % 46.00

Gulf Canada Resources Inc.
Sample #4876-4878
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.71
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	4.15
VARIANCE	0.0236
STANDARD DEVIATION	0.1537
SKEWNESS	-0.0198
KURTOSIS	2.9896

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
6	3.30	1	2.00
7	3.40	3	6.00
8	3.50	9	18.00
9	3.60	10	20.00
10	3.70	14	28.00
11	3.80	7	14.00
12	3.90	5	10.00
13	4.00	1	2.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - E

SAMPLE ID - 4879

WASHABILITY ID - WA1

FRACTION		ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00			
SIZE (MM)		9.53 X		0.00		CUM. SINKS		ASH % -	
S.G.TME		ELEMENTAL		CUM. FLOATS		C.V.		CUM.	
		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		67.52	15.22	67.52	15.22	32.48	57.52	28.87	28.87
2.60		32.48	57.52	100.00	28.96			9.65	22.63

GCRI COAL DIVISION HEAD PROJ KPN BLK BC DS DDHS2006

SAMPLE ID 43 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 22/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 10.00
 SURFACE MOISTURE %<AD,AR> ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE %<AD,EM> 0.96
 ASH % 30.94
 VOLATILE MATTER % 8.62
 FIXED CARBON % 59.48
 TOTAL SULPHUR % 0.44
 PHOSPHOROUS % ---
 CHLORINE (PPM) 00246
 SPECIFIC GRAVITY 1.65
 FSI ---
 HGI 46.0
 CO2 % 2.80
 GROSS CALORIFIC VALUE (MJ/KG) 23.17
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK BC DS DDHS2006

SAMPLE ID 43 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 22/10/82
 FRACTION SIZE WT% ASH% FSI CAL RM VM TS
 (MM) TO (MM) (MJ/KG)
 10.00 0.60 83.79 31.11 --- 22.96 0.86 9.21 0.38
 0.60 0.15 10.20 25.74 --- 24.97 0.98 7.83 0.47
 0.15 0.00 6.01 30.51 --- 23.25 0.99 8.62 0.44

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDHS2006

SAMPLE ID 43
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 03/11/82
 ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER % 0.96
 CARBON % 61.98
 HYDROGEN % 2.20
 SULPHUR % 0.44
 NITROGEN % 0.76
 ASH % 30.94
 OXYGEN % 2.72

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82006

SAMPLE ID 43
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 08/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1225.0
 SOFTENING TEMP.(C) 1245.0
 HEMISPHERICAL TEMP.(C) 1280.0
 FLUID TEMP.(C) 1310.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1140.0
 SOFTENING TEMP.(C) 1190.0
 HEMISPHERICAL TEMP.(C) 1205.0
 FLUID TEMP.(C) 1204.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82006

SAMPLE ID 43
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	48.43
ALUMINIUM OXIDE %	(AL2O3)	18.19
FERRIC OXIDE %	(FE2O3)	10.60
TITANIUM DIOXIDE %	(TI02)	0.46
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.80
CALCIUM OXIDE %	(CAO)	6.78
MAGNESIUM OXIDE %	(MGO)	3.87
SULPHUR TRIOXIDE %	(SO3)	3.07
SODIUM OXIDE %	(NA2O)	0.84
POTASSIUM OXIDE %	(K2O)	1.24

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82006

SAMPLE ID 43
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	20.00
SULPHATE	%	2.00
ORGANIC	%	78.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

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DATA SOURCE - KPNBCDDH82006 SEAM - E

SAMPLE ID - 43

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	10.00 X 0.60		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 83.79 ASH % - 31.11	
S.G.TME	ELEMENTAL	WT% ASH%		WT% ASH%		WT% ASH%		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	5.17	3.13	5.17	3.13	94.83	32.12	34.46	34.46	
1.50	27.89	10.57	33.06	9.41	66.94	41.10	31.19	31.70	
1.60	22.14	23.31	55.20	14.98	44.80	49.89	26.70	29.70	
1.70	7.77	28.93	62.97	16.70	37.03	54.29	23.67	28.95	
1.80	8.89	33.21	71.86	18.75	28.14	60.95	21.76	28.06	
1.90	4.28	42.42	76.14	20.08	23.86	64.27	17.95	27.49	
2.00	2.55	48.24	78.69	20.99	21.31	66.19	15.12	27.09	
2.10	2.78	55.60	81.47	22.17	18.53	67.78	12.41	26.59	
2.20	1.26	56.63	82.73	22.70	17.27	68.59	11.57	26.36	
2.30	1.24	59.28	83.97	23.24	16.03	69.31	9.19	26.11	
2.60	16.03	69.31	100.00	30.62			4.23	22.60	

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	0.60 X 0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 10.20 ASH % - 25.74	
S.G.TME	ELEMENTAL	WT% ASH%		WT% ASH%		WT% ASH%		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	18.89	3.39	18.89	3.39	81.11	30.16	34.39	34.39	
1.50	27.53	10.19	46.42	7.42	53.58	40.43	31.36	32.59	
1.60	18.39	17.32	64.81	10.23	35.19	52.50	28.64	31.47	
1.70	7.85	25.43	72.66	11.87	27.34	60.27	24.22	30.69	
1.80	4.46	32.62	77.12	13.07	22.88	65.67	20.97	30.13	
1.90	3.05	40.02	80.17	14.10	19.83	69.61	18.62	29.69	
2.10	5.10	48.02	85.27	16.13	14.73	77.08	15.60	28.85	
2.30	2.80	63.13	88.07	17.62	11.93	80.36	9.64	28.23	
2.60	11.93	80.36	100.00	25.11			0.00	24.87	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - E

SAMPLE ID - 43

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 6.01 ASH % - 30.51			
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00	74.49	16.67	74.49	16.67	25.51	67.16	27.81	27.81
45.00	3.66	37.22	78.15	17.63	21.85	72.17	20.25	27.46
60.00	2.53	55.64	80.68	18.82	19.32	74.34	13.30	27.01
90.00	4.03	67.30	84.71	21.13	15.29	76.19	8.48	26.13
120.00	2.26	73.08	86.97	22.48	13.03	76.73	6.30	25.62
300.00	13.03	76.73	100.00	29.55			4.75	22.90

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK BC DS DDHB2006

SAMPLE ID 43 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP3

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.51	35.27	29.55
0.60	0.15	1.59	63.34	6.46

GCRI COAL DIVISION COALCOMP PROJ KPN BLK BC DS DDHB2006

SAMPLE ID 43 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.39
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	0.67	SPECIFIC GRAVITY	1.43
ASH %	9.50	FSI	---
VOLATILE MATTER %	6.52	HGI	---
FIXED CARBON %	83.31	CO2 %	---

GROSS CALORIFIC VALUE (MJ/KG) 31.52
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDHB2006

SAMPLE ID 43 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 13/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.67
CARBON	%	83.42
HYDROGEN	%	2.87
SULPHUR	%	0.39
NITROGEN	%	1.05
ASH	%	9.50
OXYGEN	%	2.10

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82006

SAMPLE ID 43
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 13/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
SOFTENING TEMP.(C) 1265.0
HEMISPHERICAL TEMP.(C) 1285.0
FLUID TEMP.(C) 1300.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
SOFTENING TEMP.(C) 1260.0
HEMISPHERICAL TEMP.(C) 1275.0
FLUID TEMP.(C) 1295.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82006

SAMPLE ID 43
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 21/12/82

SILICON DIOXIDE % (SI02) 51.66
ALUMINIUM OXIDE % (AL2O3) 24.65
FERRIC OXIDE % (FE2O3) 4.32
TITANIUM DIOXIDE % (TI02) 1.34
PHOSPHOROUS PENTOXIDE % (P2O5) 5.42
CALCIUM OXIDE % (CAO) 3.04
MAGNESIUM OXIDE % (MGO) 1.52
SULPHUR TRIOXIDE % (SO3) 0.79
SODIUM OXIDE % (NA2O) 1.22
POTASSIUM OXIDE % (K2O) 1.13

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82006

SAMPLE ID 43
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE % 3.00
SULPHATE % 3.00
ORGANIC % 94.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK BC DS DDH82006

SAMPLE ID 43 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.90	76.14	63.80
0.60	0.15	2.30	88.07	8.98
0.15	0.00	120.00	86.97	5.23

GCRI COAL DIVISION COALCOMP PROJ KPN BLK BC DS DDH82006

SAMPLE ID 43 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 29/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.40
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	0.92	SPECIFIC GRAVITY	1.53
ASH %	18.06	FSI	---
VOLATILE MATTER %	7.84	HGI	42.0
FIXED CARBON %	73.18	CO2 %	0.37

GROSS CALORIFIC VALUE (MJ/KG) 27.91
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDH82006

SAMPLE ID 43 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.92
CARBON	%	73.89
HYDROGEN	%	2.58
SULPHUR	%	0.40
NITROGEN	%	0.98
ASH	%	18.06
OXYGEN	%	3.17

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82006

SAMPLE ID 43
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 02/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1205.0
SOFTENING TEMP.(C) 1280.0
HEMISPHERICAL TEMP.(C) 1300.0
FLUID TEMP.(C) 1345.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1200.0
SOFTENING TEMP.(C) 1260.0
HEMISPHERICAL TEMP.(C) 1280.0
FLUID TEMP.(C) 1305.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82006

SAMPLE ID 43
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE % (SI02) 49.41
ALUMINIUM OXIDE % (AL2O3) 25.12
FERRIC OXIDE % (FE2O3) 4.78
TITANIUM DIOXIDE % (TI02) 0.76
PHOSPHOROUS PENTOXIDE % (P2O5) 3.34
CALCIUM OXIDE % (CAO) 4.03
MAGNESIUM OXIDE % (MGO) 2.06
SULPHUR TRIOXIDE % (SO3) 0.91
SODIUM OXIDE % (NA2O) 1.25
POTASSIUM OXIDE % (K2O) 2.41

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82006

SAMPLE ID 43
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 08/12/82

PYRITE % 7.00
SULPHATE % 2.00
ORGANIC % 91.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK BC DS DDH82006

SAMPLE ID 43 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP5

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION	YEILD/FRACTION RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.70	27.70	23.21
0.60	0.15	1.70	9.30	0.95
0.15	0.00	120.00	86.97	5.23

GCRI COAL DIVISION COALCOMP PROJ KPN BLK BC DS DDH82006

SAMPLE ID 43 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP5 DATE ANALYSED 03/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.36
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS	---
EQ MOISTURE %	---	CHLORINE (PPM)	---
		SPG	---
INHERENT MOISTURE (AD,EM)	1.97	FSI	---
ASH %	23.15	HGI	---
FIXED CARBON %	69.02	CO2 %	---
VOLITILE MATTER %	5.86		

GROSS CALORIFIC VALUE (MJ,KG) 26.22
 NET CALORIFIC VALUE (MJ,KG) ---

Gulf Canada Resources Inc.
Sample #4879
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.66
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	2.94
VARIANCE	0.0116
STANDARD DEVIATION	0.1076
SKWNESS	0.1427
KURTOSIS	3.4281

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
13	3.40	3	6.00
14	3.50	10	20.00
15	3.60	20	40.00
16	3.70	13	26.00
17	3.80	3	6.00
18	3.90	1	2.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNBCDDH82006 SEAM - D

SAMPLE ID - 4880

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT										
FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.70		62.24	18.42	62.24	18.42	37.76	62.57	27.87	27.87	
2.60		37.76	62.57	100.00	35.09			9.67	21.00	

GCRI COAL DIVISION HEAD PROJ KPN BLK BC DS DDH82006

SAMPLE ID 44 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 22/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 10.00

SURFACE MOISTURE %<AD,AR>	---	TOTAL SULPHUR %	0.42
TOTAL MOISTURE %	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00274
		SPECIFIC GRAVITY	1.66
RESIDUAL MOISTURE %<AD,EM>	1.57	FSI	---
ASH %	35.78	HGI	43.0
VOLATILE MATTER %	7.40	CO2 %	1.83
FIXED CARBON %	55.25		

GROSS CALORIFIC VALUE (MJ/KG) 21.06
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK BC DS DDH82006

SAMPLE ID 44 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 22/10/82

FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS
MM (MM) TO (MM)				(MJ/KG)			
10.00 0.60	83.62	35.28	---	21.59	1.20	7.49	0.42
0.60 0.15	10.13	37.04	---	20.81	1.32	7.18	0.40
0.15 0.00	6.25	46.77	---	17.13	1.26	7.23	0.35

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDH82006

SAMPLE ID 44
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 03/11/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.57
CARBON	%	57.37
HYDROGEN	%	2.42
SULPHUR	%	0.42
NITROGEN	%	0.69
ASH	%	35.78
OXYGEN	%	1.75

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82006

SAMPLE ID 44
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 08/11/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1230.0	INITIAL TEMP.(C)	1160.0
SOFTENING TEMP.(C)	1285.0	SOFTENING TEMP.(C)	1230.0
HEMISPHERICAL TEMP.(C)	1310.0	HEMISPHERICAL TEMP.(C)	1260.0
FLUID TEMP.(C)	1330.0	FLUID TEMP.(C)	1330.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82006

SAMPLE ID 44
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	51.94
ALUMINIUM OXIDE %	(AL2O3)	23.84
FERRIC OXIDE %	(FE2O3)	6.09
TITANIUM DIOXIDE %	(TI02)	0.55
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.65
CALCIUM OXIDE %	(CAO)	3.66
MAGNESIUM OXIDE %	(MGO)	2.58
SULPHUR TRIOXIDE %	(SO3)	1.76
SODIUM OXIDE %	(NA2O)	1.18
POTASSIUM OXIDE %	(K2O)	1.54

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82006

SAMPLE ID 44
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	17.00
SULPHATE	%	2.00
ORGANIC	%	81.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNBCDDH82006 SEAM - D

SAMPLE ID - 44

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT % - 83.62 ASH % - 35.28			
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40		1.91	3.57	1.91	3.57	98.09	32.45	33.71	33.71
1.50		29.70	12.10	31.61	11.58	68.39	41.28	30.72	30.90
1.60		19.29	19.83	50.90	14.71	49.10	49.71	27.20	29.50
1.70		14.71	24.90	65.61	16.99	34.39	60.33	25.00	28.49
1.80		6.30	31.00	71.91	18.22	28.09	66.91	22.28	27.95
1.90		2.91	41.67	74.82	19.13	25.18	69.82	17.71	27.55
2.00		2.32	47.53	77.14	19.99	22.86	72.08	15.21	27.18
2.10		1.71	52.93	78.85	20.70	21.15	73.63	12.73	26.86
2.20		0.88	53.97	79.73	21.07	20.27	74.49	10.88	26.69
2.30		2.51	55.85	82.24	22.13	17.76	77.12	9.98	26.18
2.60		17.76	77.12	100.00	31.90			3.89	22.22

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	0.60 X		0.15		RELATIVE WEIGHT % - 10.13 ASH % - 37.04			
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40		7.36	4.20	7.36	4.20	92.64	37.55	33.74	33.74
1.50		23.50	9.02	30.86	7.87	69.14	47.25	31.27	31.86
1.60		16.27	18.78	47.13	11.64	52.87	56.01	27.73	30.43
1.70		9.15	24.84	56.28	13.78	43.72	62.54	24.59	29.48
1.80		8.26	32.22	64.54	16.14	35.46	69.60	21.45	28.46
1.90		4.20	40.03	68.74	17.60	31.26	73.57	18.74	27.86
2.00		4.42	42.78	73.16	19.12	26.84	78.65	16.98	27.20
2.10		2.42	55.49	75.58	20.29	24.42	80.94	12.72	26.74
2.60		24.42	80.94	100.00	35.10			0.00	20.21

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - D

SAMPLE ID - 44

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION	SIZE(MM) 0.15 X		0.00		RELATIVE WEIGHT % - 6.25 ASH % - 46.77				
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.	
30.00	56.63	24.96	56.63	24.96	43.37	71.89	25.76	25.76	
45.00	5.25	53.62	61.88	27.39	38.12	74.40	14.02	24.76	
60.00	2.79	60.77	64.67	28.83	35.33	75.48	10.69	24.16	
90.00	5.44	70.86	70.11	32.09	29.89	76.32	5.70	22.72	
300.00	29.89	76.32	100.00	45.31			5.22	17.49	

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK BC DS DDH82006

SAMPLE ID 44 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) -----

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.00	77.14	64.50
0.60	0.15	2.00	73.16	7.41

GCRI COAL DIVISION COALCOMP PROJ KPN BLK BC DS DDH82006

SAMPLE ID 44 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 29/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	-----	TOTAL SULPHUR %	0.46
TOTAL MOISTURE % (AR)	-----	PHOSPHOROUS %	-----
EQUILIBRIUM MOISTURE %	-----	CHLORINE (PPM)	-----
RESIDUAL MOISTURE (AD,EM)	1.23	SPECIFIC GRAVITY	1.56
ASH %	19.99	FSI	-----
VOLATILE MATTER %	8.88	HGI	41.0
FIXED CARBON %	69.90	CO2 %	0.69

GROSS CALORIFIC VALUE (MJ/KG) 27.06
 NET CALORIFIC VALUE (MJ/KG) -----

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDH82006

SAMPLE ID 44 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.23
CARBON	%	70.78
HYDROGEN	%	2.88
SULPHUR	%	0.46
NITROGEN	%	1.00
ASH	%	19.99
OXYGEN	%	3.66

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82006

SAMPLE ID 44
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 02/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1215.0
SOFTENING TEMP.(C) 1260.0
HEMISPHERICAL TEMP.(C) 1280.0
FLUID TEMP.(C) 1315.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1210.0
SOFTENING TEMP.(C) 1240.0
HEMISPHERICAL TEMP.(C) 1260.0
FLUID TEMP.(C) 1300.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82006

SAMPLE ID 44
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE % (SI02) 51.94
ALUMINIUM OXIDE % (AL2O3) 23.84
FERRIC OXIDE % (FE2O3) 6.09
TITANIUM DIOXIDE % (TI02) 3.66
PHOSPHOROUS PENTOXIDE % (P2O5) 2.58
CALCIUM OXIDE % (CAO) 1.18
MAGNESIUM OXIDE % (MGO) 1.54
SULPHUR TRIOXIDE % (SO3) 1.65
SODIUM OXIDE % (NA2O) 0.55
POTASSIUM OXIDE % (K2O) 1.76

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82006

SAMPLE ID 44
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 08/12/82

PYRITE % 11.00
SULPHATE % 2.00
ORGANIC % 87.00

Gulf Canada Resources Inc.
Sample #4880
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.79
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	4.10
VARIANCE	0.0242
STANDARD DEVIATION	0.1556
SKEWNESS	0.0101
KURTOSIS	2.8845

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	3.40	1	2.00
4	3.50	7	14.00
5	3.60	2	4.00
6	3.70	16	32.00
7	3.80	15	30.00
8	3.90	3	6.00
9	4.00	4	8.00
10	4.10	2	4.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNBCDDH82006 SEAM - B

SAMPLE ID - 4881

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X , 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V.	CUM.	C.V.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70		66.69	15.71	66.69	15.71	33.31	52.22	28.45		28.45	
2.60		33.31	52.22	100.00	27.87			14.30		23.74	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - B

SAMPLE ID - 4882

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		67.53	14.43	67.53	14.43	32.47	55.47	29.23	29.23
2.60		32.47	55.47	100.00	27.76			13.66	24.17

GCRI COAL DIVISION	HEAD	PROJ	KPN	BLK	BC	DS	DDH82006		
=====									
SAMPLE ID	45	DATA TYPE (REAL,BORO,AVER,CALC)					REAL		
SPLIT SAMPLE ID	HD1	DATE ANALYSED 22/10/82							
		ANALYSIS BASIS TYPE (AD,DB,AR,EM)					AD		
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM									
TOP SIZE (MM)		10.00							
SURFACE MOISTURE %<AD,AR>		---					TOTAL SULPHUR %	3.05	
TOTAL MOISTURE %		---					PHOSPHOROUS %	---	
EQUILIBRIUM MOISTURE %		---					CHLORINE (PPM)	00299	
							SPECIFIC GRAVITY	1.63	
RESIDUAL MOISTURE %<AD,EM>	0.86						FSI	---	
ASH %	28.83						HGI	43.0	
VOLATILE MATTER %	7.39						CO2 %	1.27	
FIXED CARBON %	62.92								
GROSS CALORIFIC VALUE (MJ/KG) 24.15									
NET CALORIFIC VALUE (MJ/KG) ----									

GCRI COAL DIVISION	SIZE	PROJ	KPN	BLK	BC	DS	DDH82006		
=====									
SAMPLE ID	45	DATA TYPE (REAL,BORO,AVER,CALC)					REAL		
SPLIT SAMPLE ID	SZ1	DATE ANALYSED 22/10/82							
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS		
MM (MM) TO (MM)				(MJ/KG)					
10.00 0.60	82.45	29.72	---	23.94	0.87	7.79	3.98		
0.60 0.15	11.10	23.16	---	26.27	0.99	7.47	2.04		
0.15 0.00	6.45	31.96	---	22.96	1.07	6.69	1.66		

GCRI COAL DIVISION	ULTIMATE	PROJ	KPN	BLK	BC	DS	DDH82006		
=====									
SAMPLE ID	45	DATA TYPE (REAL,BORO,AVER,CALC)					REAL		
SAMPLE PRODUCT ID	SP1	DATE ANALYSED 03/11/82							
SPLIT SAMPLE ID	UL1								
ANALYSIS BASIS TYPE (DAF,DB,AD) AD									
WATER	%	0.86							
CARBON	%	63.00							
HYDROGEN	%	2.26							
SULPHUR	%	3.05							
NITROGEN	%	0.69							
ASH	%	28.83							
OXYGEN	%	1.31							

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82006

SAMPLE ID 45
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 08/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1250.0
 SOFTENING TEMP.(C) 1300.0
 HEMISPHERICAL TEMP.(C) 1320.0
 FLUID TEMP.(C) 1330.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1180.0
 SOFTENING TEMP.(C) 1220.0
 HEMISPHERICAL TEMP.(C) 1260.0
 FLUID TEMP.(C) 1285.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82006

SAMPLE ID 45
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	50.24
ALUMINIUM OXIDE %	(AL2O3)	19.01
FERRIC OXIDE %	(FE2O3)	11.15
TITANIUM DIOXIDE %	(TI02)	0.45
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.85
CALCIUM OXIDE %	(CAO)	3.52
MAGNESIUM OXIDE %	(MGO)	3.20
SULPHUR TRIOXIDE %	(SO3)	4.12
SODIUM OXIDE %	(NA2O)	1.22
POTASSIUM OXIDE %	(K2O)	1.32

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82006

SAMPLE ID 45
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	85.00
SULPHATE	%	1.00
ORGANIC	%	14.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNBCDDH82006 SEAM - B

SAMPLE ID - 45

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT % - 82.45 ASH % - 29.72			
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	5.23	2.74	5.23	2.74	94.77	29.95	34.31	34.31	
1.50	24.69	9.39	29.92	8.23	70.08	37.19	31.34	31.86	
1.60	19.38	18.30	49.30	12.19	50.70	44.41	27.88	30.29	
1.70	14.81	24.59	64.11	15.05	35.89	52.58	24.73	29.01	
1.80	9.21	31.24	73.32	17.09	26.68	59.95	22.04	28.13	
1.90	6.31	40.85	79.63	18.97	20.37	65.87	18.70	27.39	
2.00	3.16	46.47	82.79	20.02	17.21	69.43	16.50	26.97	
2.10	2.03	51.12	84.82	20.76	15.18	71.88	14.43	26.67	
2.20	1.91	56.09	86.73	21.54	13.27	74.15	12.84	26.37	
2.30	1.00	64.24	87.73	22.03	12.27	74.96	9.98	26.18	
2.60	12.27	74.96	100.00	28.52			4.72	23.55	

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	0.60 X		0.15		RELATIVE WEIGHT % - 11.10 ASH % - 23.16			
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	17.53	2.75	17.53	2.75	82.47	26.40	34.24	34.24	
1.50	30.41	7.32	47.94	5.65	52.06	37.55	32.27	32.99	
1.60	17.24	17.00	65.18	8.65	34.82	47.72	28.26	31.74	
1.70	8.89	23.55	74.07	10.44	25.93	56.01	25.03	30.93	
1.80	6.38	30.00	80.45	11.99	19.55	64.50	22.41	30.26	
1.90	3.16	36.85	83.61	12.93	16.39	69.83	19.80	29.86	
2.10	3.72	50.36	87.33	14.52	12.67	75.55	14.52	29.21	
2.30	2.21	60.24	89.54	15.65	10.46	78.78	7.37	28.67	
2.60	10.46	78.78	100.00	22.26			0.00	25.67	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNBCDDH82006 SEAM - B

SAMPLE ID - 45

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION	SIZE (MM)		0.15 X		0.00		RELATIVE WEIGHT % -		6.45 ASH % - 31.96						
	S.G.	TME	ELEMENTAL	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	WT%	ASH%	C.V.	(MJ/KG)	CUM.	C.V.
30.00	73.49	15.89	73.49	15.89	26.51	69.19	28.03	28.03							
45.00	4.96	29.97	78.45	16.78	21.55	78.22	23.20	27.72							
60.00	1.58	46.34	80.03	17.36	19.97	80.75	17.02	27.51							
90.00	1.72	59.10	81.75	18.24	18.25	82.79	12.07	27.19							
120.00	1.22	76.02	82.97	19.09	17.03	83.27	5.07	26.86							
300.00	17.03	83.27	100.00	30.02			0.06	22.30							

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK BC DS DDH82006

SAMPLE ID 45 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ----

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.00	82.79	68.26
0.60	0.15	2.30	89.54	9.94
0.15	0.00	120.00	82.97	5.35

GCRI COAL DIVISION COALCOMP PROJ KPN BLK BC DS DDH82006

SAMPLE ID 45 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 29/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	----	TOTAL SULPHUR %	2.35
TOTAL MOISTURE % (AR)	----	PHOSPHOROUS %	----
EQUILIBRIUM MOISTURE %	----	CHLORINE (PPM)	----
RESIDUAL MOISTURE (AD,EM)	1.50	SPECIFIC GRAVITY	1.60
ASH %	19.76	FSI	----
VOLATILE MATTER %	8.65	HGI	45.0
FIXED CARBON %	70.09	CO2 %	0.32

GROSS CALORIFIC VALUE (MJ/KG) 26.62
 NET CALORIFIC VALUE (MJ/KG) ----

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDH82006

SAMPLE ID 45 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 08/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.50
CARBON	%	70.78
HYDROGEN	%	2.21
SULPHUR	%	2.35
NITROGEN	%	0.83
ASH	%	19.76
OXYGEN	%	2.57

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDHB2006

SAMPLE ID 45
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 02/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1280.0
 SOFTENING TEMP.(C) 1350.0
 HEMISPHERICAL TEMP.(C) 1365.0
 FLUID TEMP.(C) 1395.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1275.0
 SOFTENING TEMP.(C) 1345.0
 HEMISPHERICAL TEMP.(C) 1360.0
 FLUID TEMP.(C) 1390.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDHB2006

SAMPLE ID 45
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE %	(SI02)	50.24
ALUMINIUM OXIDE %	(AL2O3)	19.01
FERRIC OXIDE %	(FE2O3)	11.15
TITANIUM DIOXIDE %	(TI02)	0.45
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.85
CALCIUM OXIDE %	(CAO)	3.52
MAGNESIUM OXIDE %	(MGO)	3.20
SULPHUR TRIOXIDE %	(SO3)	4.12
SODIUM OXIDE %	(NA2O)	1.22
POTASSIUM OXIDE %	(K2O)	1.32

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDHB2006

SAMPLE ID 45
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 08/12/82

PYRITE	%	74.00
SULPHATE	%	1.00
ORGANIC	%	25.00

Gulf Canada Resources Inc.
Sample #4881-4882
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.55
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	3.66
VARIANCE	0.0168
STANDARD DEVIATION	0.1297
SKEWNESS	0.1331
KURTOSIS	2.7065

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
8	3.20	1	2.00
9	3.30	8	16.00
10	3.40	6	12.00
11	3.50	19	38.00
12	3.60	9	18.00
13	3.70	5	10.00
14	3.80	2	4.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNBCDDH82006 SEAM - A

SAMPLE ID - 4883

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT											
FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		C.V.
1.70		88.26	10.19	88.26	10.19	11.74	47.52	29.60		29.60	
2.60		11.74	47.52	100.00	14.57			12.07		27.54	

GCRI COAL DIVISION		HEAD	PROJ	KPN	BLK	BC	DS	DDH82006
SAMPLE ID		46						
SPLIT SAMPLE ID		HD1						
			DATA TYPE (REAL,BORO,AVER,CALC)					REAL
			DATE ANALYSED 22/10/82					
			ANALYSIS BASIS TYPE (AD,DB,AR,EM)					AD
			NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)					ASTM
TOP SIZE (MM)			10.00					
SURFACE MOISTURE %<AD,AR>			---					TOTAL SULPHUR % 0.48
TOTAL MOISTURE %			---					PHOSPHOROUS % ---
EQUILIBRIUM MOISTURE %			---					CHLORINE (PPM) 00108
RESIDUAL MOISTURE %<AD,EM>		0.75						SPECIFIC GRAVITY 1.51
ASH %		17.19						FSI ---
VOLATILE MATTER %		8.54						HGI 59.0
FIXED CARBON %		73.52						CO2 % 2.67
GROSS CALORIFIC VALUE (MJ/KG)		28.33						
NET CALORIFIC VALUE (MJ/KG)		---						

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	BC	DS	DDH82006
SAMPLE ID		46						
SPLIT SAMPLE ID		SZ1						
			DATA TYPE (REAL,BORO,AVER,CALC)					REAL
			DATE ANALYSED 22/10/82					
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS	
MM (MM) TO (MM)				(MJ/KG)				
10.00 0.60	62.74	18.79	---	27.26	0.84	8.95	0.39	
0.60 0.15	21.52	11.93	---	30.78	1.01	7.42	0.50	
0.15 0.00	15.74	16.38	---	28.93	0.96	6.63	0.49	

GCRI COAL DIVISION		ULTIMATE	PROJ	KPN	BLK	BC	DS	DDH82006
SAMPLE ID		46						
SAMPLE PRODUCT ID		SP1						
SPLIT SAMPLE ID		UL1						
			DATA TYPE (REAL,BORO,AVER,CALC)					REAL
			DATE ANALYSED 03/11/82					
			ANALYSIS BASIS TYPE (DAF,DB,AD)					AD
WATER	%	0.75						
CARBON	%	75.33						
HYDROGEN	%	2.82						
SULPHUR	%	0.48						
NITROGEN	%	0.81						
ASH	%	17.19						
OXYGEN	%	2.62						

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82006

SAMPLE ID 46
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 08/11/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1235.0	INITIAL TEMP.(C)	1200.0
SOFTENING TEMP.(C)	1280.0	SOFTENING TEMP.(C)	1225.0
HEMISPHERICAL TEMP.(C)	1300.0	HEMISPHERICAL TEMP.(C)	1230.0
FLUID TEMP.(C)	1330.0	FLUID TEMP.(C)	1260.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82006

SAMPLE ID 46
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	38.78
ALUMINIUM OXIDE %	(AL2O3)	23.32
FERRIC OXIDE %	(FE2O3)	8.31
TITANIUM DIOXIDE %	(TI02)	0.50
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.64
CALCIUM OXIDE %	(CAO)	10.17
MAGNESIUM OXIDE %	(MGO)	6.19
SULPHUR TRIOXIDE %	(SO3)	4.41
SODIUM OXIDE %	(NA2O)	1.14
POTASSIUM OXIDE %	(K2O)	0.90

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82006

SAMPLE ID 46
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	4.00
SULPHATE	%	2.00
ORGANIC	%	94.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - A

SAMPLE ID - 46

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)		10.00 X		0.60		RELATIVE WEIGHT % - 62.74 ASH % - 18.79		
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	21.61	3.28	21.61	3.28	78.39	21.23	33.85	33.85	
1.50	34.77	8.42	56.38	6.45	43.62	31.45	31.64	32.49	
1.60	18.21	16.91	74.59	9.00	25.41	41.86	28.00	31.39	
1.70	7.63	24.37	82.22	10.43	17.78	49.37	24.14	30.72	
1.80	2.81	29.82	85.03	11.07	14.97	53.04	21.43	30.41	
1.90	2.24	35.10	87.27	11.69	12.73	56.20	18.67	30.11	
2.00	1.84	41.62	89.11	12.31	10.89	58.66	16.32	29.83	
2.10	1.41	45.89	90.52	12.83	9.48	60.56	13.48	29.57	
2.30	0.68	52.20	91.20	13.12	8.80	61.21	10.66	29.43	
2.60	8.80	61.21	100.00	17.35			3.03	27.11	

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)		0.60 X		0.15		RELATIVE WEIGHT % - 21.52 ASH % - 11.93		
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.40	19.06	2.25	19.06	2.25	80.94	13.01	34.20	34.20	
1.50	48.57	5.89	67.63	4.86	32.37	23.69	31.93	32.57	
1.60	18.07	13.78	85.70	6.74	14.30	36.22	28.77	31.77	
1.70	5.80	20.57	91.50	7.62	8.50	46.90	25.48	31.37	
1.80	2.17	26.96	93.67	8.07	6.33	53.73	22.97	31.18	
2.10	2.46	37.22	96.13	8.81	3.87	64.23	17.42	30.82	
2.60	3.87	64.23	100.00	10.96			5.37	29.84	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - A

SAMPLE ID - 46

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % - 15.74 ASH % - 16.38			
	ELEMENTAL		CUM. FLDATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00	80.62	8.68	80.62	8.68	19.38	44.93	31.66	31.66
45.00	7.92	16.14	88.54	9.35	11.46	64.83	29.03	31.42
60.00	1.83	30.34	90.37	9.77	9.63	71.38	22.94	31.25
120.00	1.62	48.36	91.99	10.45	8.01	76.04	15.83	30.98
300.00	8.01	76.04	100.00	15.71			4.26	28.84

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK BC DS DDH82006

SAMPLE ID 46 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP2

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.45	40.37	25.33
0.60	0.15	1.51	68.89	14.83

GCRI COAL DIVISION COALCOMP PROJ KPN BLK BC DS DDH82006

SAMPLE ID 46 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP2 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %<AD,AR>	---	TOTAL SULPHUR %	0.55
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	0.76	SPECIFIC GRAVITY	1.42
ASH %	5.49	FSI	---
VOLATILE MATTER %	6.47	HGI	---
FIXED CARBON %	87.28	CO2 %	---

GROSS CALORIFIC VALUE (MJ/KG) 32.91
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDH82006

SAMPLE ID 46 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP2 DATE ANALYSED 13/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.76
CARBON	%	87.19
HYDROGEN	%	3.18
SULPHUR	%	0.55
NITROGEN	%	1.10
ASH	%	5.49
OXYGEN	%	1.21

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82006

SAMPLE ID 46
 SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 13/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1210.0
 SOFTENING TEMP.(C) 1340.0
 HEMISPHERICAL TEMP.(C) 1490.0
 FLUID TEMP.(C) 1500.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1200.0
 SOFTENING TEMP.(C) 1340.0
 HEMISPHERICAL TEMP.(C) 1395.0
 FLUID TEMP.(C) 1450.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82006

SAMPLE ID 46
 SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 21/12/82

SILICON DIOXIDE %	(SI02)	48.19
ALUMINIUM OXIDE %	(AL2O3)	31.72
FERRIC OXIDE %	(FE2O3)	2.89
TITANIUM DIOXIDE %	(TI02)	2.13
PHOSPHOROUS PENTOXIDE %	(P2O5)	3.43
CALCIUM OXIDE %	(CAO)	3.16
MAGNESIUM OXIDE %	(MGO)	0.19
SULPHUR TRIOXIDE %	(SO3)	0.88
SODIUM OXIDE %	(NA2O)	1.30
POTASSIUM OXIDE %	(K2O)	0.98

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82006

SAMPLE ID 46
 SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK BC DS DDH82006

SAMPLE ID 46 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4
 SAMPLE WEIGHT (KG) 8.50

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.60	100.00	62.74
0.60	0.15	2.60	100.00	21.52
0.15	0.00	300.00	100.00	15.74

GCRI COAL DIVISION COALCOMP PROJ KPN BLK BC DS DDH82006

SAMPLE ID 46 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 22/10/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % <AD,AR>	---	TOTAL SULPHUR %	---
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00108
RESIDUAL MOISTURE <AD,EM>	0.75	SPECIFIC GRAVITY	---
ASH %	17.19	FSI	---
VOLATILE MATTER %	8.54	HGI	---
FIXED CARBON %	73.52	CO2 %	---

GROSS CALORIFIC VALUE (MJ/KG) 28.33
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDH82006

SAMPLE ID 46 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 03/11/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.75
CARBON	%	75.33
HYDROGEN	%	2.90
SULPHUR	%	0.48
NITROGEN	%	0.81
ASH	%	17.19
OXYGEN	%	3.29

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDH82006
 =====

SAMPLE ID 46
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 08/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1235.0
 SOFTENING TEMP.(C) 1280.0
 HEMISPHERICAL TEMP.(C) 1300.0
 FLUID TEMP.(C) 1330.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1200.0
 SOFTENING TEMP.(C) 1225.0
 HEMISPHERICAL TEMP.(C) 1230.0
 FLUID TEMP.(C) 1260.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK BC DS DDH82006
 =====

SAMPLE ID 46
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	38.78
ALUMINIUM OXIDE %	(AL2O3)	23.32
FERRIC OXIDE %	(FE2O3)	8.31
TITANIUM DIOXIDE %	(TI02)	0.50
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.64
CALCIUM OXIDE %	(CAO)	10.17
MAGNESIUM OXIDE %	(MGO)	6.19
SULPHUR TRIOXIDE %	(SO3)	4.41
SODIUM OXIDE %	(NA2O)	1.14
POTASSIUM OXIDE %	(K2O)	0.90

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK BC DS DDH82006
 =====

SAMPLE ID 46
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	4.00
SULPHATE	%	2.00
ORGANIC	%	94.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK BC DS DDH82006
 =====

SAMPLE ID 46 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP5

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION	YEILD/FRACTION RELATIVE TO TQTAL SAMPLE
10.00	0.60	2.60	59.63	37.41
0.60	0.15	2.60	31.11	6.69
0.15	0.00	300.00	100.00	15.74

GCRI COAL DIVISION COALCOMP PROJ KPN BLK BC DS DDH82006
 =====

SAMPLE ID 46 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP5 DATE ANALYSED 03/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.37
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS	---
TD MOISTURE %	---	CHLORINE (PPM)	---
		SPG	---
INHERENT MOISTURE (AD,EM)	1.02	FSI	---
ASH %	23.41	HGI	---
FIXED CARBON %	65.26	CO2 %	---
VOLITILE MATTER %	10.31		

GROSS CALORIFIC VALUE (MJ,KG) 24.96
 NET CALORIFIC VALUE (MJ,KG) ---

Gulf Canada Resources Inc.
Sample #4883
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.72
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	2.98
VARIANCE	0.0123
STANDARD DEVIATION	0.1108
SKEWNESS	0.7757
KURTOSIS	3.9768

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
6	3.50	5	10.00
7	3.60	13	26.00
8	3.70	22	44.00
9	3.80	7	14.00
10	3.90	1	2.00
11	4.00	2	4.00

DDH62007

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNSSDDH82007 SEAM - G

SAMPLE ID - 4740

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	38.28	16.49	38.28	16.49	61.72	65.17	28.31	28.31
2.60	61.72	65.17	100.00	46.54			9.42	16.65

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNSDDH82007 SEAM - G

SAMPLE ID - 4741

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	9.53 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL						C.V.		CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)		C.V.	
1.70		66.63	12.44	66.63	12.44	33.37	57.63	28.70		28.70	
2.60		33.37	57.63	100.00	27.52			13.01		23.46	

GCRI COAL DIVISION HEAD PROJ KPN BLK SS DS DDH82007

SAMPLE ID 47 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 26/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 10.00
 SURFACE MOISTURE % (AD,AR) ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE % (AD,EM) 1.54
 ASH % 32.04
 VOLATILE MATTER % 7.84
 FIXED CARBON % 58.58
 TOTAL SULPHUR % 0.53
 PHOSPHOROUS % ---
 CHLORINE (PPM) 00227
 SPECIFIC GRAVITY 1.68
 FSI ---
 HGI 39.0
 CO2 % 2.29
 GROSS CALORIFIC VALUE (MJ/KG) ---
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK SS DS DDH82007

SAMPLE ID 47 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 26/10/82

FRACTION SIZE	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00 0.60	89.28	29.67	---	23.37	1.35	8.14	0.49
0.60 0.15	7.27	41.73	---	18.07	1.45	7.93	0.45
0.15 0.00	3.45	56.15	---	11.90	1.38	7.58	0.38

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK SS DS DDH82007

SAMPLE ID 47
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 03/11/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.54
CARBON	%	59.99
HYDROGEN	%	1.88
SULPHUR	%	0.53
NITROGEN	%	0.67
ASH	%	32.04
OXYGEN	%	3.35

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK SS DS DDH82007
 =====

SAMPLE ID 47
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 08/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1265.0
 SOFTENING TEMP.(C) 1295.0
 HEMISPHERICAL TEMP.(C) 1320.0
 FLUID TEMP.(C) 1410.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1190.0
 SOFTENING TEMP.(C) 1245.0
 HEMISPHERICAL TEMP.(C) 1280.0
 FLUID TEMP.(C) 1375.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK SS DS DDH82007
 =====

SAMPLE ID 47
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	49.54
ALUMINIUM OXIDE %	(AL2O3)	24.11
FERRIC OXIDE %	(FE2O3)	8.01
TITANIUM DIOXIDE %	(TI02)	0.59
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.72
CALCIUM OXIDE %	(CAO)	2.98
MAGNESIUM OXIDE %	(MGO)	3.15
SULPHUR TRIOXIDE %	(SO3)	2.76
SODIUM OXIDE %	(NA2O)	1.89
POTASSIUM OXIDE %	(K2O)	1.28

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK SS DS DDH82007
 =====

SAMPLE ID 47
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	47.00
SULPHATE	%	2.00
ORGANIC	%	51.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNSDDH82007 SEAM - G

SAMPLE ID - 47

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT % - 89.28 ASH % - 29.67			
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.50		23.57	6.16	23.57	6.16	76.43	35.92	32.80	32.80
1.60		31.27	15.01	54.84	11.21	45.16	50.40	29.27	30.79
1.70		12.58	24.78	67.42	13.74	32.58	60.29	25.24	29.75
1.80		4.58	31.80	72.00	14.89	28.00	64.96	22.00	29.26
1.90		4.57	37.96	76.57	16.26	23.43	70.22	18.90	28.64
2.00		2.36	44.16	78.93	17.10	21.07	73.14	16.19	28.27
2.10		2.69	52.79	81.62	18.28	18.38	76.12	13.32	27.78
2.20		1.72	56.70	83.34	19.07	16.66	78.12	11.26	27.43
2.30		1.25	63.73	84.59	19.73	15.41	79.29	9.00	27.16
2.60		15.41	79.29	100.00	28.91			3.07	23.45

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	0.60 X		0.15		RELATIVE WEIGHT % - 7.27 ASH % - 41.73			
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40		1.81	1.60	1.81	1.60	98.19	43.55	34.40	34.40
1.50		23.86	7.79	25.67	7.35	74.33	55.03	32.41	32.55
1.60		9.47	15.95	35.14	9.67	64.86	60.74	28.01	31.33
1.70		5.67	22.57	40.81	11.46	59.19	64.40	25.33	30.49
1.80		3.42	29.87	44.23	12.89	55.77	66.51	21.50	29.80
1.90		2.82	40.60	47.05	14.55	52.95	67.89	18.40	29.11
2.00		2.21	49.03	49.26	16.09	50.74	68.72	14.67	28.47
2.10		2.76	51.88	52.02	17.99	47.98	69.69	13.71	27.68
2.30		2.83	62.75	54.85	20.30	45.15	70.12	9.99	26.77
2.60		45.15	70.12	100.00	42.79			6.40	17.57

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNSSDDH82007 SEAM - G

SAMPLE ID - 47

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 3.45		ASH % - 56.15	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00	19.07	26.65	19.07	26.65	80.93	62.09	24.01	24.01
45.00	4.38	42.69	23.45	29.65	76.55	63.20	17.59	22.81
60.00	4.44	48.72	27.89	32.68	72.11	64.09	15.14	21.59
90.00	4.82	58.73	32.71	36.52	67.29	64.47	11.53	20.11
120.00	4.61	61.82	37.32	39.65	62.68	64.67	10.34	18.90
300.00	62.68	64.67	100.00	55.33			9.51	13.01

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK SS DS DDH82007

SAMPLE ID 47 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP3

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.58	47.34	42.27
0.60	0.15	1.62	36.27	2.64

GCRI COAL DIVISION COALCOMP PROJ KPN BLK SS DS DDH82007

SAMPLE ID 47 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 01/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.42
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	0.76	SPECIFIC GRAVITY	---
ASH %	10.80	FSI	---
VOLATILE MATTER %	5.40	HGI	35.0
FIXED CARBON %	83.04	CO2 %	---

GROSS CALORIFIC VALUE (MJ/KG) 30.91
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK SS DS DDH82007

SAMPLE ID 47 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP3 DATE ANALYSED 13/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.76
CARBON	%	83.68
HYDROGEN	%	2.77
SULPHUR	%	0.42
NITROGEN	%	1.01
ASH	%	10.80
OXYGEN	%	0.56

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK SS DS DDH82007

SAMPLE ID 47
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 13/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1215.0
 SOFTENING TEMP.(C) 1390.0
 HEMISPHERICAL TEMP.(C) 1415.0
 FLUID TEMP.(C) 1470.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1205.0
 SOFTENING TEMP.(C) 1365.0
 HEMISPHERICAL TEMP.(C) 1410.0
 FLUID TEMP.(C) 1440.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK SS DS DDH82007

SAMPLE ID 47
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 21/12/82

SILICON DIOXIDE %	(SI02)	56.24
ALUMINIUM OXIDE %	(AL2O3)	23.79
FERRIC OXIDE %	(FE2O3)	5.58
TITANIUM DIOXIDE %	(TI02)	1.60
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.85
CALCIUM OXIDE %	(CAO)	2.11
MAGNESIUM OXIDE %	(MGO)	1.14
SULPHUR TRIOXIDE %	(SO3)	1.03
SODIUM OXIDE %	(NA2O)	1.26
POTASSIUM OXIDE %	(K2O)	1.05

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK SS DS DDH82007

SAMPLE ID 47
 SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 03/12/82

PYRITE	%	7.00
SULPHATE	%	2.00
ORGANIC	%	91.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK SS DS DDH82007

SAMPLE ID 47 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.30	84.59	75.52
0.60	0.15	2.30	54.85	3.99

GCRI COAL DIVISION COALCOMP PROJ KPN BLK SS DS DDH82007

SAMPLE ID 47 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 29/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.58
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	1.26	SPECIFIC GRAVITY	1.60
ASH %	19.92	FSI	---
VOLATILE MATTER %	7.63	HGI	50.0
FIXED CARBON %	71.19	CO2 %	1.14

GROSS CALORIFIC VALUE (MJ/KG) 26.38
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK SS DS DDH82007

SAMPLE ID 47 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 09/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.26
CARBON	%	71.56
HYDROGEN	%	2.29
SULPHUR	%	0.58
NITROGEN	%	0.86
ASH	%	19.92
OXYGEN	%	3.53

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK SS DS DDH82007
=====

SAMPLE ID 47
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 02/12/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1220.0
SOFTENING TEMP.(C) 1335.0
HEMISPHERICAL TEMP.(C) 1365.0
FLUID TEMP.(C) 1400.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1220.0
SOFTENING TEMP.(C) 1330.0
HEMISPHERICAL TEMP.(C) 1360.0
FLUID TEMP.(C) 1400.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK SS DS DDH82007
=====

SAMPLE ID 47
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE % (SI02) 53.14
ALUMINIUM OXIDE % (AL2O3) 23.17
FERRIC OXIDE % (FE2O3) 6.45
TITANIUM DIOXIDE % (TI02) 1.00
PHOSPHOROUS PENTOXIDE % (P2O5) 0.87
CALCIUM OXIDE % (CAO) 2.27
MAGNESIUM OXIDE % (MGO) 1.97
SULPHUR TRIOXIDE % (SO3) 1.65
SODIUM OXIDE % (NA2O) 1.58
POTASSIUM OXIDE % (K2O) 1.87

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK SS DS DDH82007
=====

SAMPLE ID 47
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 02/12/82

PYRITE % 15.00
SULPHATE % 2.00
ORGANIC % 83.00

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK SS DS DDH82007

SAMPLE ID 47 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP5

SAMPLE WEIGHT (KG) ---.---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION	YEILD/FRACTION RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.80	24.66	22.02
0.60	0.15	1.80	7.96	0.58

GCRI COAL DIVISION COALCOMP PROJ KPN BLK SS DS DDH82007

SAMPLE ID 47 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP5 DATE ANALYSED 02/12/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % <AD,AR>	---.---	TOTAL SULPHUR %	0.36
TOTAL MOISTURE % <AR>	---.---	PHOSPHOROUS	---.---
EQ MOISTURE %	---.---	CHLORINE (PPM)	---.---
INHERENT MOISTURE <AD,EM>	1.20	SPG	---.---
ASH %	23.17	FSI	---.---
FIXED CARBON %	68.71	HGI	---.---
VOLITILE MATTER %	6.92	CO2 %	---.---

GROSS CALORIFIC VALUE (MJ,KG) 25.64
 NET CALORIFIC VALUE (MJ,KG) ---.---

Gulf Canada Resources Inc.
Sample #4740-4741
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	4.16
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	3.83
VARIANCE	0.0253
STANDARD DEVIATION	0.1591
SKEWNESS	-0.0367
KURTOSIS	2.8854

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
6	3.70	1	2.00
7	3.80	3	6.00
8	3.90	2	4.00
9	4.00	8	16.00
10	4.10	21	42.00
11	4.20	5	10.00
12	4.30	6	12.00
13	4.40	4	8.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNSDDH82007 SEAM - F

SAMPLE ID - 4742

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	9.53 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		WT%	ASH%	WT%	ASH%	C.V.	CUM.	C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)		C.V.	
1.70		44.66	17.17	44.66	17.17	55.34	51.42	28.17		28.17	
2.60		55.34	51.42	100.00	36.12			14.50		20.61	

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

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DATA SOURCE - KPNSSDDH82007 SEAM - F

SAMPLE ID - 4743

WASHABILITY ID - WA1

FRACTION	ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -	
	SIZE (MM)	9.53 X		0.00		CUM. SINKS		C.V.		CUM.
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70	29.01	13.82	29.01	13.82	70.99	64.07	29.32	29.32		
2.60	70.99	64.07	100.00	49.49			9.91	15.54		

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

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DATA SOURCE - KPNSDDH82007 SEAM - F

SAMPLE ID - 4744

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		57.53	16.29	57.53	16.29	42.47	59.82	28.31	28.31
2.60		42.47	59.82	100.00	34.78			11.78	21.29

GCRI COAL DIVISION HEAD PROJ KPN BLK SS DS DDH82007

SAMPLE ID 48 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 26/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM.

TOP SIZE (MM) 10.00
 SURFACE MOISTURE %<AD,AR> ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE %<AD,EM> 1.28
 ASH % 37.67
 VOLATILE MATTER % 5.96
 FIXED CARBON % 55.09
 TOTAL SULPHUR % 0.28
 PHOSPHOROUS % ---
 CHLORINE (PPM) 00079
 SPECIFIC GRAVITY 1.71
 FSI ---
 HGI 49.0
 CO2 % 0.84

GROSS CALORIFIC VALUE (MJ/KG) ---
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK SS DS DDH82007

SAMPLE ID 48 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 26/10/82
 FRACTION SIZE WT% ASH% FSI CAL RM VM TS
 (MM) TO (MM) (MJ/KG)
 10.00 0.60 86.24 36.69 --- 21.19 1.26 5.80 0.33
 0.60 0.15 8.55 38.82 --- 19.76 1.19 6.24 0.30
 0.15 0.00 5.21 52.40 --- 13.99 1.25 6.65 0.23

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK SS DS DDH82007

SAMPLE ID 48
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 03/11/82

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER % 1.28
 CARBON % 55.92
 HYDROGEN % 1.94
 SULPHUR % 0.28
 NITROGEN % 0.49
 ASH % 37.67
 OXYGEN % 2.42

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK SS DS DDH82007

SAMPLE ID 48
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 08/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1290.0
 SOFTENING TEMP.(C) 1435.0
 HEMISPHERICAL TEMP.(C) 1480.0
 FLUID TEMP.(C) 1500.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1220.0
 SOFTENING TEMP.(C) 1390.0
 HEMISPHERICAL TEMP.(C) 1435.0
 FLUID TEMP.(C) 1500.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK SS DS DDH82007

SAMPLE ID 48
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE %	(SI02)	53.85
ALUMINIUM OXIDE %	(AL2O3)	27.99
FERRIC OXIDE %	(FE2O3)	4.07
TITANIUM DIOXIDE %	(TI02)	0.78
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.58
CALCIUM OXIDE %	(CAO)	0.95
MAGNESIUM OXIDE %	(MGO)	1.80
SULPHUR TRIOXIDE %	(SO3)	1.03
SODIUM OXIDE %	(NA2O)	2.36
POTASSIUM OXIDE %	(K2O)	1.58

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK SS DS DDH82007

SAMPLE ID 48
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE	%	14.00
SULPHATE	%	4.00
ORGANIC	%	82.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNSDDH82007 SEAM - F

SAMPLE ID - 48

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	10.00 X		0.60		RELATIVE WEIGHT % - 86.24 ASH % - 36.69			
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.50		11.60	6.22	11.60	6.22	88.40	43.69	32.97	32.97
1.60		24.20	16.54	35.80	13.20	64.20	53.92	28.33	29.83
1.70		10.66	25.53	46.46	16.03	53.54	59.57	24.80	28.68
1.80		8.97	29.78	55.43	18.25	44.57	65.57	22.73	27.72
1.90		8.98	39.68	64.41	21.24	35.59	72.10	18.19	26.39
2.00		4.82	46.07	69.23	22.97	30.77	76.17	16.25	25.68
2.10		4.81	54.04	74.04	24.99	25.96	80.28	13.22	24.87
2.20		2.60	60.95	76.64	26.21	23.36	82.43	10.88	24.40
2.30		2.22	65.06	78.86	27.30	21.14	84.25	9.23	23.97
2.60		21.14	84.25	100.00	39.34			2.60	19.45

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	0.60 X		0.15		RELATIVE WEIGHT % - 8.55 ASH % - 38.82			
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.50		23.49	10.94	23.49	10.94	76.51	46.61	30.43	30.43
1.60		15.89	14.68	39.38	12.45	60.62	54.98	28.94	29.83
1.70		10.92	23.20	50.30	14.78	49.70	61.96	25.44	28.88
1.80		7.20	30.25	57.50	16.72	42.50	67.33	22.09	28.03
1.90		5.33	38.38	62.83	18.56	37.17	71.49	19.21	27.28
2.00		5.62	42.60	68.45	20.53	31.55	76.63	16.39	26.38
2.10		4.58	46.37	73.03	22.15	26.97	81.77	12.83	25.53
2.30		4.51	62.25	77.54	24.48	22.46	85.69	9.72	24.61
2.60		22.46	85.69	100.00	38.23			0.00	19.09

GULF CANADA RESOURCES INC. - COAL DIVISION

JAN 25/83

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNSSDDH82007 SEAM - F

SAMPLE ID - 48

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % -		5.21 ASH % - 52.40	
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
30.00	49.27	26.73	49.27	26.73	50.73	74.89	24.50	24.50
45.00	4.24	49.89	53.51	28.57	46.49	77.17	15.15	23.76
60.00	3.55	65.48	57.06	30.86	42.94	78.13	9.97	22.90
90.00	3.44	70.38	60.50	33.11	39.50	78.81	8.03	22.06
120.00	4.06	75.82	64.56	35.79	35.44	79.15	5.78	21.03
300.00	35.44	79.15	100.00	51.16			4.48	15.17

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK SS DS DDH82007

SAMPLE ID 48 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.80	55.43	47.80
0.60	0.15	2.00	68.45	5.85
0.15	0.00	120.00	64.56	3.36

GCRI COAL DIVISION COALCOMP PROJ KPN BLK SS DS DDH82007

SAMPLE ID 48 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 29/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.36
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	1.13	SPECIFIC GRAVITY	1.59
ASH %	21.14	FSI	---
VOLATILE MATTER %	6.99	HGI	42.0
FIXED CARBON %	70.74	CO2 %	0.27

GROSS CALORIFIC VALUE (MJ/KG) 26.29
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK SS DS DDH82007

SAMPLE ID 48 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 09/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.13
CARBON	%	71.16
HYDROGEN	%	2.26
SULPHUR	%	0.36
NITROGEN	%	0.86
ASH	%	21.14
OXYGEN	%	3.09

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK SS DS DDH82007

SAMPLE ID 48
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 02/12/82

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1205.0
 SOFTENING TEMP.(C) 1485.0
 HEMISPHERICAL TEMP.(C) 1500.0
 FLUID TEMP.(C) 1500.0

INITIAL TEMP.(C) 1195.0
 SOFTENING TEMP.(C) 1470.0
 HEMISPHERICAL TEMP.(C) 1480.0
 FLUID TEMP.(C) 1500.0

NORMAL RANGES ALL TEMPS.
 1000.0 >= VALUES <= 1500.0
 OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK SS DS DDH82007

SAMPLE ID 48
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 20/12/82

SILICON DIOXIDE %	(SI02)	54.70
ALUMINIUM OXIDE %	(AL2O3)	27.93
FERRIC OXIDE %	(FE2O3)	3.09
TITANIUM DIOXIDE %	(TI02)	0.90
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.79
CALCIUM OXIDE %	(CAO)	0.79
MAGNESIUM OXIDE %	(MGO)	1.14
SULPHUR TRIOXIDE %	(SO3)	0.99
SODIUM OXIDE %	(NA2O)	1.47
POTASSIUM OXIDE %	(K2O)	2.48

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK SS DS DDH82007

SAMPLE ID 48
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 02/12/82

PYRITE	%	3.00
SULPHATE	%	3.00
ORGANIC	%	94.00

Gulf Canada Resources Inc.
Sample #4742-4744
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	4.12
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	3.13
VARIANCE	0.0167
STANDARD DEVIATION	0.1291
SKEWNESS	-0.3875
KURTOSIS	2.8248

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
7	3.80	3	6.00
8	3.90	4	8.00
9	4.00	12	24.00
10	4.10	15	30.00
11	4.20	12	24.00
12	4.30	4	8.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNSSDDH82007 SEAM - D

SAMPLE ID - 4745

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	51.18	15.14	51.18	15.14	48.82	57.60	28.74	28.74
2.60	48.82	57.60	100.00	35.87			12.52	20.82

GCRI COAL DIVISION		HEAD	PROJ	KPN	BLK	SS	DS	DDH82007
SAMPLE ID	49							
SPLIT SAMPLE ID	HD1							
DATA TYPE (REAL,BORO,AVER,CALC) REAL								
DATE ANALYSED 26/10/82								
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD								
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM								
TOP SIZE (MM)			10.00					
SURFACE MOISTURE %(AD,AR)			---			TOTAL SULPHUR % 0.63		
TOTAL MOISTURE %			---			PHOSPHOROUS % ---		
EQUILIBRIUM MOISTURE %			---			CHLORINE (PPM) 00036		
RESIDUAL MOISTURE %(AD,EM)			1.68			SPECIFIC GRAVITY 1.71		
ASH %			36.39			FSI ---		
VOLATILE MATTER %			6.66			HGI 43.0		
FIXED CARBON %			55.27			CO2 % 1.47		
GROSS CALORIFIC VALUE (MJ/KG)			---					
NET CALORIFIC VALUE (MJ/KG)			---					

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	SS	DS	DDH82007
SAMPLE ID	49							
SPLIT SAMPLE ID	SZ1							
DATA TYPE (REAL,BORO,AVER,CALC) REAL								
DATE ANALYSED 26/10/82								
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS	
FROM (MM) TO (MM)				(MJ/KG)				
10.00 0.60	88.55	35.11	---	21.57	1.31	6.40	0.61	
0.60 0.15	7.68	38.29	---	19.97	1.06	6.68	0.62	
0.15 0.00	3.77	49.37	---	14.93	1.08	6.99	0.48	

GCRI COAL DIVISION		ULTIMATE	PROJ	KPN	BLK	SS	DS	DDH82007
SAMPLE ID	49							
SAMPLE PRODUCT ID	SP1							
SPLIT SAMPLE ID	UL1							
DATA TYPE (REAL,BORO,AVER,CALC) REAL								
DATE ANALYSED 03/11/82								

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.68
CARBON	%	56.75
HYDROGEN	%	1.61
SULPHUR	%	0.63
NITROGEN	%	0.56
ASH	%	36.39
OXYGEN	%	2.38

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK SS DS DDH82007

SAMPLE ID 49
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 08/11/82

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1270.0
SOFTENING TEMP.(C) 1320.0
HEMISPHERICAL TEMP.(C) 1345.0
FLUID TEMP.(C) 1380.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1225.0
SOFTENING TEMP.(C) 1285.0
HEMISPHERICAL TEMP.(C) 1310.0
FLUID TEMP.(C) 1340.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS > REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK SS DS DDH82007

SAMPLE ID 49
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 10/11/82

SILICON DIOXIDE % (SI02) 57.55
ALUMINIUM OXIDE % (AL2O3) 20.34
FERRIC OXIDE % (FE2O3) 5.38
TITANIUM DIOXIDE % (TI02) 0.37
PHOSPHOROUS PENTOXIDE % (P2O5) 0.88
CALCIUM OXIDE % (CAO) 3.12
MAGNESIUM OXIDE % (MGO) 2.99
SULPHUR TRIOXIDE % (SO3) 2.32
SODIUM OXIDE % (NA2O) 1.98
POTASSIUM OXIDE % (K2O) 1.09

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK SS DS DDH82007

SAMPLE ID 49
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 19/11/82

PYRITE % 54.00
SULPHATE % 3.00
ORGANIC % 43.00

TOTAL 100.00

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNSSDDH82007 SEAM - D

SAMPLE ID - 49

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	10.00 X	0.60	RELATIVE WEIGHT % - 88.55 ASH % - 35.11					
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.50	13.74	4.90	13.74	4.90	86.26	40.42	33.28	33.28	
1.60	24.49	15.28	38.23	11.55	61.77	50.39	29.41	30.80	
1.70	10.89	26.38	49.12	14.84	50.88	55.52	25.05	29.53	
1.80	12.32	31.64	61.44	18.21	38.56	63.15	21.66	27.95	
1.90	7.78	39.68	69.22	20.62	30.78	69.09	18.19	26.85	
2.00	4.77	46.07	73.99	22.26	26.01	73.31	16.25	26.17	
2.10	5.92	53.48	79.91	24.57	20.09	79.15	13.12	25.20	
2.20	2.47	60.49	82.38	25.65	17.62	81.77	10.57	24.76	
2.30	2.15	65.63	84.53	26.67	15.47	84.01	8.84	24.36	
2.60	15.47	84.01	100.00	35.54			2.83	21.03	

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	0.60 X	0.15	RELATIVE WEIGHT % - 7.68 ASH % - 38.29					
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	
1.50	30.32	5.55	30.32	5.55	69.68	49.85	32.88	32.88	
1.60	13.12	14.57	43.44	8.27	56.56	58.03	28.85	31.66	
1.70	9.65	22.29	53.09	10.82	46.91	65.38	25.66	30.57	
1.80	6.83	30.09	59.92	13.02	40.08	71.39	22.20	29.62	
1.90	4.45	40.75	64.37	14.94	35.63	75.22	18.41	28.84	
2.00	4.57	48.61	68.94	17.17	31.06	79.14	15.51	27.96	
2.10	4.36	53.81	73.30	19.35	26.70	83.27	13.44	27.10	
2.30	4.52	64.63	77.82	21.98	22.18	87.07	9.12	26.05	
2.60	22.18	87.07	100.00	36.41			0.00	20.27	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNSSODH82007 SEAM - D

SAMPLE ID - 49

WASHABILITY ID - WAI

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % -		3.77 ASH % - 49.37	
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
S.G.TME								
30.00	57.31	25.95	57.31	25.95	42.69	77.96	25.01	25.01
45.00	3.13	48.71	60.44	27.13	39.56	80.28	15.59	24.52
60.00	1.99	60.27	62.43	28.19	37.57	81.34	10.29	24.07
90.00	3.15	76.14	65.58	30.49	34.42	81.81	5.70	23.19
120.00	2.13	78.83	67.71	32.01	32.29	82.01	4.59	22.60
300.00	32.29	82.01	100.00	48.15			3.14	16.32

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK SS DS DDH82007

SAMPLE ID 49 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
 SAMPLE PRODUCT ID SP4

SAMPLE WEIGHT (KG) ---.---

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.80	61.44	54.41
0.60	0.15	1.80	59.92	4.60
0.15	0.00	30.00	57.31	2.16

GCRI COAL DIVISION COALCOMP PROJ KPN BLK SS DS DDH82007

SAMPLE ID 49 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 29/11/82
 SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE % (AD,AR)	---	TOTAL SULPHUR %	0.82
TOTAL MOISTURE % (AR)	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
RESIDUAL MOISTURE (AD,EM)	0.70	SPECIFIC GRAVITY	1.54
ASH %	18.87	FSI	---
VOLATILE MATTER %	5.72	HGI	38.0
FIXED CARBON %	74.71	CO2 %	0.26

GROSS CALORIFIC VALUE (MJ/KG) 25.57
 NET CALORIFIC VALUE (MJ/KG) ---.---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK SS DS DDH82007

SAMPLE ID 49 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SAMPLE PRODUCT ID SP4 DATE ANALYSED 09/12/82
 SPLIT SAMPLE ID UL1

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.70
CARBON	%	75.22
HYDROGEN	%	2.59
SULPHUR	%	0.82
NITROGEN	%	0.79
ASH	%	18.87
OXYGEN	%	1.01

Gulf Canada Resources Inc.
Sample #4745
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS 50
MEAN MAXIMUM REFLECTANCE
OF VITRINITE% 4.22
STANDARD ERROR OF THE MEAN 0.02
COEFFICIENT OF VARIATION% 3.94
VARIANCE 0.0277
STANDARD DEVIATION 0.1663
SKEWNESS 0.7239
KURTOSIS 3.1461

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
7	3.90	1	2.00
8	4.00	11	22.00
9	4.10	12	24.00
10	4.20	12	24.00
11	4.30	6	12.00
12	4.40	4	8.00
13	4.50	3	6.00
14	4.60	1	2.00