

MOUNT KLAPPAN COAL PROJECT
HOBBIT - BROATCH AREA
GEOLOGICAL REPORT
1984

APPENDIX V

VOLUME I

1982 DIAMOND DRILL HOLE
COAL QUALITY DATA



GULF CANADA RESOURCES INC.
COAL DIVISION

695

MOUNT KLAPPAN COAL PROJECT

APPENDIX V

COAL QUALITY DATA

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.

Discussion of Reflectance and

Mineral Matter Analysis

by

D.E. Pearson & Associates Ltd.

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%.

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
Hd1+	Head Analysis
WAl+	Washability Analysis
SZ1+	Size Analysis
SP1*	Sample Product
CC1+	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

----- GULF CANADA RESOURCES INC. -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNHCDDH82001

DATE - 02/06/85

- HISTORY -

START DATE - 08/01/82

END DATE - 08/03/82

CONTRACTOR - J.T.THOMAS
GEOLOGIST - SWANBERGSON

OPERATOR - GCRI
SURVEYOR -

REMARKS - VERTICAL HOLE, NO GEOPHYSICAL LOGS AS LOGGING UNIT
WAS DESTROYED IN ACCIDENT, DRILLERS' MARKERS MEASURED
FROM GROUND LEVEL + APPROX. 0.6M

- LOCATION -

PROVINCE - BC
ELEVATION - 1400.00

ZONE - 9
NORTHING - 6343645.00
EASTING - 514375.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 571415
LONGITUDE - 1284543

- ORIENTATION -

LENGTH - 124.05

INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 95.8

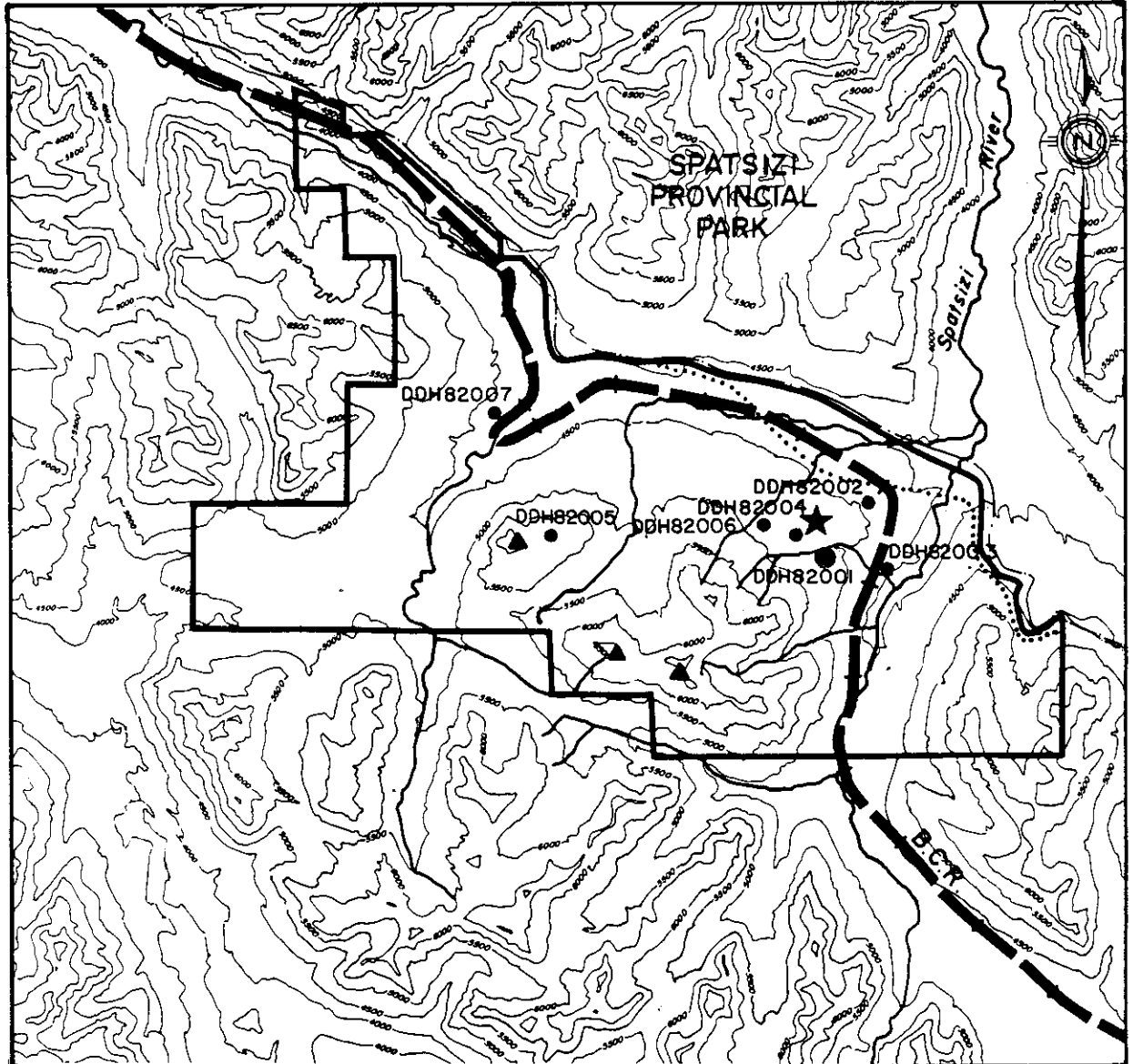
CEMENT -
PLUG - Y
PIEZ -

CASING DEPTH (M) - 12.19
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE







MT. KLAPPAN COAL PROPERTY

DIAMOND DRILL HOLES



0 1 2 3 4 5 Km

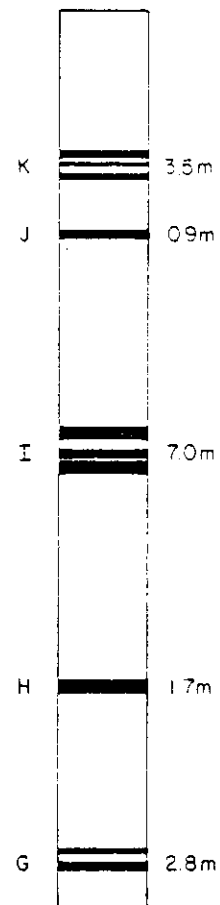
FIGURE 3.4

-  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	s1-342-532	3.45	1.63	19.39 - 22.84
	J	2	s1-342-533	0.93	0.85	30.08 - 31.02
	I	3	s1-342-534	1.84	1.55	57.25 - 59.18
	I	4	s1-342-535	0.93	0.85	59.18 - 60.14
	I	5	s1-342-536	3.21	2.41	61.18 - 64.51
	H	6	s1-342-537	1.54	0.90	94.16 - 95.86
	G	7	s1-342-538	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
LDH82001										
	K	4701	19.59	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	61.16	1.04	100.00	0.00	1.04	0.00	0.00
	I	4710	61.16	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/73 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
	1 UPPER	3	4706	4707	57.25	59.18	1.77	91.71	1.63	0.14	0.16	0.00
	1 UPPER	4	4708	4709	59.18	66.14	0.96	100.00	0.39	0.57	0.00	0.00
	3 LOWER	5	4710	4714	61.18	64.51	2.66	85.89	2.52	0.34	0.47	0.00
	H	6	4716	4720	94.16	95.66	1.64	96.47	0.99	0.65	0.06	0.00
	C	7	4721	4723	118.44	120.12	1.42	84.52	1.10	0.26	0.26	0.00

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		REC	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS	COAL/ROCK TOTAL	COAL/ROCK TOTAL
19.39			No Geophysical Legs Obtained, Therefore Unable to Distinguish Core					
20.38		0.01	0.38 (0.10) 0.06 0.23	79.8	04701			
		0.01	(0.10) 0.11					
20.84		0.02 0.02	(0.10) 0.03 0.05 0.04	78.3	04702			
		0.19	0.09 (0.10) 0.11					
21.57		0.05 0.03 0.03 0.02 0.03 0.06	0.09 (0.10) 0.08 0.05 (0.10) 0.05	72.6	04703			
			(0.40)					
22.84		0.03 0.05 0.02 0.15 0.01	0.05 0.02 0.02 0.02 0.03 (0.10) 0.07	52.8	04704			

1.63*/0.72*
3.45+ 1.63*/0.72*
3.45+

* 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 K		
PREPARED BY: C. L.	SCALE: 1:40	
APPROVED BY: J. M. D.	DATE: NOV '82	DRAWING No.

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNTCDDHE2001 SEAM - K

SAMPLE ID - 4701

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. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70	83.36	11.13	83.36	11.13	16.64	54.25	30.19	30.19		
2.00	16.64	54.25	100.00	16.31			10.84	26.97		

GULF CANADA RESOURCES INC. - COAL DIVISION

DFC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCLDH62001 SEAM - K

SAMPLE ID - 4702

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOYD

FRACTION SIZE (MM)	ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00 ASH % -	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. 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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - K

SAMPLE ID - 4703

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. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	83.87	10.34	83.87	10.34	16.13	44.91	30.16	30.16
2.60	16.13	44.91	100.00	15.92			13.16	27.42

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - K

SAMPLE ID - 4704

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.	C.V.	
S.G. TIME	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		

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH82001

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 SULPHUR % 0.54
 TOTAL MOISTURE % --- PHOSPHOROUS % ---
 EQUILIBRIUM MOISTURE % --- CHLORINE (PPM) 00172
 RESIDUAL MOISTURE %(AD,EM) 1.75 SPECIFIC GRAVITY 1.60
 FSI ---
 ASH % 28.02 HGI 45.0
 VOLATILE MATTER % 8.78 CO2 % 3.22
 FIXED CARBON % 61.45
 GROSS CALORIFIC VALUE (MJ/KG) 23.09
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH82001

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 (MJ/KG)	RM	VM	TS
10.00 JM (MM) TO (MM)	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

SAMPLE ID 1
 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	%	1.75
CARBON	%	65.72
HYDROGEN	%	2.42
SULPHUR	%	0.54
NITROGEN	%	0.86
ASH	%	28.02
OXYGEN	%	0.69

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GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - K

SAMPLE ID -

1

WASHABILITY ID - WA1

ANALYSIS TYPE - FLUAT

FRACTION SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT % -		61.32 ASH % - 27.57	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	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	10.05	49.94	10.05	50.06	44.67	31.24	31.49
1.60	13.83	20.20	63.77	12.27	36.23	54.20	27.21	30.56
1.70	6.00	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 - FLUAT

FRACTION SIZE (MM)	0.60 X		0.15		RELATIVE WEIGHT % -		13.02 ASH % - 21.79	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	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	43.27	7.65	69.39	5.77	30.61	47.21	32.60	33.26
1.60	7.97	16.96	77.36	6.92	22.64	57.66	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	43.70	86.06	9.40	13.94	73.96	16.39	31.66
2.10	1.40	49.44	87.51	10.12	12.49	76.83	13.38	31.35
2.30	1.03	61.63	88.54	10.71	11.46	78.25	8.04	31.09
2.60	11.46	78.25	100.00	18.45			0.00	27.53

GULF CANADA RESOURCES INC. - COAL DIVISION

DLC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH02001 SEAM - K

SAMPLE ID - 1

WASHABILITY ID - WA1

ANALYSIS TYPE - FRUTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 5.06 ASH % - 35.55			CUM. C.V.
	WT%	ASH%	CUM. FLATS WT%	ASH%	CUM. SINKS WT%	ASH%	(MJ/KG)	
30.00	69.29	16.20	69.29	16.20	30.71	75.89	28.73	26.73
45.00	4.41	44.92	73.70	17.92	26.30	81.09	17.20	26.04
60.00	1.60	47.99	75.30	18.56	24.70	83.23	15.89	27.79
90.00	1.43	66.63	76.73	19.45	23.27	84.25	6.36	27.39
120.00	1.43	70.18	78.16	20.49	21.84	84.78	3.15	26.94
300.00	21.84	84.78	100.00	34.53			0.02	21.06

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

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1225.0
 SOFTENING TEMP.(C) 1275.0
 HEMISPHERICAL TEMP.(C) 1290.0
 FLUID TEMP.(C) 1325.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1215.0
 SOFTENING TEMP.(C) 1265.0
 HEMISPHERICAL TEMP.(C) 1285.0
 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 DDH82001
 =====

SAMPLE ID 1
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 25/11/82

SILICON DIOXIDE %	(SI02)	53.38
ALUMINIUM OXIDE %	(AL2O3)	23.29
FERRIC OXIDE %	(FE2O3)	5.84
TITANIUM DIOXIDE %	(TI02)	0.83
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.00
CALCIUM OXIDE %	(CAO)	6.23
MAGNESIUM OXIDE %	(MGO)	3.60
SULPHUR TRIOXIDE %	(SO3)	2.47
SODIUM OXIDE %	(NA2O)	2.27
POTASSIUM OXIDE %	(K2O)	0.60

90.0 <= TOTAL <= 100.0

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

SAMPLE ID 1
 SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE	%	16.00
SULPHATE	%	2.00
ORGANIC	%	82.00

TOTAL 100.00

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

OBSERVATION NUMBER	ROMAX VALUE	OBSERVATION NUMBER	ROMAX VALUE
1	0.61	26	0.49
2	0.44	27	0.55
3	0.28	28	0.24
4	0.45	29	0.46
5	0.68	30	0.47
6	0.78	31	0.57
7	0.47	32	0.53
8	0.42	33	0.57
9	0.46	34	0.31
10	0.62	35	0.53
11	0.76	36	0.53
12	0.56	37	0.39
13	0.42	38	0.48
14	0.57	39	0.55
15	0.47	40	0.42
16	0.55	41	0.51
17	0.63	42	0.43
18	0.54	43	0.67
19	0.61	44	0.55
20	0.53	45	0.51
21	0.42	46	0.57
22	0.61	47	0.61
23	0.45	48	0.51
24	0.56	49	0.54
25	0.40	50	0.55

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

BASIC STATISTICS

NUMBER OF OBSERVATIONS	30
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.54
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	4.22
VARIANCE	0.0223
STANDARD DEVIATION	0.1472
SKEWNESS	0.2177
KURTOSIS	3.7236

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	22.00
11	3.50	11	22.00
12	3.60	12	14.00
13	3.70	2	4.00
14	3.80	2	4.00
15	3.90	-	2.00

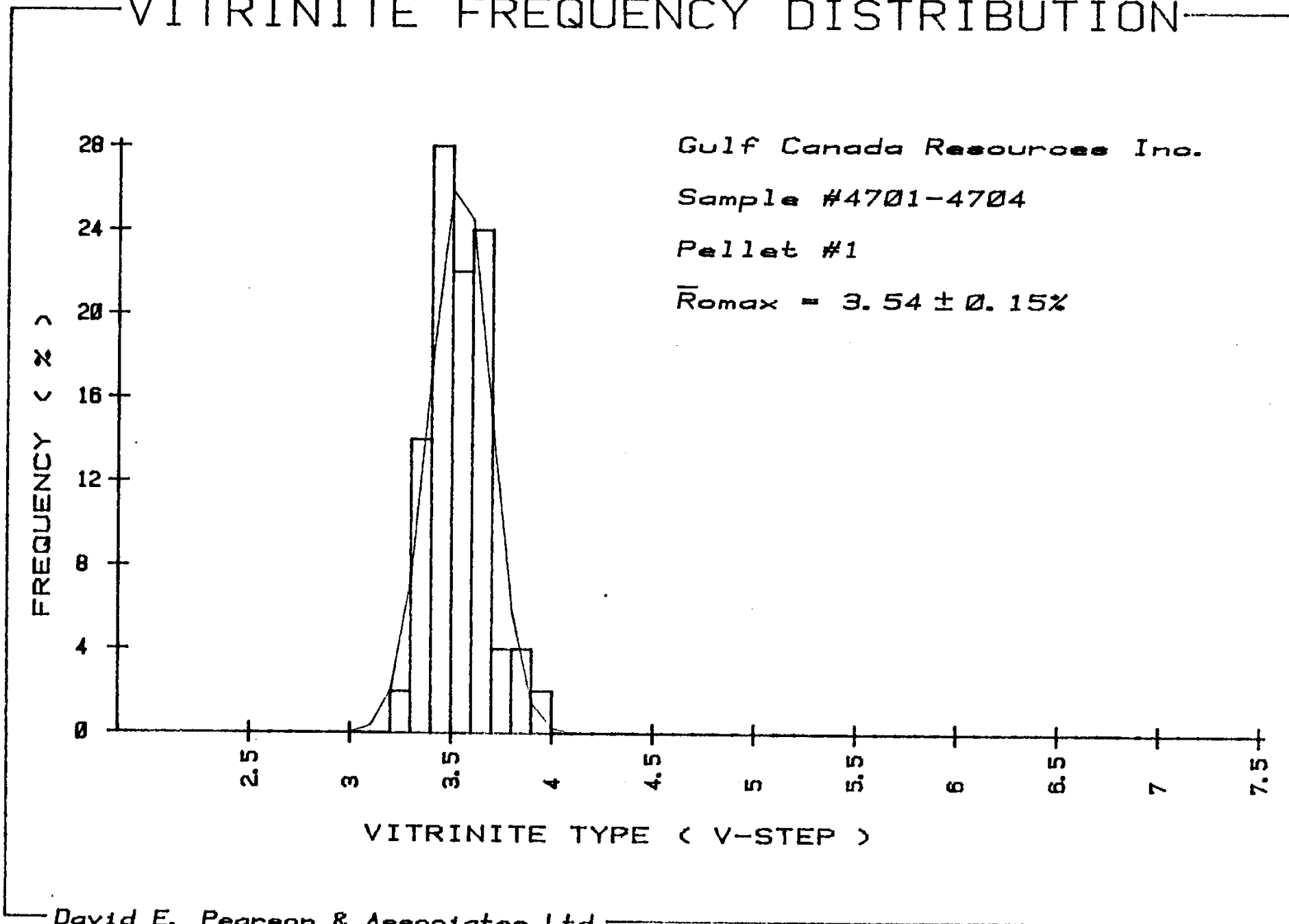
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4701-4704

Pellet #1

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



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

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS.		
30.08								
		0.02	0.17			↑	↑	↑
		0.04	0.21	100	04705	2	0.85 / 0.08	0.85 / 0.08
		0.01	0.17			↓	↓	↓
		0.01	0.06				0.93	0.93
31.02			0.24					
		0.41						
31.55		0.05	0.03					

GULF CANADA RESOURCES INC.		
CALGARY	Coal Division	
<p>MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH - 82-001 SEAM J</p>		
PREPARED BY: C L	SCALE 1:40	
APPROVED BY: J M D	DATE: NOV '82	DRAWING No.

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDB2001 SEAM - J

SAMPLE ID - 4705

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.55 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G. TIME	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		

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH0DDH2001 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	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	21.16	2.37	21.16	2.37	76.84	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	11.56	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	76.88	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	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	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	14.66	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	50.61	26.67	32.91
1.70	4.58	24.82	78.07	6.75	21.93	63.30	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

DLC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH62001 SEAM - J

SAMPLE ID - 2

WASHABILITY ID - WAI

FRACTION SIZE (MM)	ANALYSIS TYPE - FROTH		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 9.37		ASH % - 25.84	
	ELEMENTAL		WT%	ASH%	WT%	ASH%	C.V.	CUM.	C.V.	CUM.
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		30.12	
45.00	2.65	30.37	80.39	13.81	19.61	69.92	23.32		29.90	
60.00	1.90	49.72	82.29	14.64	17.71	72.09	14.83		29.55	
90.00	1.77	57.94	84.06	15.56	15.94	73.66	10.99		29.16	
120.00	1.63	68.05	85.69	16.55	14.31	74.30	7.69		28.75	
300.00	14.31	74.30	100.00	24.82			5.43		25.41	

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)	---
SIDUAL 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 SAMPLE PRODUCT PROJ KPN BLK HC DS DDH62001
 =====

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 DDH62001
 =====

SAMPLE ID 2 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 %	0.46
TOTAL MOISTURE % <AR>	---	PHOSPHOROUS	---
EQ MOISTURE %	---	CHLORINE (PPM)	---
		SPG	---
INHERENT MOISTURE <AD,EM>	0.69	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	3.26
2	3.37	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	3.53	32	3.46
8	3.50	33	3.46
9	3.44	34	3.32
10	3.63	35	3.43
11	3.26	36	3.53
12	3.39	37	3.43
13	3.54	38	3.58
14	3.62	39	3.41
15	3.42	40	3.31
16	3.44	41	3.41
17	3.48	42	3.54
18	3.52	43	3.63
19	3.37	44	3.53
20	3.33	45	3.51
21	3.30	46	3.51
22	3.45	47	3.53
23	3.45	48	3.48
24	3.47	49	3.48
25	3.32	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 0.1028
SKEWNESS 0.2083
KURTOSIS 4.5972

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
8	3.20	3	6.00
9	3.30	7	14.00
10	3.40	25	50.00
11	3.50	12	24.00
12	3.60	4	8.00
14	3.60	1	2.00

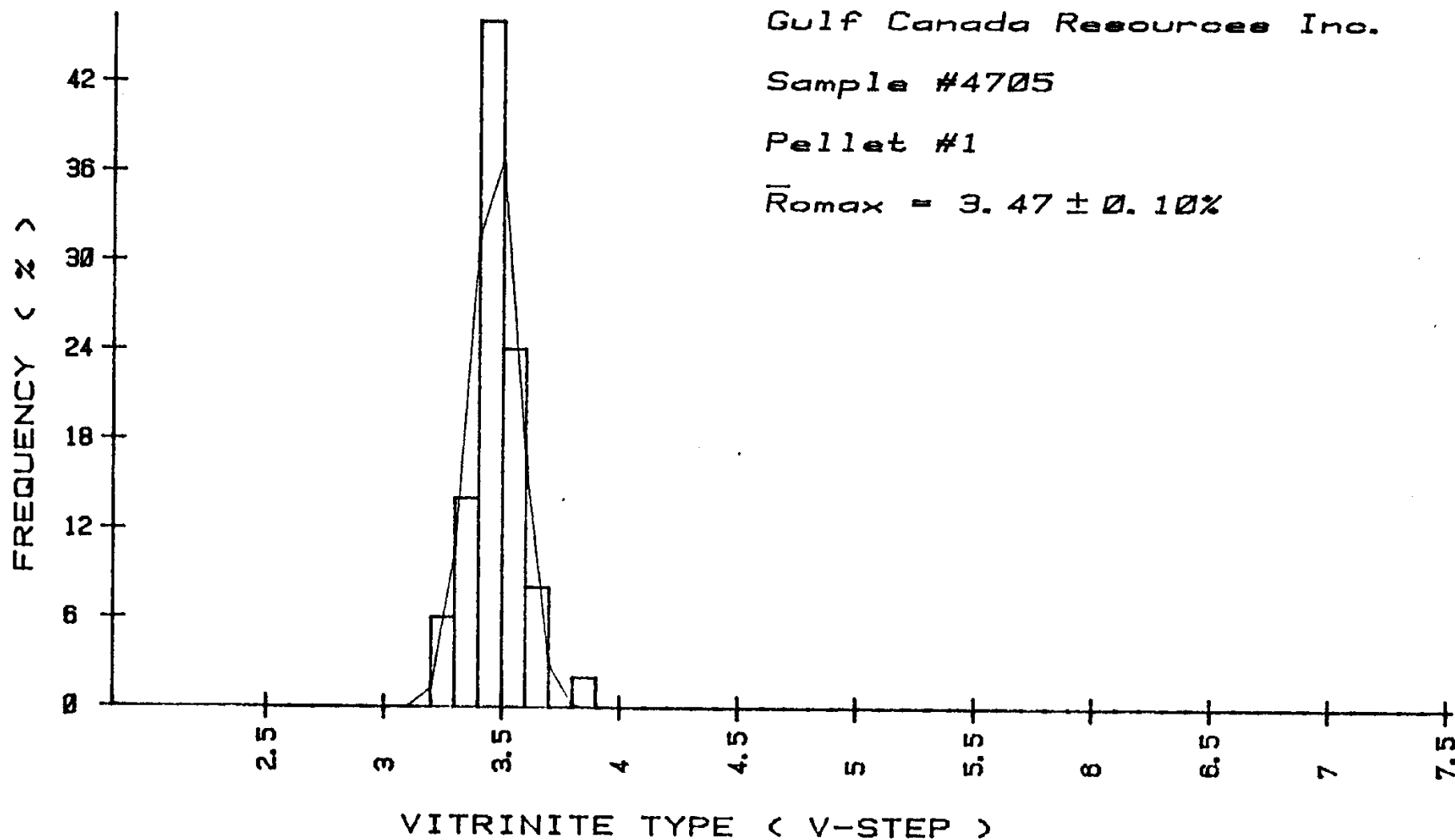
VITRINITE FREQUENCY DISTRIBUTION

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

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS.		
								* 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.
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)					
59.50		0.30	(0.05)	86.5	04708			
			0.14			4	0.38/0.54	
		0.10	0.08	100	04709		0.92	
		0.07	0.06					
		0.02	0.02					
60.14		0.03	0.08					
		1.00		100	04725			
61.18			0.17					
			(0.05)					
			0.37	91.9	04710			
61.80		0.11		100	04711			
61.91			0.36					
			(0.29)	6.3	04712			
		0.02	0.05					
		0.02	0.05					
62.72		0.08	0.04					
		0.04	0.05	100	04713		2.41*/0.34*	2.41*/0.34*
62.97		0.04	0.05			5	3.21+	3.21+
			(0.05)					
			(0.06)					
		0.03	0.14					
			(0.06)					
			1.05	92.2	04714			
64.51								

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
APPROVED BY: J. M. D. DATE: NOV. '82 DRAWING No.

GULF CANADA RESOURCES INC. - COAL DIVISION

LEC 02782

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH0DDH62001 SEAM - 1 UPPER

SAMPLE ID - 4706

WASHABILITY ID - WA1

ANALYSIS TYPE - FLUAT

FRACTION SIZE (MM)	ELEMENTAL		CUM. FLUATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.		
1.70	45.59	9.23	45.59	9.23	54.41	58.27	29.11	29.11		
2.00	54.41	58.27	100.00	34.82			10.81	19.15		

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH000HE2001 SEAM - 1 UPPER

SAMPL ID - 4707

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.T.ML		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		24.91	9.90	84.91	9.90	15.09	41.79	29.82	29.82
2.00		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
JM (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 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	%	2.04
CARBON	%	73.17
HYDROGEN	%	2.26
SULPHUR	%	0.47
NITROGEN	%	0.72
ASH	%	18.01
OXYGEN	%	3.33

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDUHE2001 SEAM - I UPPER

SAMPLE ID - 3

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT % - 60.62 ASH % - 20.77		C.V.	CUM.
	ELEMENTAL WT%	ASH%	CUM. FLUATS WT%	ASH%	CUM. SINKS WT%	ASH%		
S.C.TME							(MJ/KG)	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	15.63	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	29.46	79.82	12.92	20.18	53.73	21.51	29.52
1.90	3.41	35.56	83.23	13.85	16.77	57.42	18.52	29.07
2.00	2.84	41.97	86.07	14.76	13.93	60.57	15.65	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	2.46	66.11	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 SIZE (MM)	0.60 X		0.00		RELATIVE WEIGHT % - 23.00 ASH % - 12.96		C.V.	CUM.
	ELEMENTAL WT%	ASH%	CUM. FLUATS WT%	ASH%	CUM. SINKS WT%	ASH%		
S.C.TME							(MJ/KG)	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	15.20	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	26.00	90.03	9.39	9.97	52.86	22.99	31.05
1.90	1.95	35.19	91.98	9.64	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	62.76	13.10	30.37
2.60	5.30	62.76	100.00	13.72			8.42	29.20

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - I UPPER

SAMPLE ID - 3

WASHABILITY ID - WA1

FRACTION SIZE (MM)	ANALYSIS TYPE - FROTH				RELATIVE WEIGHT % - 16.38 ASH % - 15.16			
	0.15 X		0.30		CUM. SINKS		C.V.	CUM.
S.G.TME	ELEMENTAL WT%	ASH%	CUM. FLOATS 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	14.00	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	39.70	21.84	30.15
300.00	10.27	39.76	100.00	14.47			18.18	28.92

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

OBSERVATION NUMBER	ROMAX VALUE	OBSERVATION NUMBER	ROMAX VALUE
1	3.37	24	3.69
2	3.56	27	3.56
3	3.25	28	3.72
4	3.63	29	3.73
5	3.60	30	3.29
6	3.40	31	3.49
7	3.29	32	3.46
8	3.55	33	3.62
9	3.36	34	3.57
10	3.61	35	3.51
11	3.23	36	3.50
12	3.43	37	3.62
13	3.47	38	3.32
14	3.58	39	3.64
15	3.74	40	3.40
16	3.77	41	3.40
17	3.49	42	3.46
18	3.60	43	3.59
19	3.43	44	3.61
20	3.63	45	3.64
21	3.71	46	3.48
22	3.64	47	3.48
23	3.66	48	3.57
24	3.56	49	3.60
25	3.63	50	3.74

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

BASIC STATISTICS

NUMBER OF OBSERVATIONS	30
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.52
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	4.25
VARIANCE	0.0222
STANDARD DEVIATION	0.1509
SKENNESS	-0.0792
KURTOSIS	2.2375

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
8	3.20	5	10.00
9	3.30	3	10.00
10	3.40	13	22.00
11	3.50	11	22.00
12	3.60	7	15.00
13	3.70	6	12.00
14	3.80	1	2.00

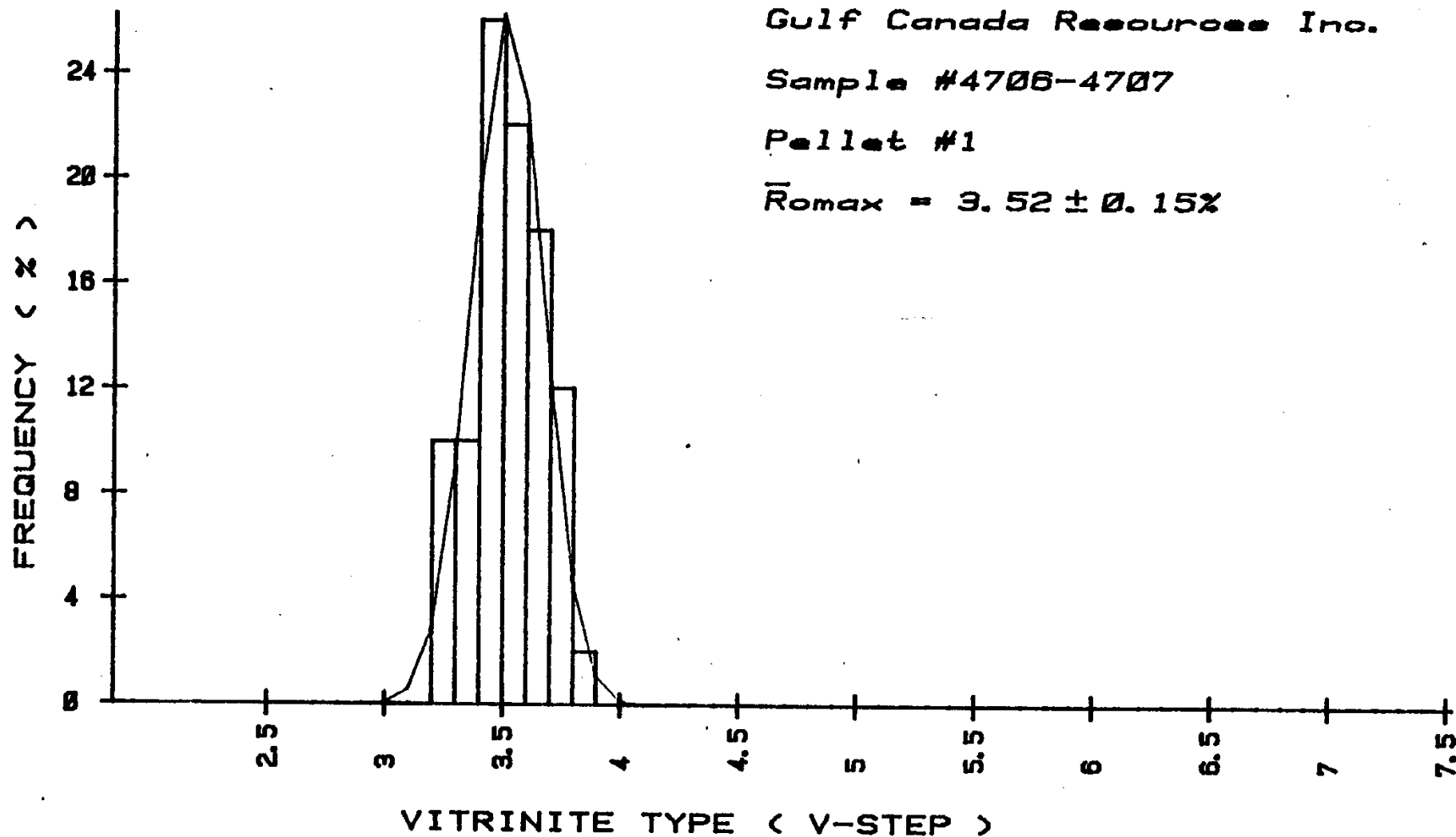
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4706-4707

Pellet #1

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



**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

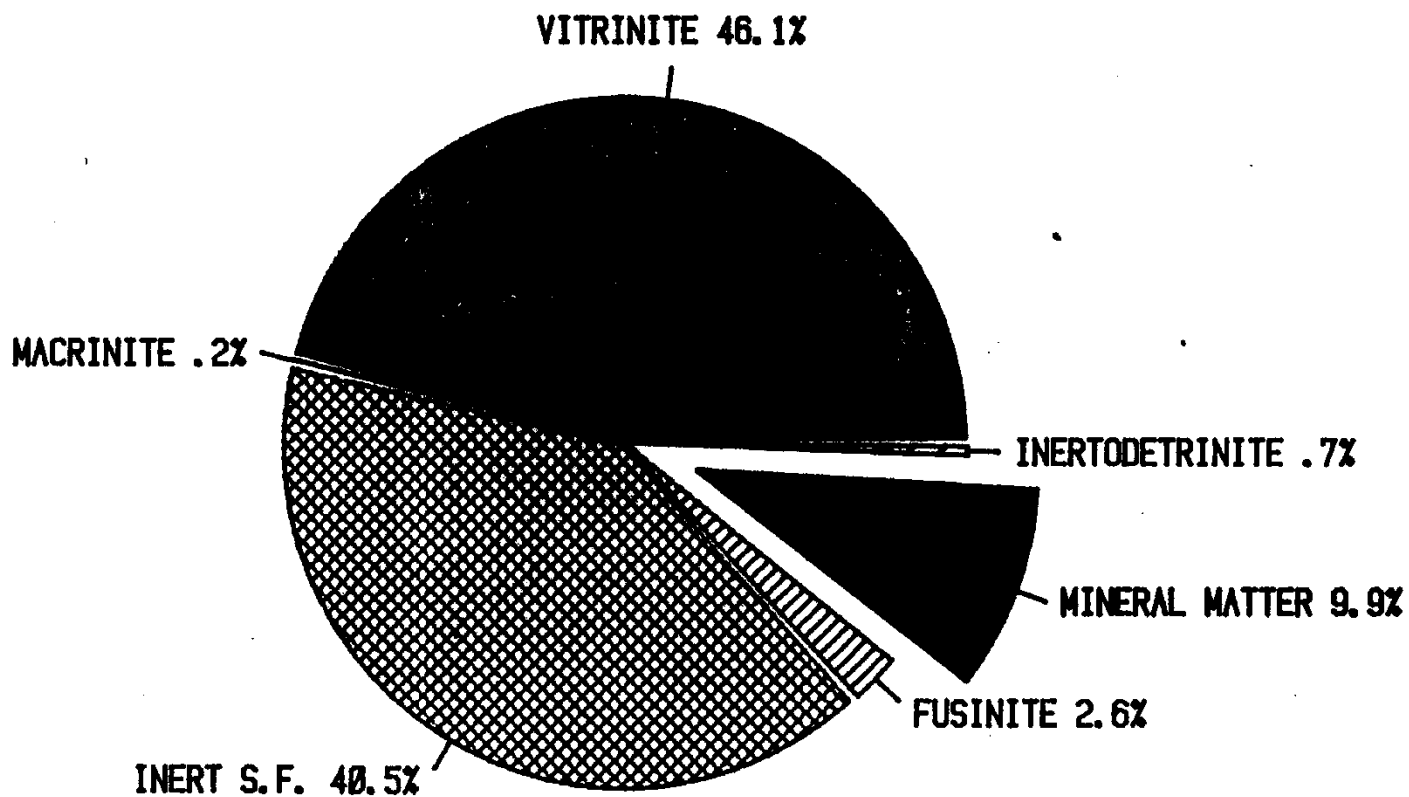
BASIC STATISTICS	MEAN	ST.DEVIATION	VARIANCE
VITRINITE	51.1	6.1	37.4
EXINITE	0.0	0.0	0.0
REACTIVE SEMIFUSINITE	0.0	0.0	0.0
TOTAL REACTIVES	51.1	6.1	37.4
MACRINITE	0.2	0.4	0.2
INERT SEMIFUSINITE	45.0	6.9	47.8
FUSINITE	2.9	1.8	3.2
INERTODETRINITE	0.8	0.9	0.8
TOTAL INERTINITES	48.9	6.1	37.4

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

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCO0DH82001 SEAM - I UPPER

SAMPLE ID - 4706

WASHABILITY ID - WAI

ANALYSIS TYPE - FLUAT

FRACTION SIZE (MM)	5.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -	
	ELEMENTIAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.76	6.30	16.52	0.30	16.52	93.70	81.76	27.44	27.44		
2.00	93.70	81.76	100.00	77.65			2.31	3.89		

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH62001 SEAM - 1 UPPER

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

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDRE2001 SEAM - 1

SAMPLE ID - 4725

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
		WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V.	CUM.	C.V.	CUM.
S.G. TIME								(MJ/KG)			
1.70	2.00	17.21		2.08	17.21	97.92	85.98	27.27		27.27	
2.00	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
DM (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	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	%	1.93					
CARBON	%	43.17					
HYDROGEN	%	1.71					
SULPHUR	%	0.28					
NITROGEN	%	0.54					
ASH	%	50.42					
OXYGEN	%	1.95					

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCO00R2001 SEAM - I UPPER

SAMPLE ID -

4

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT %		69.36 ASH % - 54.62	
	ELEMENTAL		CUM. FLUATS		CUM. SINKS		C.V.	CUM.
S.G. TIME	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	57.66	31.61	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	27.70
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	26.66	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	53.65			0.00	13.24

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	0.60 X		0.15		RELATIVE WEIGHT %		20.15 ASH % - 44.66	
	ELEMENTAL		CUM. FLUATS		CUM. SINKS		C.V.	CUM.
S.G. TIME	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	26.84	32.48
1.70	7.87	21.03	45.28	9.32	54.72	74.20	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	12.18	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	83.62	9.18	28.45
2.60	43.28	83.62	100.00	45.15			0.00	16.14

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDHE2001 SEAM - I UPPER

SAMPLE ID -

4

WASHABILITY ID - WA1

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.	CUM.
S.G. IMF	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	24.67	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 ROMAX
 VALUE

OBSERVATION
 NUMBER ROMAX
 VALUE

1 3.35
 2 3.38
 3 3.38
 4 3.37
 5 3.21
 6 3.35
 7 3.29
 8 3.29
 9 3.32
 10 3.28
 11 3.64
 12 3.33
 13 3.21
 14 3.35
 15 3.36
 16 3.22
 17 3.36
 18 3.26
 19 3.36
 20 3.48
 21 3.28
 22 3.69
 23 3.22
 24 3.27
 25 3.42

26 3.30
 27 3.21
 28 3.35
 29 3.39
 30 3.21
 31 3.46
 32 3.49
 33 3.36
 34 3.35
 35 3.48
 36 3.30
 37 3.63
 38 3.22
 39 3.32
 40 3.32
 41 3.32
 42 3.33
 43 3.20
 44 3.38
 45 3.35
 46 3.32
 47 3.36
 48 3.32
 49 3.37
 50 3.38

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

BASIC STATISTICS

NUMBER OF OBSERVATIONS	30
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.38
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	3.33
VARIANCE	0.0167
STANDARD DEVIATION	0.1292
SKEWNESS	0.7072
KURTOSIS	2.6140

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

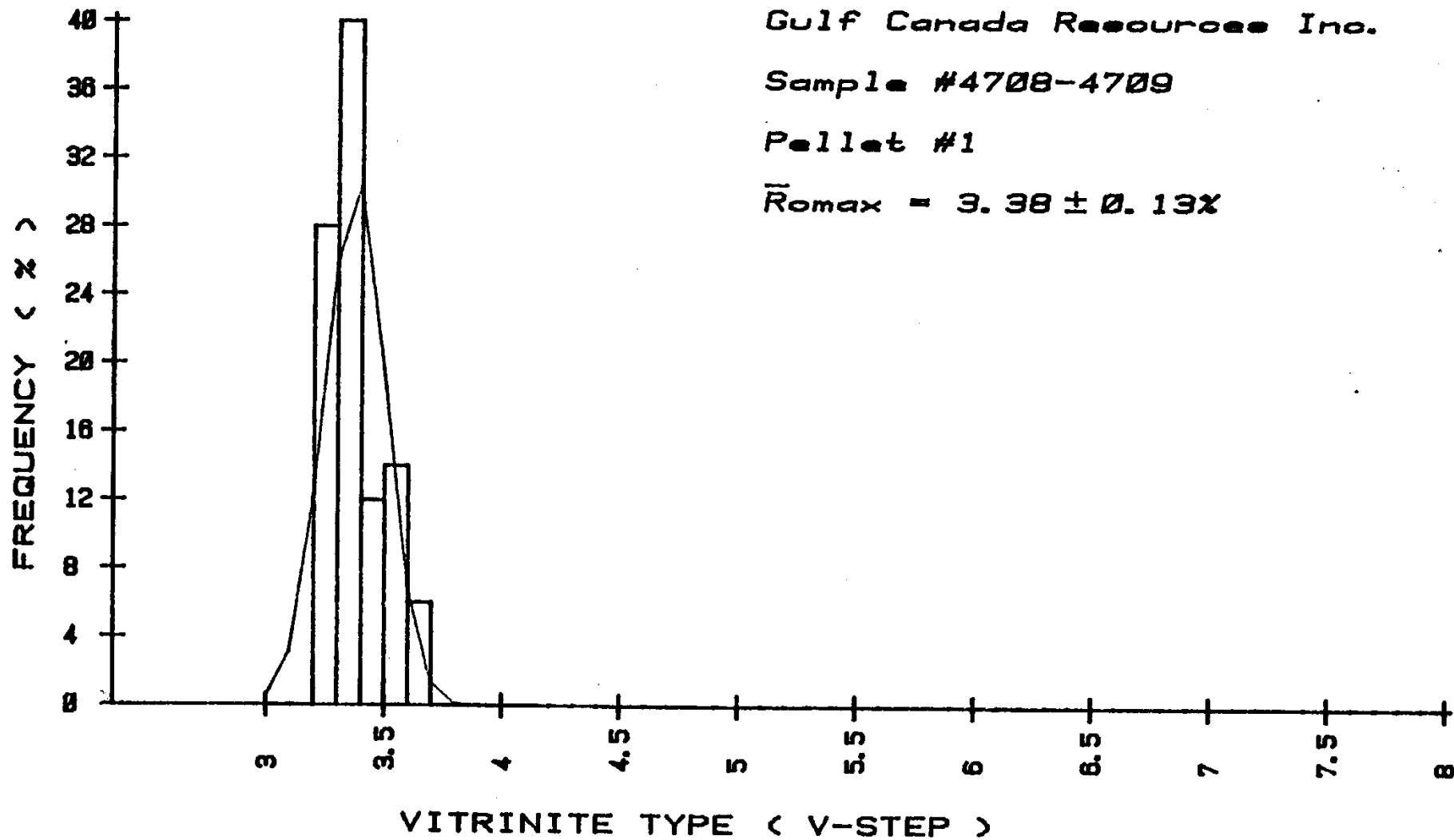
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4708-4709

Pellet #1

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



GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH0DDH82001 SEAM - 1 LOWER

SAMPLE ID - 4710

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%	WT%	ASH%	C.V.	CUM.	C.V.	CUM.
S.G. TIME									(MJ/KG)			
1.70	88.02	11.42	88.02	11.42	11.98	52.55	29.24	29.24				
2.00	11.98	52.55	100.00	16.34			12.64	27.28				

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - 1 LOWER

SAMPLE ID - 4711

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	WT%	ASH%	CUM. FLOATS	WT%	ASH%	C.V.	CUM.	C.V.
S.G. TIME	ELEMENTAL		CUM. SINKS		(MJ/KG)			
1.70	68.50	16.85	68.50	16.85	31.50	36.50	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 - KPNHCDDH02001 SEAM - I LOWER

SAMPLE ID - 4712

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. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	80.84	15.21	80.84	15.21	19.16	49.42	29.60	29.60
2.00	19.16	49.42	100.00	20.15			17.30	27.29

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH000R2001 SEAM - I LOWER

SAMPLE ID - 4713

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	49.27	18.32	49.27	18.32	50.73	55.56	27.27	27.27
2.00	50.73	55.56	100.00	37.21			12.42	19.74

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - I LOWER

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.	C.V.	
S.C.TRE	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		
2.00	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 SULPHUR %	0.47
TOTAL MOISTURE %	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00275
		SPECIFIC GRAVITY	1.50
RESIDUAL MOISTURE %<AD,EM>	1.63	FSI	---
ASH %	16.91	HGI	40.0
VOLATILE MATTER %	6.99	CO2 %	1.31
FIXED CARBON %	74.47		

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	RM	VM	TS
JM (MM) TO (MM)				(MJ/KG)			
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

COLF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH00DH2001 SEAM - 1 LOWER

SAMPLE ID -

5

WASHABILITY ID - WA1

ANALYSIS TYPE - FLUAT

FRACTION	SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT % -		71.79 ASH % - 17.32	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G. TIME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
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	8.76	29.12
2.60		5.41	71.90	100.00	17.88			3.18	27.72

ANALYSIS TYPE - FLUAT

FRACTION	SIZE (MM)	0.60 X		0.15		RELATIVE WEIGHT % -		17.65 ASH % - 13.69	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G. TIME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
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		19.82	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	88.66	8.22	11.94	60.83	23.05	31.78
1.90		2.16	36.29	90.22	8.90	9.78	66.25	19.05	31.47
2.00		1.30	43.66	91.52	9.39	8.48	69.71	16.23	31.26
2.10		1.45	51.22	92.97	10.64	7.03	73.53	13.10	30.97
2.30		0.29	61.17	93.86	10.53	6.14	75.32	8.82	30.76
2.60		6.14	75.32	100.00	14.51			2.52	29.05

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDHE2001 SEAM - 1 LOWER

SAMPLE ID - 5

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 10.56			ASH % - 18.11	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	
S.G. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(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	4.57	11.41	74.79	9.83	25.21	41.65	30.33	31.35	
90.00	3.08	21.40	78.47	10.37	21.53	45.09	26.23	31.11	
120.00	3.32	34.51	81.79	11.37	18.21	48.95	20.94	30.69	
300.00	18.21	48.95	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 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 DDH82001

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 DDH82001

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

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

OBSERVATION
NUMBER

ROMAX
VALUE

OBSERVATION
NUMBER

ROMAX
VALUE

1 4.02
2 3.97
3 3.54
4 3.61
5 3.68
6 3.77
7 3.73
8 3.68
9 4.12
10 3.80
11 3.68
12 3.81
13 3.80
14 3.82
15 3.86
16 3.69
17 3.88
18 3.61
19 3.81
20 3.71
21 4.04
22 3.90
23 3.63
24 3.72
25 3.87

26 3.90
27 3.73
28 3.90
29 3.60
30 3.71
31 3.60
32 3.67
33 3.73
34 3.81
35 3.78
36 3.66
37 3.75
38 3.82
39 4.00
40 3.84
41 3.75
42 3.69
43 3.77
44 3.81
45 3.75
46 3.83
47 3.57
48 3.87
49 3.67
50 3.86

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

BASIC STATISTICS

NUMBER OF OBSERVATIONS	20
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.75
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	0.38
VARIANCE	0.0181
STANDARD DEVIATION	0.1345
SKENNESS	0.7425
KURTOSIS	3.1221

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
6	3.50	4	8.00
7	3.60	16	32.00
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

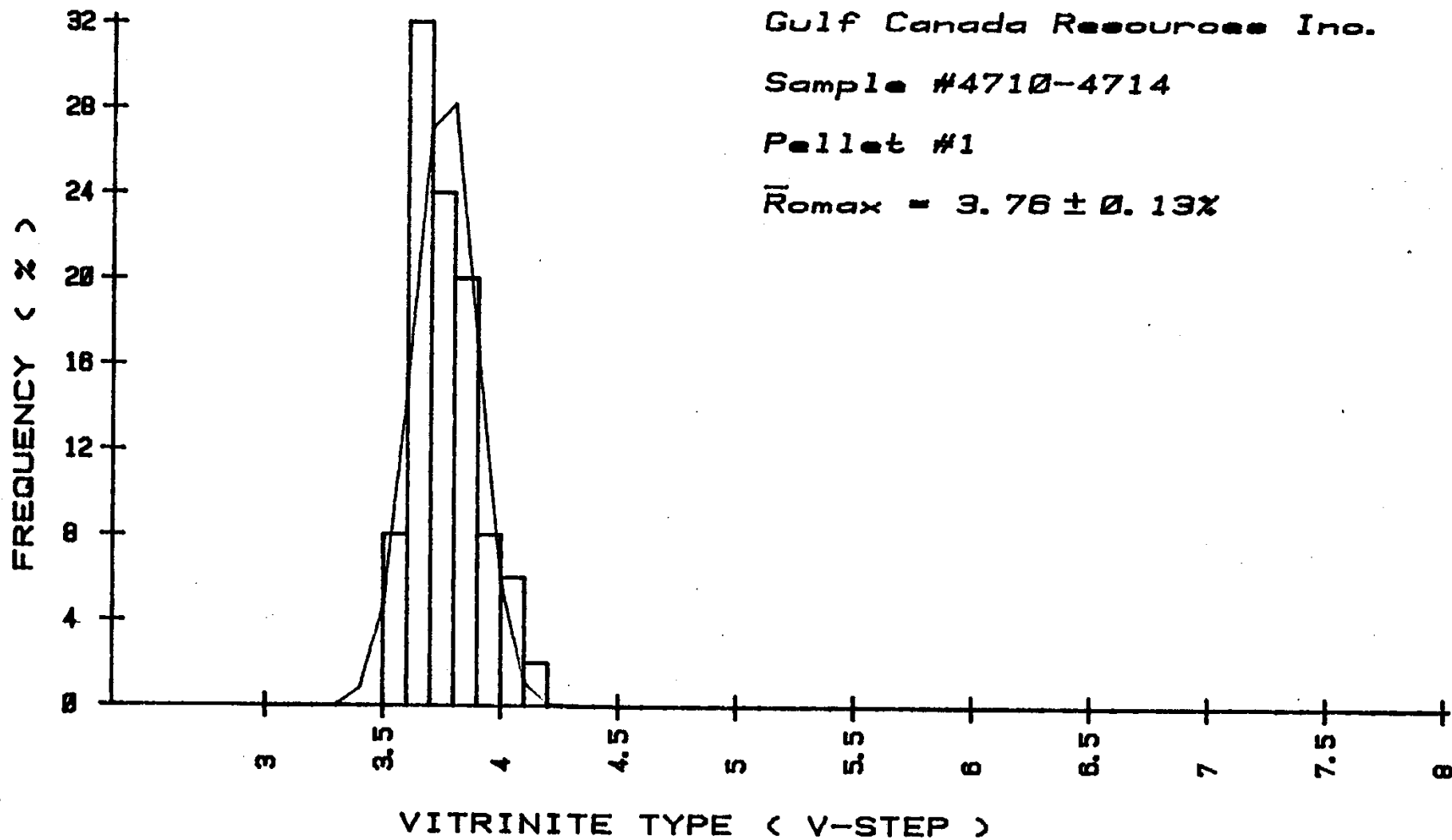
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4710-4714

Pellet #1

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



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

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.						
93.95								
94.16								
94.46								
	C - C - C - C	0.07	0.04	57.1	04715			
			(0.08)					
			0.28	100	04716			
	C - C - C - C	0.11	0.08	100	04717			
	C - C - C - C	0.13	0.03					
94.93		0.02	0.03					
		0.03	0.09			6	0.90 / 0.59*	0.90 / 0.59*
95.29		0.02	0.14	100	04718		1.54+	1.54+
		0.04	0.04					
95.59	C - C - C - C	0.17	(0.03)	80	04719			
			0.12	100	04720			
95.86		0.02	0.01					
		0.02	0.01					

* 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.

CULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

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 % -	
	WT%	ASH%	CUM. FLUATS	WT%	ASH%	C.V.	CUM.	
S.G.TML	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	27.47	18.14	27.47	18.14	72.53	51.28	25.83	25.83
2.00	72.53	51.28	100.00	42.18			14.34	17.50

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - H

SAMPLE ID - 4716

WASHABILITY ID - WA1

ANALYSIS TYPE - FLDA1

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

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KFNHCDDHE2001 SEAM - H

SAMPLE ID - 4717

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	41.14	19.13	41.14	19.13	58.86	55.00	27.43	27.43
2.00	58.86	55.00	100.00	40.24			13.45	19.20

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82001 SEAM - H

SAMPLE ID - 4718

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						(MJ/KG)			
	WT%	ASH%	WT%	ASH%	WT%	ASH%				
1.70	43.16	17.74	43.16	17.74	56.84	53.34	27.94	27.94		
2.60	56.84	53.34	100.00	37.98			12.78	19.32		

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KFNHCDDH82001 SEAM - H

SAMPLE ID - 4719

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.	CUM.
S.G.TML	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
2.80	91.92	77.25	100.00	72.59			5.15	6.97

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH02001 SEAM - H

SAMPLE ID - 4720

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	70.37	13.29	70.37	13.29	29.63	49.94	29.90	29.90
2.00	29.63	49.94	100.00	24.15			10.12	24.04

GCRI COAL DIVISION HEAD **PROJ KPN** **BLK HC** **DS** **DDH82001**

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 SULPHUR %** **1.26**
TOTAL MOISTURE % **---** **PHOSPHOROUS %** **---**
EQUILIBRIUM MOISTURE % **---** **CHLORINE (PPM)** **00607**
RESIDUAL MOISTURE %(AD,EM) **1.77** **SPECIFIC GRAVITY** **1.77**
ASH % **40.16** **FSI** **---**
VOLATILE MATTER % **7.19** **HGI** **46.0**
FIXED CARBON % **50.88** **CO2 %** **1.52**

GROSS CALORIFIC VALUE (MJ/KG) **19.47**
NET CALORIFIC VALUE (MJ/KG) **---**

GCRI COAL DIVISION SIZE **PROJ KPN** **BLK HC** **DS** **DDH82001**

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**
CM (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** **DDH82001**

SAMPLE ID **6**
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 **%** **1.77**
CARBON **%** **52.07**
HYDROGEN **%** **1.84**
SULPHUR **%** **1.26**
NITROGEN **%** **0.61**
ASH **%** **40.16**
OXYGEN **%** **2.27**

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCLDDH82001 SEAM - H

SAMPLE ID - 6

WASHABILITY ID - WA1

ANALYSIS TYPE - FLUAT

FRACTION SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT % - 82.91		ASH % - 40.62	
	ELEMENTAL		CUM. FLUATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	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	13.06	24.95
2.20	6.86	53.16	75.56	25.14	24.44	82.09	12.24	24.80
2.30	1.16	61.00	76.66	25.65	23.34	83.06	10.55	24.60
2.60	23.34	63.06	100.00	39.06			3.00	19.50

ANALYSIS TYPE - FLUAT

FRACTION SIZE (MM)	0.60 X		0.15		RELATIVE WEIGHT % - 11.53		ASH % - 38.35	
	ELEMENTAL		CUM. FLUATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	13.14	2.26	13.14	2.26	86.89	44.23	34.55	34.55
1.50	12.11	7.74	25.22	4.89	74.76	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	36.96	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	3.55	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	63.77	100.00	38.73			0.00	19.22

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDHBZ001 SEAM - H

SAMPLE ID - 6

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % -		5.56 ASH % - 47.53	
	WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
S.G. TIME								
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	74.06	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	16.65

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

OBSERVATION NUMBER	ROMAX VALUE	OBSERVATION NUMBER	ROMAX VALUE
1	3.50	26	3.51
2	3.52	27	3.77
3	3.44	28	3.55
4	3.56	29	3.58
5	3.53	30	3.57
6	3.48	31	3.67
7	3.59	32	3.51
8	3.52	33	3.59
9	3.73	34	3.52
10	3.62	35	3.74
11	3.45	36	3.59
12	3.71	37	3.64
13	3.45	38	3.58
14	3.57	39	3.54
15	3.38	40	3.55
16	3.57	41	3.54
17	3.62	42	3.45
18	3.52	43	3.55
19	3.59	44	3.45
20	3.39	45	3.55
21	3.45	46	3.29
22	3.45	47	3.53
23	3.52	48	3.50
24	3.45	49	3.57
25	3.38	50	3.55

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

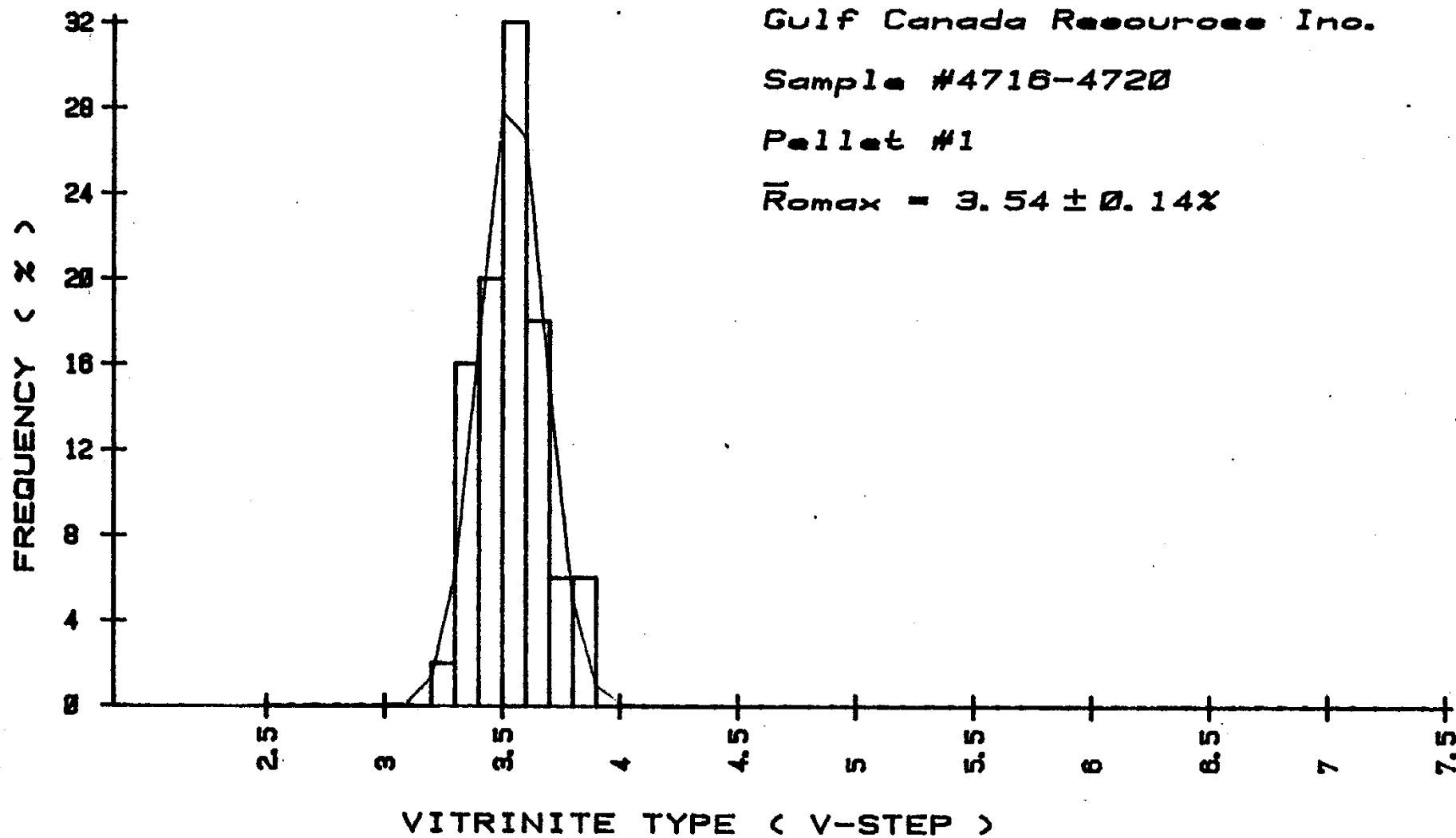
BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.54
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	3.67
VARIANCE	0.0189
STANDARD DEVIATION	0.1372
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	32.00
12	3.60	9	18.00
13	3.70	3	6.00
14	3.80	3	6.00

VITRINITE FREQUENCY DISTRIBUTION



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					
		0.03	0.14					
120.12		0.02	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.	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 G

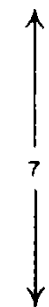
SEAM INTERVAL

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				
	117.35			0.16														
			0.30															
				(0.15)														
	118.44		0.48															
				0.05														
			0.04	0.18		80	04721											
				0.33														
	119.18			(0.14)														
	119.30		0.12			100	04722											
				0.22														
				(0.07)														
			0.05	0.10		91.5	04723											
				0.12														
			0.03	0.14														
	120.12		0.02	0.07														

GEOPHYSICAL LOGS



Seam Interval (m) : 117.35 - 120.12
 Seam True Thickness (Coal/Rock) : 1.32* / 1.04*
 Total : 2.77

* does not include core loss

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH52001 SEAM - G

SAMPLE ID - 4721

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		78.08	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

DEC 02/02

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH0DDH62001 SEAM - G

SAMPLE ID - 4722

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.55 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	WT%	ASH%	CUM. FLUATS	WT%	ASH%	C.V.	CUM.	C.V.
S.G. TIME			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
2.00	98.85	80.76	100.00	80.09			4.12	4.37

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

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		COM. FLOATS		CUM. SINKS		C.V.		CUM.	
S.G. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		C.V.
1.70	66.37	13.40	66.37	13.46	33.63	56.90	29.44		29.44	
2.00	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	
UM (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

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDLH82001 SEAM - G

SAMPLE ID - 7

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	10.00 X 0.60		RELATIVE WEIGHT % - 77.03		ASH % - 31.57		
		ELEMENTAL	CUM. FLOATS	CUM. SINKS	C.V.	CUM.	C.V.	
S.G.TME		WT%	ASH%	WT%	ASH%	(MJ/KG)		
1.40	4.00	3.76	4.00	3.76	95.92	31.07	34.00	34.00
1.50	33.80	7.81	37.88	7.37	62.12	44.00	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	20.90	65.16	11.99	34.84	65.21	24.03	30.45
1.80	3.50	34.51	68.00	13.14	31.34	68.04	20.70	29.95
1.90	3.37	41.53	72.03	14.47	27.97	71.90	17.40	29.30
2.00	1.98	40.70	74.01	15.33	25.99	73.82	15.20	28.99
2.10	2.72	53.59	70.73	16.69	23.27	76.10	11.10	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	20.53			4.60	22.94

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	0.60 X 0.15		RELATIVE WEIGHT % - 15.36		ASH % - 30.09		
		ELEMENTAL	CUM. FLOATS	CUM. SINKS	C.V.	CUM.	C.V.	
S.G.TME		WT%	ASH%	WT%	ASH%	(MJ/KG)		
1.40	10.44	2.15	10.44	2.15	89.50	34.42	34.40	34.40
1.50	32.21	6.40	42.65	5.42	57.35	50.12	32.59	33.05
1.60	12.05	14.10	54.70	7.35	45.30	59.68	29.29	32.22
1.70	7.29	20.70	61.99	8.92	38.01	67.10	20.03	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	73.54	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	51.90	73.29	13.08	26.71	78.75	13.30	29.40
2.30	2.25	62.54	75.54	15.13	24.40	80.22	9.89	28.80
2.60	24.40	80.22	100.00	31.05			0.00	21.81

COLF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDHE2001 SEAM - G

SAMPLE ID - 7

WASHABILITY ID - WAI

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % -		7.61 ASH % - 40.40	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
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 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

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

OBSERVATION NUMBER	ROMAX VALUE	OBSERVATION NUMBER	ROMAX VALUE
1	0.61	26	0.48
2	0.61	27	0.44
3	0.67	28	0.56
4	0.78	29	0.82
5	0.68	30	0.60
6	0.66	31	0.54
7	0.94	32	0.79
8	0.74	33	0.86
9	0.72	34	0.78
10	0.48	35	0.68
11	0.65	36	0.86
12	0.66	37	0.65
13	0.65	38	0.72
14	0.46	39	0.92
15	0.68	40	0.65
16	0.44	41	0.84
17	0.61	42	0.72
18	0.62	43	0.72
19	0.97	44	0.89
20	0.82	45	0.67
21	0.66	46	0.56
22	0.70	47	0.66
23	0.84	48	0.67
24	0.61	49	0.66
25	0.46	50	0.61

Gulf Canada Resources Inc.
 Sample #4721-4723
 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	3.93
VARIANCE	0.0207
STANDARD DEVIATION	0.1437
SKEWNESS	0.0126
KURTOSIS	2.3685

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
4	3.30	2	4.00
5	3.40	6	12.00
6	3.50	8	16.00
7	3.60	16	32.00
8	3.70	9	18.00
9	3.80	7	14.00
10	3.90	2	4.00

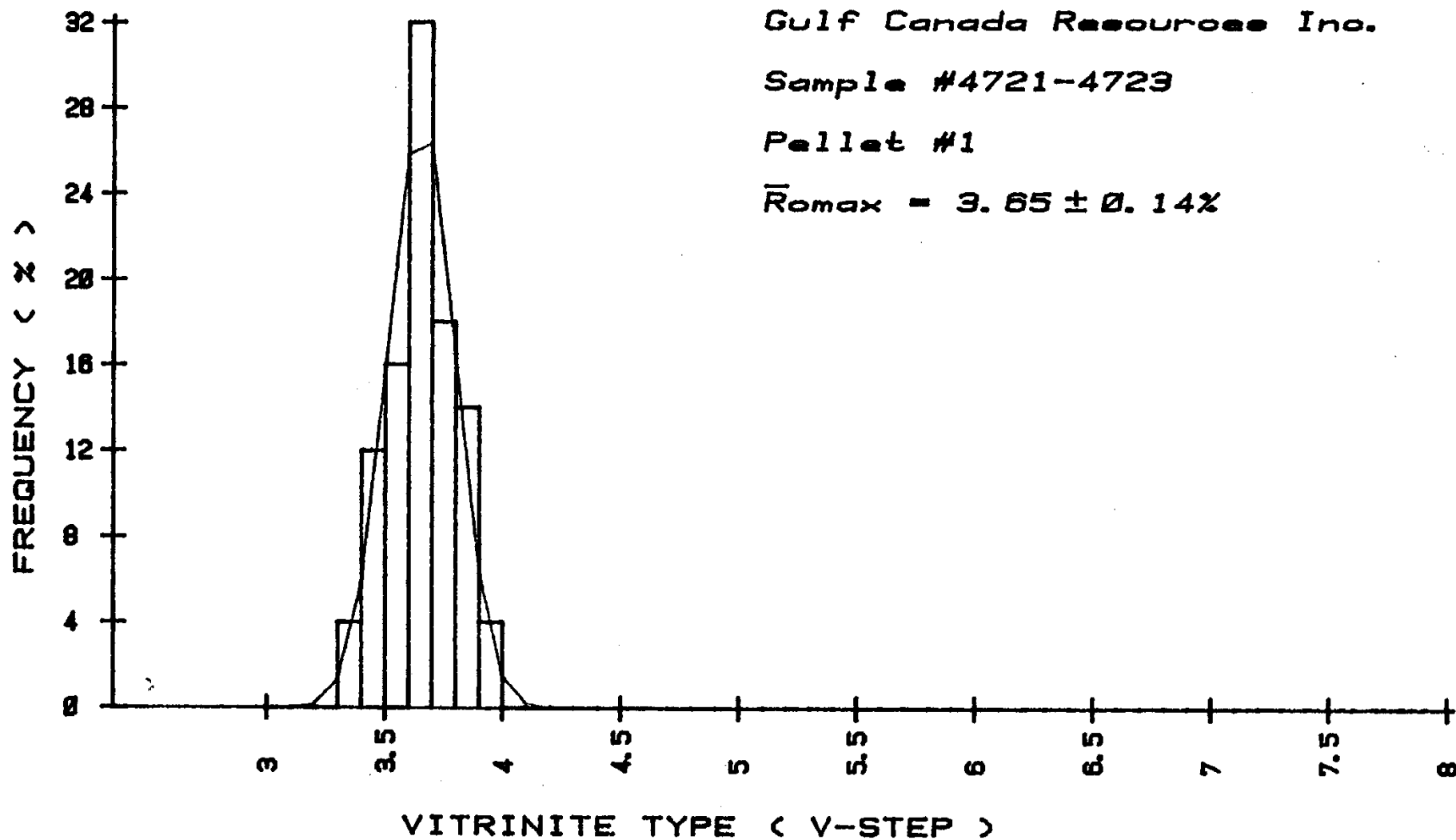
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4721-4723

Pellet #1

$\bar{R}_{\text{max}} = 3.65 \pm 0.14\%$



**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

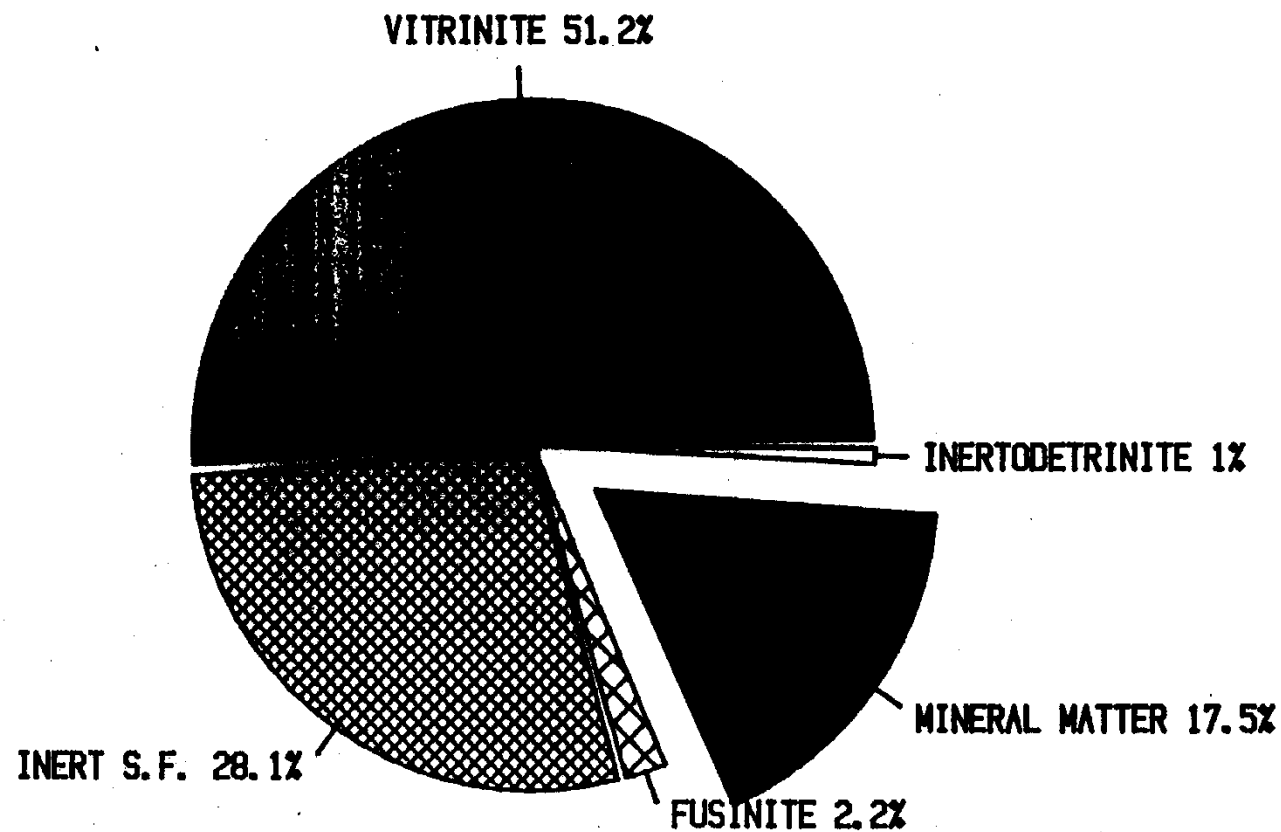
BASIC STATISTICS	MEAN	ST.DEVIATION	VARIANCE
VITRINITE	62.1	6.2	38.3
EXINITE	0.0	0.0	0.0
REACTIVE SEMIFUSINITE	0.0	0.0	0.0
TOTAL REACTIVES	62.1	6.2	38.3
MACRINITE	0.0	0.0	0.0
INERT SEMIFUSINITE	34.0	5.3	28.0
FUSINITE	2.7	1.8	3.1
INERTODETRINITE	1.2	1.4	2.0
TOTAL INERTINITES	37.9	6.2	38.3

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

----- GULF CANADA RESOURCES INC. -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNHCDDH82002

DATE - 02/06/85

- HISTORY -

START DATE - 08/05/82

END DATE - 08/08/82

CONTRACTOR - J.T.THOMAS
GEOLOGIST - SWANBERGSON

OPERATOR - GCRI
SURVEYOR -

REMARKS - NEUTRON-GAMMA TOOL GAVE OFF SCALE READINGS IN BASAL
L PORTION OF HOLE AS A RESULT OF TOOL FAILURE- TO
BE DETERMINED , GEOPHYSICAL LOG MEASURED FROM GROUND
LEVEL + APPROX. 0.6m

- LOCATION -

PROVINCE - BC
ELEVATION - 1342.00

ZONE - 9
NORTHING - 6345134.00
EASTING - 515445.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 571503
LONGITUDE - 1284439

- ORIENTATION -

LENGTH - 178.96

INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 95.8

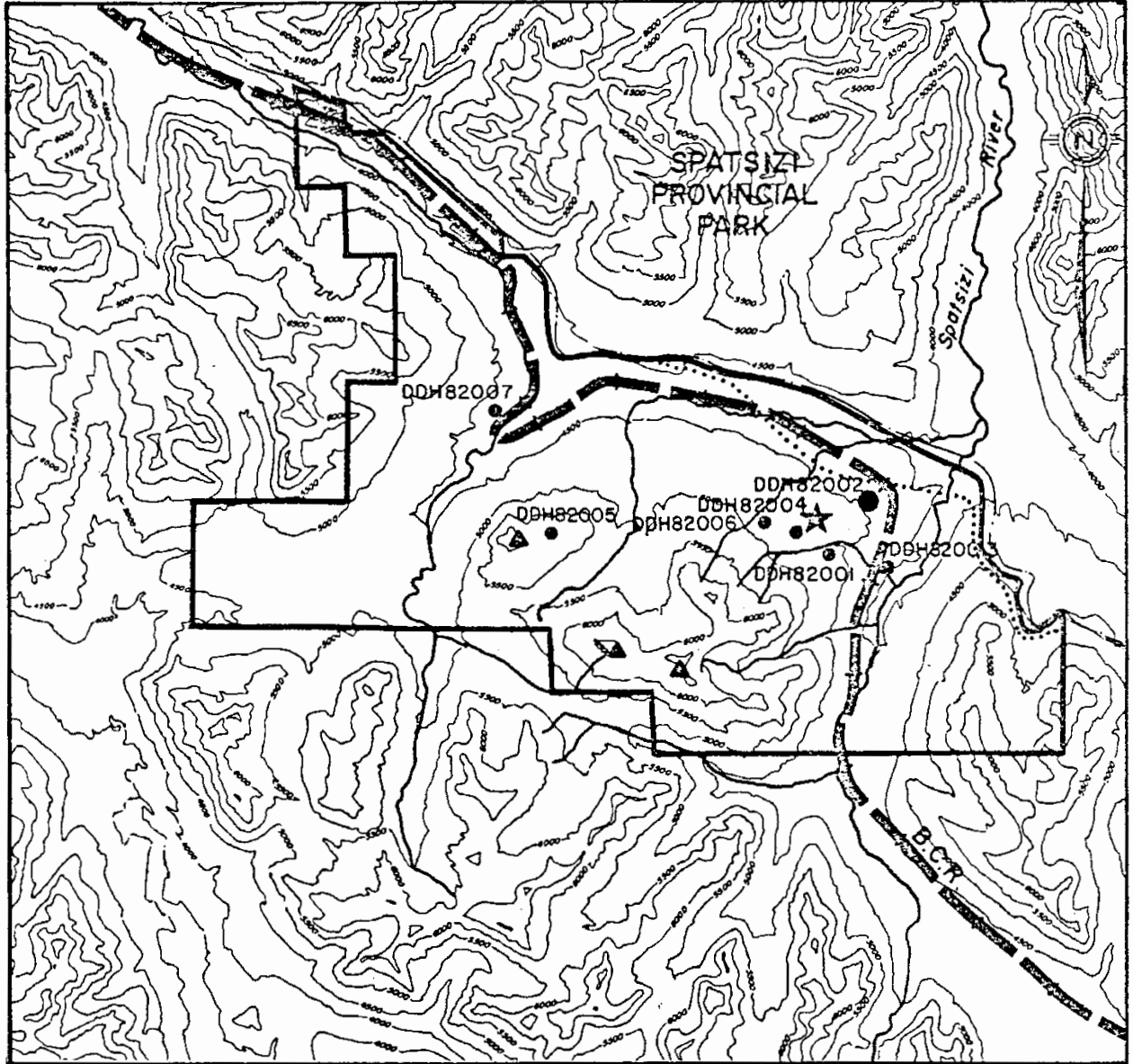
CEMENT - Y
PLUG -
PIEZ -

CASING DEPTH (M) - 0.61
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

MT. KLAPPAN COAL PROPERTY

DIAMOND DRILL HOLES



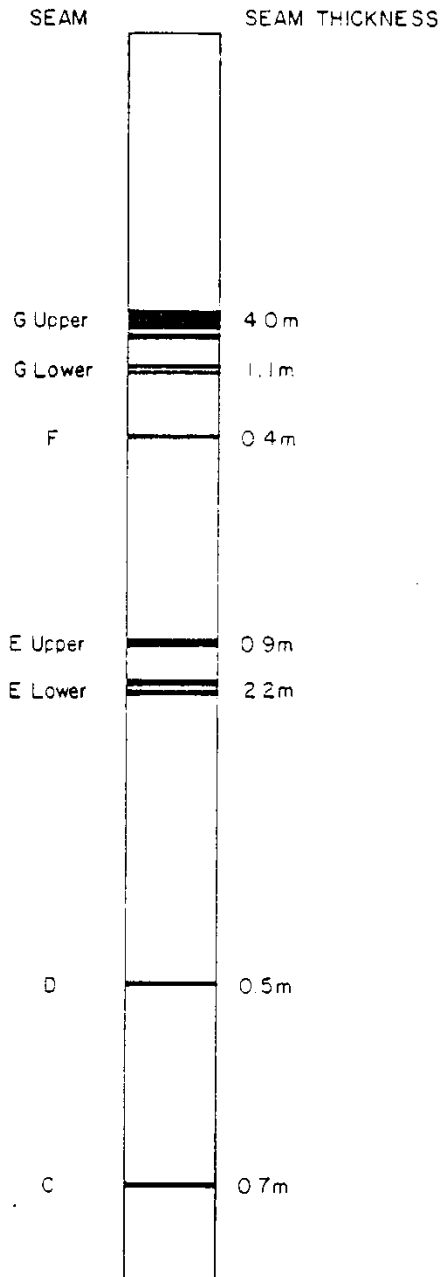
0 1 2 3 4 5 Km

FIGURE 3.4

- 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	s1-342-539	2.99	2.31	36.19 - 39.20
	G upper	9	s1-342-540	0.88	0.21	39.20 - 40.08
	G lower	10	s1-342-541	1.13	0.56	43.42 - 44.55
	E upper	11	s1-342-542	0.92	0.72	81.07 - 82.06
	E lower	12	s1-342-543	0.82	0.82	86.51 - 87.44
	E lower	13	s1-342-544	1.42	0.82	87.44 - 89.00
	D	14	s1-342-545	0.53	0.53	138.38 - 138.92
	C	15	s1-342-546	0.67	0.67	165.97 - 166.66

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
DDH82002		4852	35.68	35.93	0.25	100.00	0.00	0.25	0.00	0.00
	G UPPER	4853	35.93	36.19	0.26	100.00	0.05	0.21	0.00	0.00
	G UPPER	4854	36.19	36.59	0.24	60.00	0.22	0.02	0.00	0.16
	G UPPER	4855	36.59	37.50	0.91	100.00	0.88	0.03	0.00	0.00
	G UPPER	4856	37.50	38.04	0.54	100.00	0.10	0.44	0.00	0.00
	G UPPER	4857	38.04	39.20	1.16	100.00	1.13	0.03	0.00	0.00
	G UPPER	4858	39.20	39.84	0.24	37.50	0.00	0.24	0.00	0.40
	G UPPER	4859	39.84	40.08	0.10	41.67	0.03	0.07	0.14	0.00
		4860	40.08	41.65	1.35	85.99	0.10	1.25	0.00	0.22
		4861	42.32	43.42	0.65	59.09	0.06	0.59	0.00	0.45
	G LOWER	4862	43.42	43.71	0.25	86.21	0.25	0.00	0.04	0.00
	G LOWER	4863	43.71	44.26	0.55	100.00	0.00	0.55	0.00	0.00
	G LOWER	4864	44.26	44.55	0.29	100.00	0.27	0.02	0.00	0.00
	F	4724	52.85	52.89	6.06	100.00	0.06	0.00	0.00	0.00
	L UPPER	4865	61.07	62.06	0.78	78.79	0.78	0.00	0.00	0.21
	E LOWER	4866	86.51	87.44	0.93	100.00	0.93	0.00	0.00	0.00
	L LOWER	4867	87.44	87.72	0.24	85.71	0.01	0.23	0.04	0.00
	E LOWER	4868	87.72	88.22	0.30	60.00	0.17	0.13	0.07	0.13
	F LOWER	4869	88.22	89.00	0.78	100.00	0.65	0.13	0.00	0.00
	D	4870	138.38	138.92	0.46	85.15	0.46	0.00	0.08	0.00
	C	4871	165.97	166.66	0.69	100.00	0.69	0.00	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 CURE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	

DDHB2002	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	40.68	0.34	38.04	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	136.50	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								
35.93		0.23		100	04852			
36.03		0.10						
36.19		0.11	0.05	100	04853			
36.59		(0.16)	0.22	60	04854	↑	↑	↑
		0.02						
		0.03	0.11					
37.50			0.76	100	04855			
38.04		0.23		100	04856	8	2.31/0.68	2.31/0.68
			0.10				2.99	2.99
		0.21						
39.20			0.69	100	04857			
		0.01						
			0.38					
		0.02	0.03					
39.84		0.24		37.5	04858	9	0.21/0.67	
		(0.40)					0.88	
40.08		0.03	0.02	41.6	04859			
			0.05					
		(0.22)	(0.14)					
		0.18						
			0.06					
41.65		0.71		86	04860			
			0.03					
		0.04	0.01					
		0.32						
42.32								

GULF CANADA RESOURCES INC.		
CALGARY	Coal Division	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-002 SEAM G UPPER		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. 82	DRAWING No.

DENSITY

RESISTIVITY

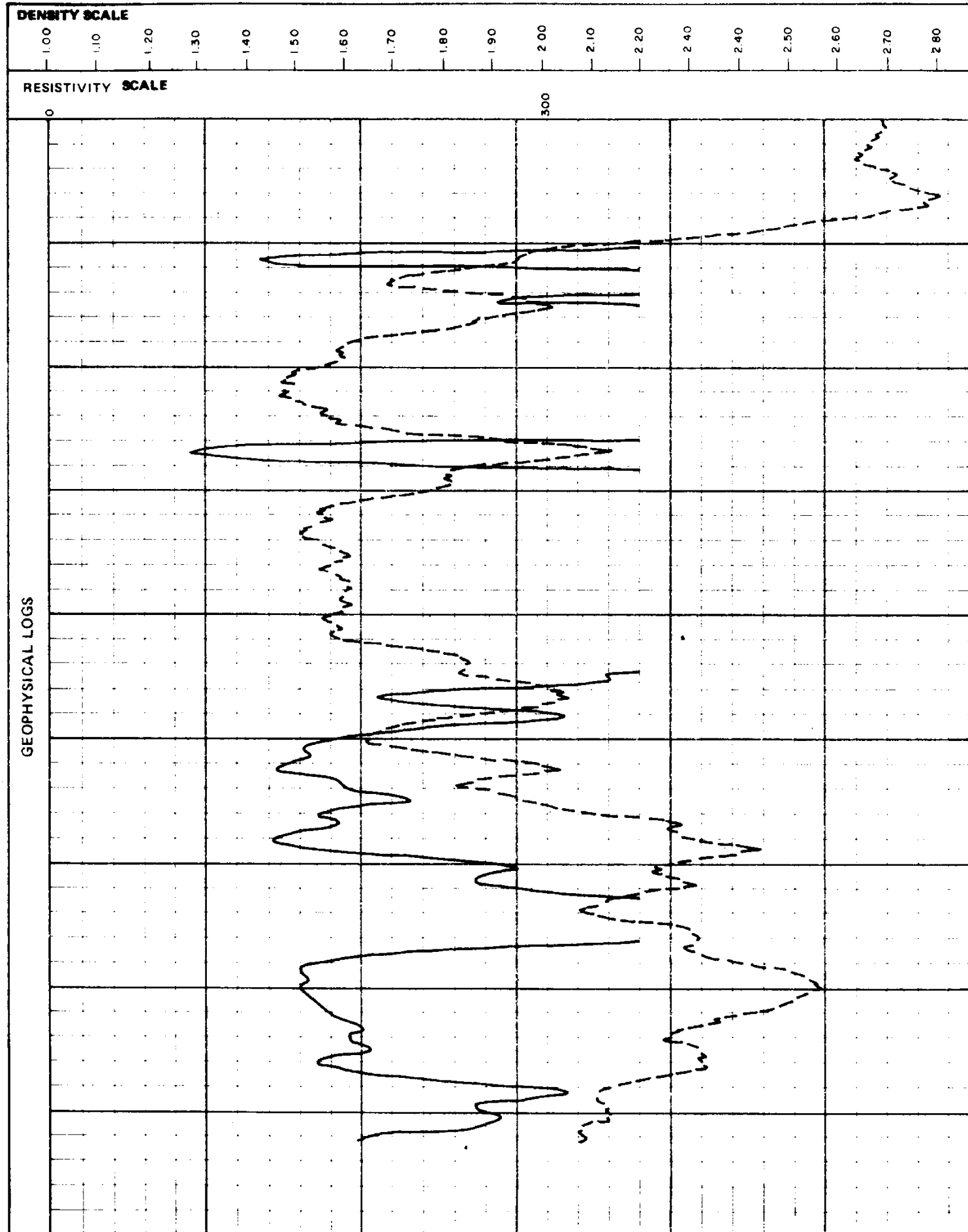
DRILL NO
SCALE

DDH-82-002
1:40

SEAM

G Upper

SEAM INTERVAL



SEAM COMP. 123456	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC	SAMPLE		PROXIMATE ANALYSIS					FSI					
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S		CAL. VAL MJ/kg				
	35.68																	
	35.93																	
	36.03																	
	36.19																	
	36.59																	
	37.50																	
	38.04																	
	39.20																	
	39.84																	
	40.08																	
	41.65																	
	42.32																	

Seam Interval (m): 36.03 - 40.08
Seam True Thickness (Coal/Rock): 2.57/1.46
Total 4.03

GEOPHYSICAL LOGS

8
9

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KFNHCDDH82002 SEAM - G UPPER

SAMPLE ID - 4853

WASHABILITY ID - WA1

ANALYSIS TYPE - FLUAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00			
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G. TIME	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	26.57
2.80	84.49	77.91	100.00	68.56			5.35	8.95

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - G UPPER

SAMPLE ID - 4654

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. TIME		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
2.00		39.14	70.18	100.00	38.29			7.35	20.35

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KFNHCDDH82002 SEAM - G UPPER

SAMPLE ID - 4855

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. INE		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
2.80		18.78	57.50	100.00	20.47			9.61	26.89

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH62002 SEAM - G UPPER

SAMPLE ID - 4856

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.TML	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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDUHC2002 SEAM - G UPPER

SAMPLE ID - 4857

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. TIME	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 DDHB2002

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 DDHB2002

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) 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 DDHB2002

SAMPLE ID 8
 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	%	1.43
CARBON	%	66.32
HYDROGEN	%	2.70
SULPHUR	%	0.65
NITROGEN	%	0.90
ASH	%	25.59
OXYGEN	%	2.41

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH&202 SEAM - G UPPER

SAMPLE ID -

B

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT %		77.44 ASH % - 25.79	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	16.70	2.78		16.70	2.78	83.30	32.14	34.50	34.50
1.50	28.69	8.50		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	63.04	22.75	30.31
1.80	4.10	36.41		74.75	13.44	25.25	66.06	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	53.56		83.17	16.91	16.83	78.25	11.19	28.16
2.20	0.42	63.04		83.65	17.17	16.35	78.70	9.91	28.05
2.30	1.41	64.90		85.06	17.47	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	SIZE (MM)	0.60 X		0.15		RELATIVE WEIGHT %		14.63 ASH % - 19.29	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	36.77	2.13		36.77	2.13	63.23	30.26	34.52	34.52
1.50	25.41	7.50		62.18	4.49	37.82	45.29	32.12	33.54
1.60	10.77	16.68		72.95	6.32	27.05	56.00	28.43	32.78
1.70	5.42	25.35		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		83.21	9.33	16.69	72.77	18.80	31.51
2.00	1.24	45.37		84.55	9.86	15.45	74.90	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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDUHB2002 SEAM - G UPPER

SAMPLE ID -

8

WASHABILITY ID - WAI

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

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDHB2002

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 DDHB2002

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)	05688
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 DDHB2002

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

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

OBSERVATION
NUMBER

ROMAX
VALUE

OBSERVATION
NUMBER

ROMAX
VALUE

1 3.44
2 3.28
3 3.35
4 3.36
5 3.47
6 3.38
7 3.38
8 3.28
9 3.44
10 3.61
11 3.41
12 3.41
13 3.41
14 3.44
15 3.41
16 3.42
17 3.38
18 3.38
19 3.42
20 3.30
21 3.47
22 3.42
23 3.44
24 3.45
25 3.38

26 3.30
27 3.38
28 3.62
29 3.31
30 3.48
31 3.33
32 3.33
33 3.30
34 3.42
35 3.20
36 3.19
37 3.42
38 3.52
39 3.30
40 3.28
41 3.34
42 3.27
43 3.26
44 3.42
45 3.35
46 3.38
47 3.42
48 3.37
49 3.31
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	2.88
VARIANCE	0.0082
STANDARD DEVIATION	0.0904
SKEWNESS	0.3870
KURTOSIS	3.4718

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	17	34.00
10	3.40	17	34.00
11	3.50	1	2.00
12	3.60	2	4.00

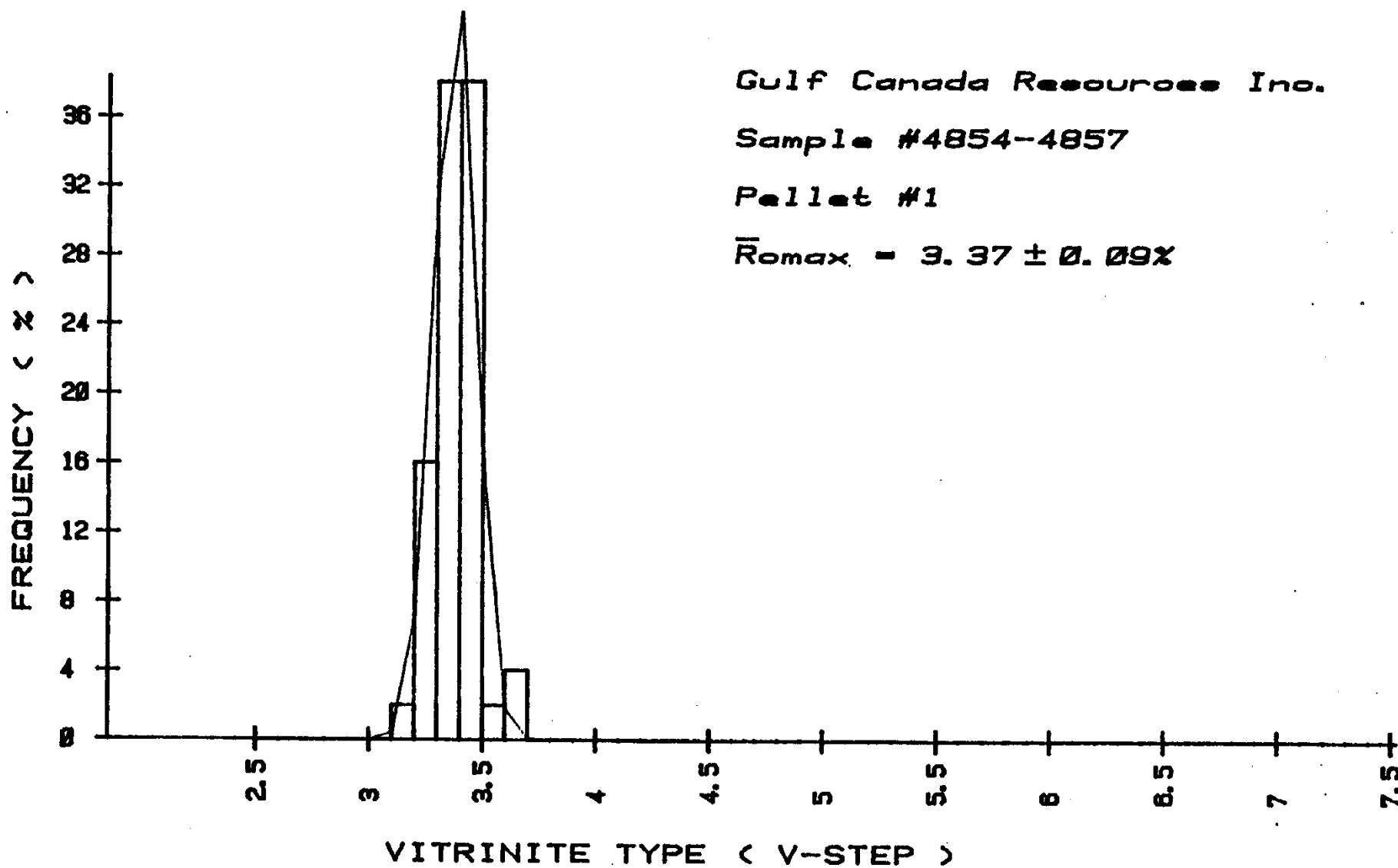
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4854-4857

Pallet #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

COLF CANADA RESOURCES INC. - COAL DIVISION

DEC (27)82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH(DDHE)2002 SEAM - G UPPER

SAMPLE ID - 4858

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM.	
S.G.	TIME	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
2.00		69.09	56.04	100.00	45.19			12.99	17.38

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDFB2002 SEAM - C UPPER

SAMPLE ID - 4659

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.C.IME	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	28.64
2.00	59.85	61.43	100.00	43.31			11.69	16.58

COLF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH0DDHE2002 SEAM - H H H

SAMPLE ID - 4860

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	14.03	14.59	14.03	14.59	85.97	71.19	30.20	30.20
2.60	85.97	71.19	100.00	83.25			7.31	10.52

GCRI COAL DIVISION	HEAD	PROJ	KPN	BLK	HC	DS	DDHB2002	
<hr/>								
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								
<hr/>								
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						
<hr/>								
GROSS CALORIFIC VALUE (MJ/KG)		15.17						
NET CALORIFIC VALUE (MJ/KG)		---						

GCRI COAL DIVISION	ULTIMATE	PROJ	KPN	BLK	HC	DS	DDHB2002
<hr/>							
SAMPLE ID	9	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
<hr/>							
WATER	%	1.52					
CARBON	%	47.11					
HYDROGEN	%	1.86					
SULPHUR	%	0.42					
NITROGEN	%	0.82					
ASH	%	45.61					
OXYGEN	%	2.66					

DRILLING DEPTH	COAL SEAM - LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL	
		ROCK	COAL		NUMBER	COMPOS.			
42.32			0.04						
		0.22	0.02						
		0.05							
		(0.45)		59.1	04861				
43.42		0.32							
43.71			0.25	86.2	04862	↑ 10 ↓	↑ 0.56/0.57 1.13 ↓		
			0.04						
44.26		0.55		100	04863				
44.55		0.02	0.20	100	04864				
			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.

DENSITY

RESISTIVITY

Apparent Thickness

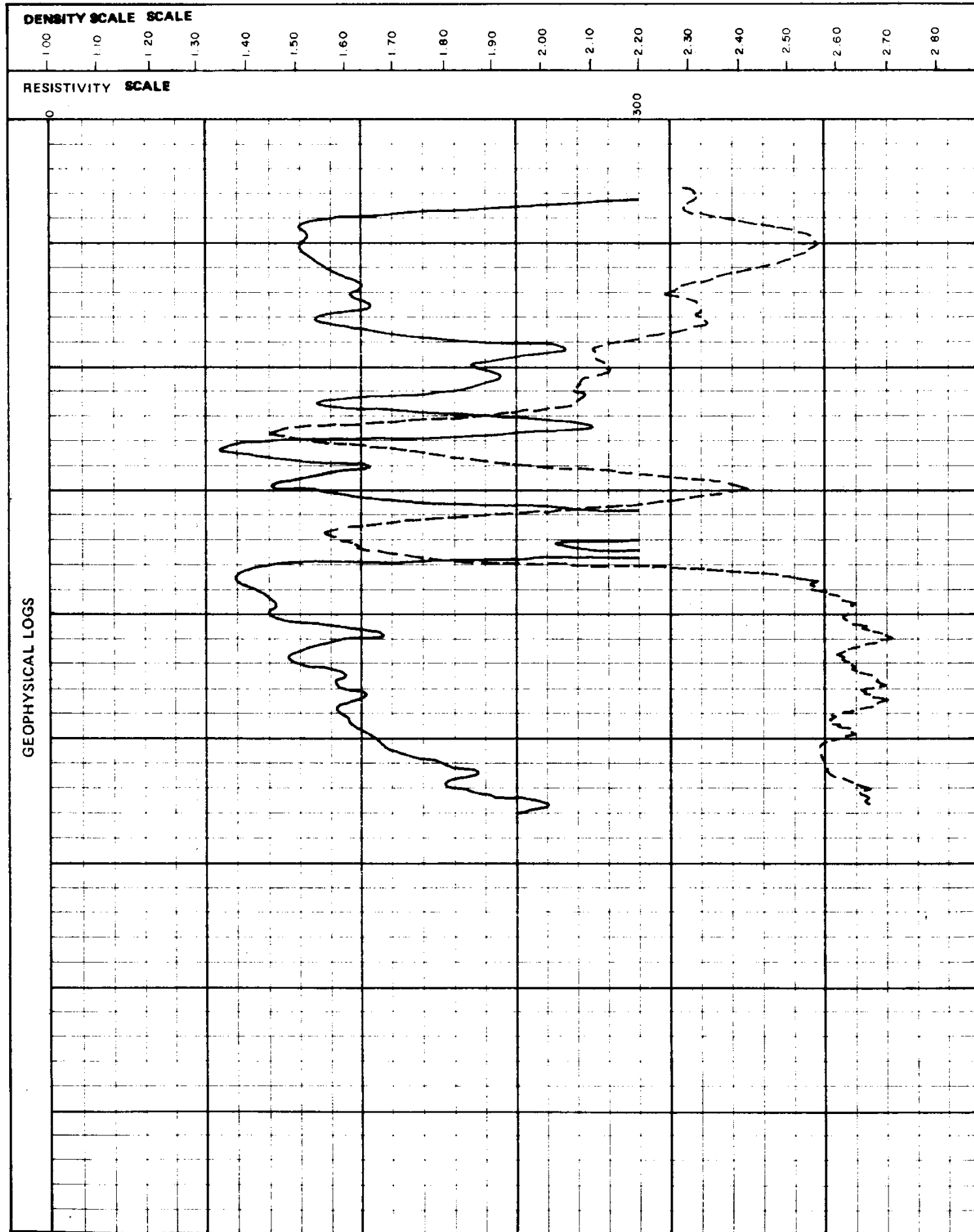
DRILL NO. DDH-82-002

SEAM

G Lower

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		
	42.32		0.22	0.04												
			0.05	0.02												
			(0.45)		59.1	04861										
	43.42		0.32													
	43.71			0.25 (0.04)	86.2	04862										
			0.55		100	04863	10	1.44	48.77	6.46	43.33		14.52			
	44.26			0.20	100	04864										
	44.55		0.02	0.07												

Seam Interval (m): 43.42 - 44.55
Seam True Thickness (Coal/Rock): 0.56/0.57
Total 1.13

GEOPHYSICAL LOGS

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KFNH0DDH82002 SEAM - H H H

SAMPLE ID - 4881

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.TMC	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
2.00	89.26	75.25	100.00	68.20			6.44	9.11

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCLDDH82002 SEAM - G LOWER

SAMPLE ID - 4862

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. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70	73.73	10.26	73.73	10.26	26.27	63.74	30.82	30.82		
2.00	26.27	63.74	100.00	24.31			7.53	24.70		

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCLDDH82002 SEAM - G LOWER

SAMPLE ID - 4863

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. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	8.73	11.54	8.73	11.54	91.27	72.66	31.46	31.48
2.60	91.27	72.66	100.00	67.52			6.80	8.95

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNFCDDH82002 SEAM - G LOWER

SAMPLE ID - 4864

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	72.98	9.51	72.98	9.51	27.02	69.65	30.53	30.53
2.00	27.02	69.65	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 MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE % (AD,EM) 1.44
 ASH % 48.77
 VOLATILE MATTER % 6.46
 FIXED CARBON % 43.33

TOTAL SULPHUR % 0.83
 PHOSPHOROUS % ---
 CHLORINE (PPM) 00419
 SPECIFIC GRAVITY 1.82
 FSI ---
 HGI 48.0
 CO2 % 0.80

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 (MJ/KG)	RM	VM	TS
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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1365.0	INITIAL TEMP.(C)	1320.0
SOFTENING TEMP.(C)	1460.0	SOFTENING TEMP.(C)	1395.0
HEMISPHERICAL TEMP.(C)	1500.0	HEMISPHERICAL TEMP.(C)	1450.0
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 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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH0DDH82002 SEAM - G LOWER

SAMPLE ID - 10

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	10.00 X 0.60		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 76.03 ASH % - 52.72	
	ELEMENTAL WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
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	33.30
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	50.10	37.60	17.21	62.40	76.93	13.36	28.38
2.10	8.44	58.14	46.04	24.71	53.96	79.87	9.58	24.93
2.20	2.00	61.67	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		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 15.87 ASH % - 36.03	
	ELEMENTAL WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.40	27.86	2.46	27.86	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	2.80	32.26	56.87	8.60	43.13	74.38	21.76	31.99
1.90	2.51	45.06	59.38	10.16	40.62	76.15	16.29	31.33
2.00	1.56	56.28	60.94	11.19	39.06	77.19	13.46	30.87
2.10	3.42	55.41	64.36	13.54	35.64	79.26	10.75	29.80
2.20	1.89	63.51	66.25	14.97	33.75	80.16	9.95	29.24
2.30	2.59	66.65	68.84	17.16	31.86	81.45	8.85	28.36
2.60	30.86	81.45	100.00	36.97			0.00	19.62

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH0DDH82002 SEAM - G LOWER

SAMPLE ID - 10

WASHABILITY ID - WAI

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % -		3.10 ASH % - 44.79	
	ELEMENTAL WT%	ASH%	CUM. FLUATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
30.00	53.25	20.92	53.25	20.92	46.75	70.74	27.30	27.30
45.00	8.60	36.83	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	2.68	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)	3.14
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	OBSERVATION NUMBER	ROMAX VALUE
1	0.38	26	0.27
2	0.38	27	0.25
3	0.27	28	0.19
4	0.40	29	0.41
5	0.23	30	0.38
6	0.35	31	0.21
7	0.33	32	0.31
8	0.30	33	0.30
9	0.10	34	0.41
10	0.24	35	0.38
11	0.36	36	0.42
12	0.35	37	0.28
13	0.33	38	0.33
14	0.27	39	0.48
15	0.42	40	0.31
16	0.35	41	0.33
17	0.37	42	0.23
18	0.46	43	0.48
19	0.04	44	0.44
20	0.38	45	0.23
21	0.32	46	0.38
22	0.28	47	0.42
23	0.19	48	0.48
24	0.25	49	0.19
25	0.46	50	0.25

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

BASIC STATISTICS

NUMBER OF OBSERVATIONS 50
MEAN MAXIMUM REFLECTANCE

OF VITRINITE% 3.50
STANDARD ERROR OF THE MEAN 0.02
COEFFICIENT OF VARIATION% 3.50
VARIANCE 0.0134
STANDARD DEVIATION 0.1155
SKEWNESS -0.4549
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	10	20.00
5	3.40	11	22.00
6	3.50	1	2.00

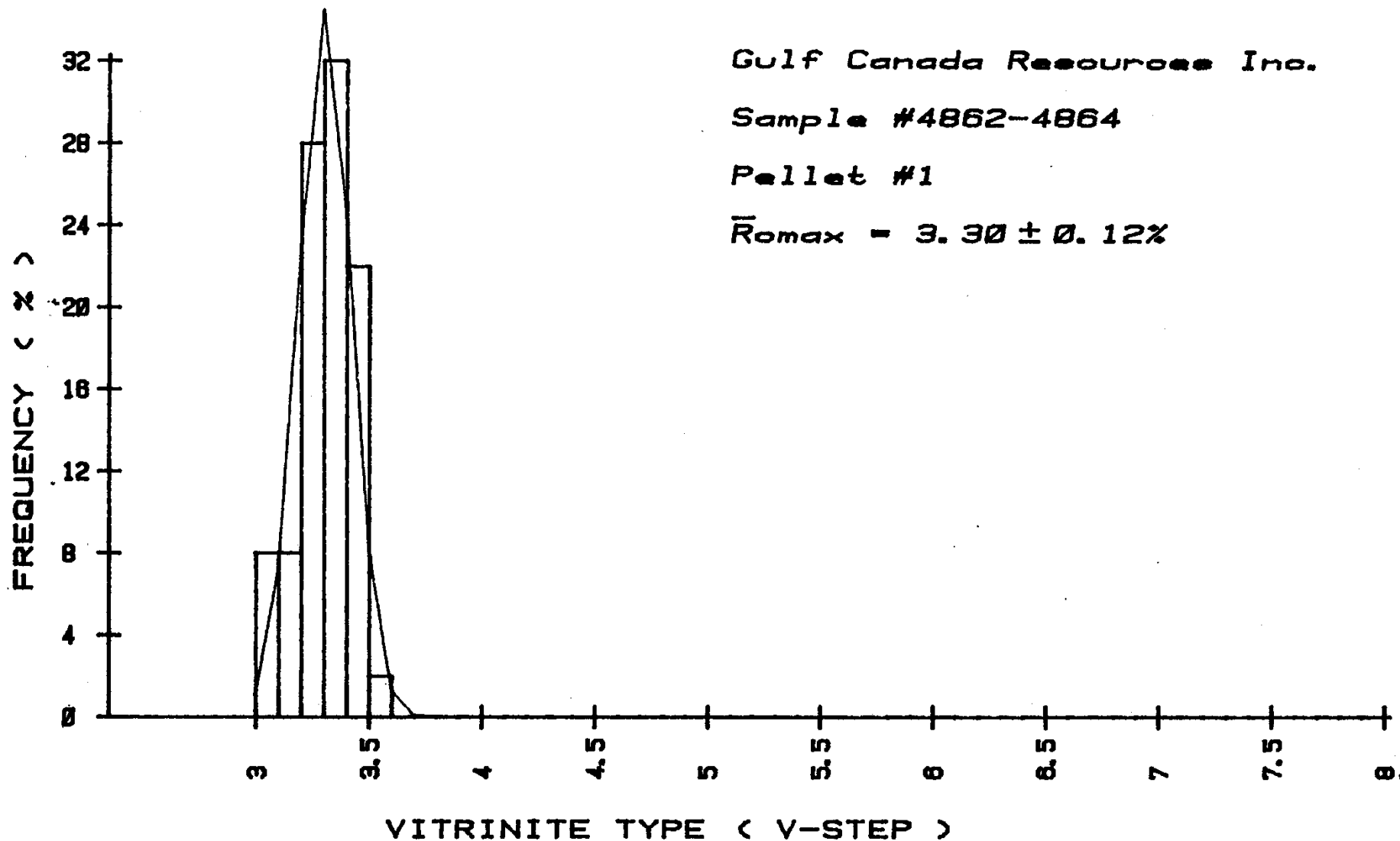
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4862-4864

Pellet #1

$\bar{R}_{\text{max}} = 3.30 \pm 0.12\%$

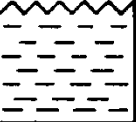
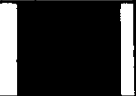


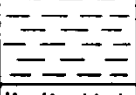
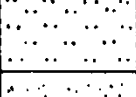
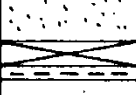






GULF CANADA RESOURCES INC.

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

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.		
CALGARY	Coal Division	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-002 SEAM E UPPER		
PREPARED BY: C. L.	SCALE 1: 40	
APPROVED BY: M. L.	DATE: NOV '82	DRAWING No.

DENSITY

RESISTIVITY

DRILL NO
SCALE

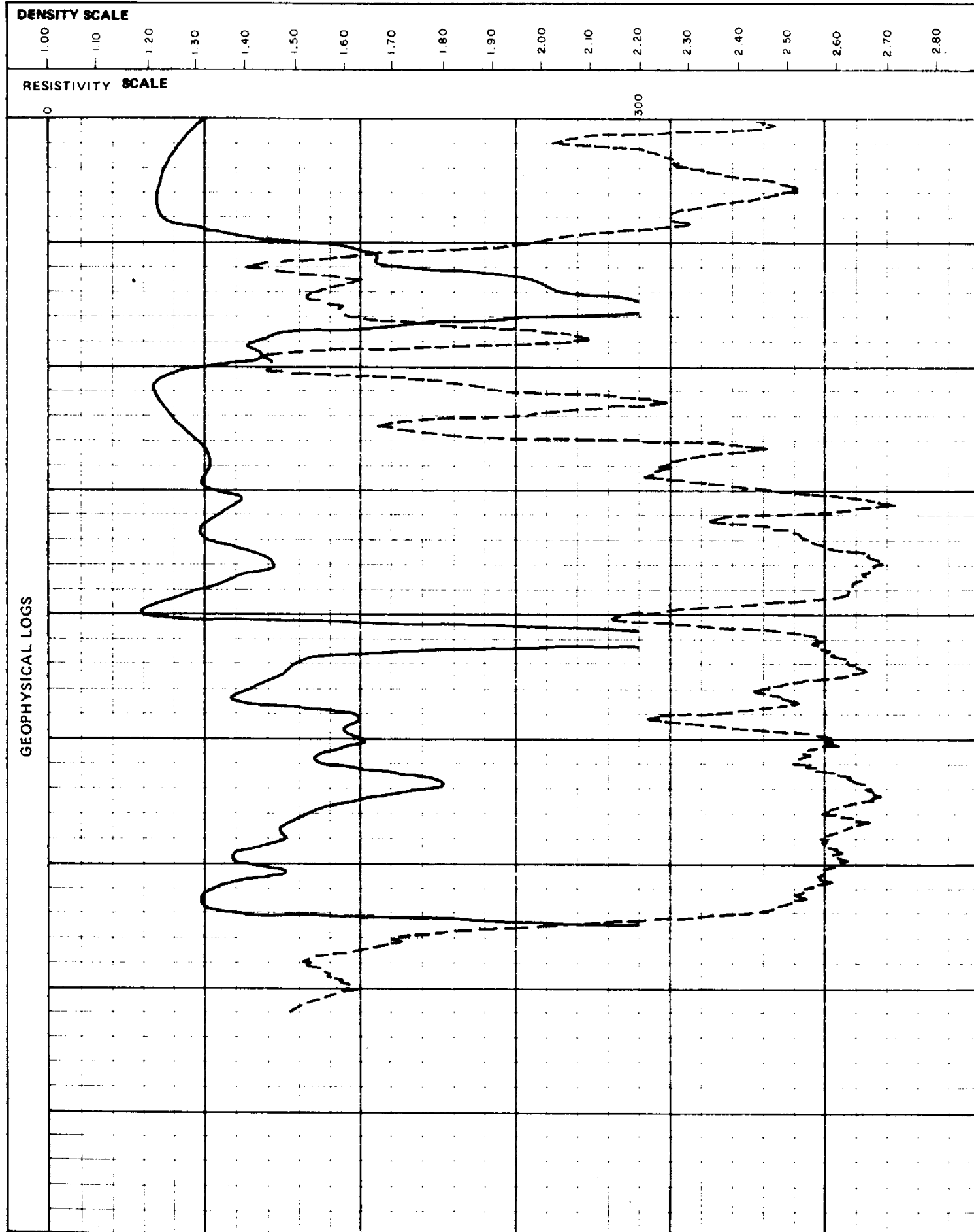
DDH - 82 - 002
1:40

SEAM

E Upper

Apparent Thickness

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
1	81.07			0.56	78.8	04865	II	1.30	25.04	7.70	65.96	25.36	
	82.06		(0.21)	0.22									
	86.51												

GEOPHYSICAL LOGS

Seam Interval (m): 81.07 - 82.06
Seam True Thickness (Coal/Rock): 0.72 / 0.20
Total 0.92

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNR0DDHE2002 SEAM - E UPPER

SAMPLE ID - 4865

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		70.35	12.95	70.35	12.95	29.65	48.44	28.89		28.89			
2.00		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 MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE %<AD,EM> 1.30
 ASH % 25.04
 VOLATILE MATTER % 7.70
 FIXED CARBON % 65.96
 TOTAL SULPHUR % 0.49
 PHOSPHOROUS % ---
 CHLORINE (PPM) 00571
 SPECIFIC GRAVITY 1.59
 FSI ---
 HGI 126.0
 CO2 % 1.38
 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

DEC 12/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDUHE2002 SEAM - E UPPER

SAMPLE ID - 11

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	10.00 X 0.60		0.60		RELATIVE WEIGHT % - 54.82 ASH % - 30.87		C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
1.40	0.34	5.57	0.34	5.57	99.66	26.26	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	39.56	79.62	18.92	20.38	64.59	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	66.65	91.11	23.12	8.89	80.03	8.05	25.28
2.60	8.89	80.65	100.00	28.18			3.37	23.33

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	0.60 X 0.15		0.15		RELATIVE WEIGHT % - 23.80 ASH % - 22.48		C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
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	5.55	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	6.36	31.35	79.29	12.39	20.71	54.93	21.62	29.95
1.90	5.64	37.42	84.33	13.89	15.67	60.54	18.70	29.28
2.00	4.43	44.15	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	11.52	27.82
2.20	1.03	62.65	94.17	17.71	5.83	77.50	10.45	27.63
2.30	0.91	65.64	95.08	18.17	4.92	79.17	8.74	27.45
2.60	4.92	75.77	100.00	21.70			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 - FRUTH

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. TIME	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	11.60	3.46	74.07	18.94	30.68
300.00	3.46	74.07	100.00	13.95			3.26	29.92

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDHS2002

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 DDHS2002

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 DDHS2002

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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1280.0	INITIAL TEMP.(C)	1270.0
SOFTENING TEMP.(C)	1375.0	SOFTENING TEMP.(C)	1360.0
HEMISPHERICAL TEMP.(C)	1435.0	HEMISPHERICAL TEMP.(C)	1430.0
FLUID TEMP.(C)	1470.0	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 NUMBER	ROMAX VALUE	OBSERVATION NUMBER	ROMAX VALUE
1	3.15	26	3.34
2	3.42	27	3.56
3	3.30	28	3.35
4	3.26	29	3.47
5	3.53	30	3.51
6	3.24	31	3.49
7	3.34	32	3.52
8	3.32	33	3.53
9	3.45	34	3.39
10	3.41	35	3.45
11	3.38	36	3.38
12	3.52	37	3.52
13	3.42	38	3.41
14	3.54	39	3.24
15	3.55	40	3.29
16	3.35	41	3.61
17	3.68	42	3.57
18	3.42	43	3.34
19	3.33	44	3.38
20	3.50	45	3.35
21	3.53	46	3.39
22	3.32	47	3.40
23	3.31	48	3.53
24	3.45	49	3.43
25	3.75	50	3.39

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
SKWNESS	0.7352
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	36.00
10	3.40	12	24.00
11	3.50	7	14.00
12	3.60	3	10.00
13	3.70	1	2.00
14	3.80	1	2.00

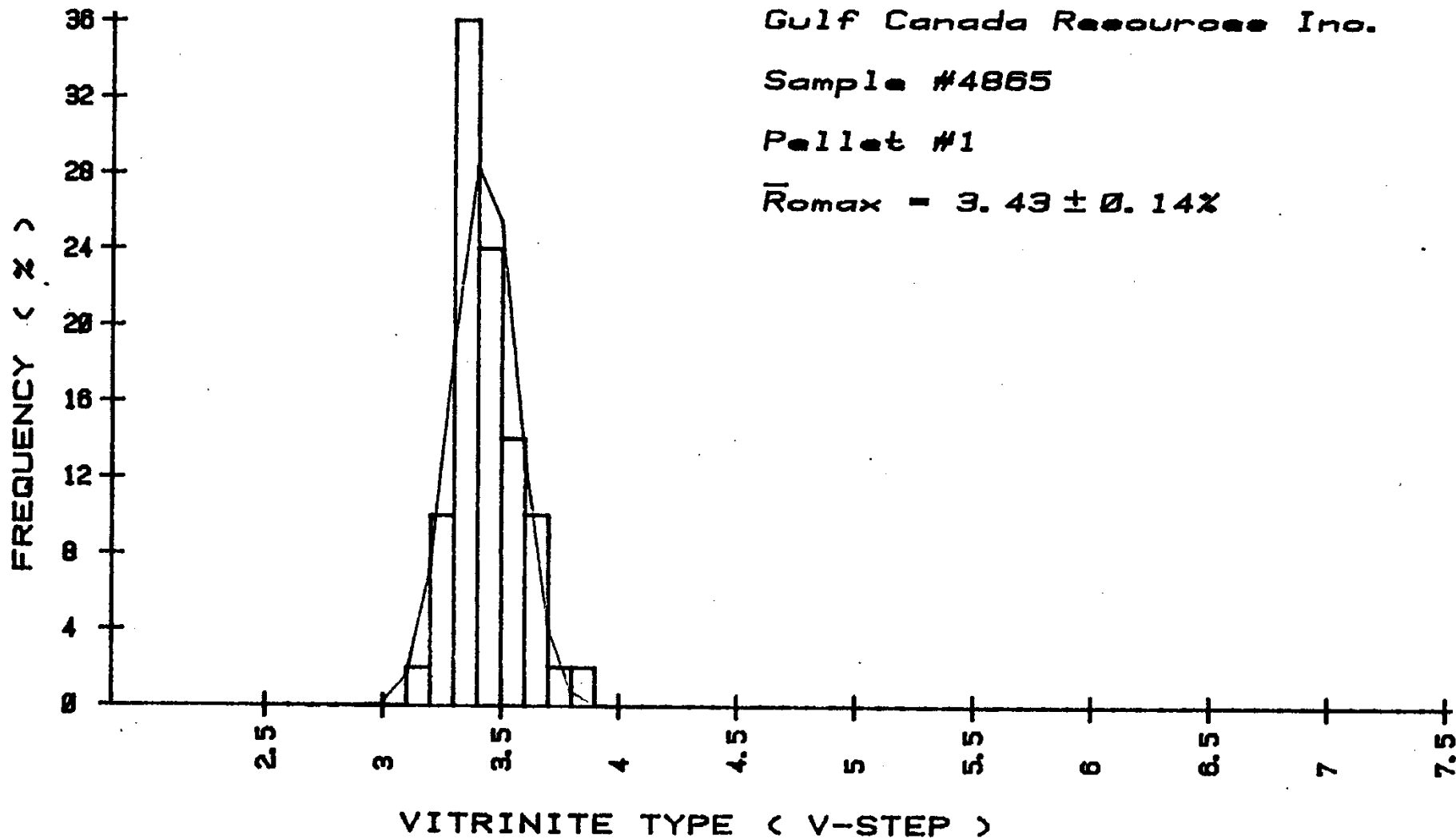
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4865

Pellet #1

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



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		0.18 (0.04)	0.08 (0.10)	85.7	04867			
		0.03	0.03					
88.22		0.09 (0.12)	0.09	69.8	04868			1.64/0.60 2.24
			0.31			13	0.82/0.60 1.42	
		0.10 0.02	0.05	100	04869			
89.00			0.24					

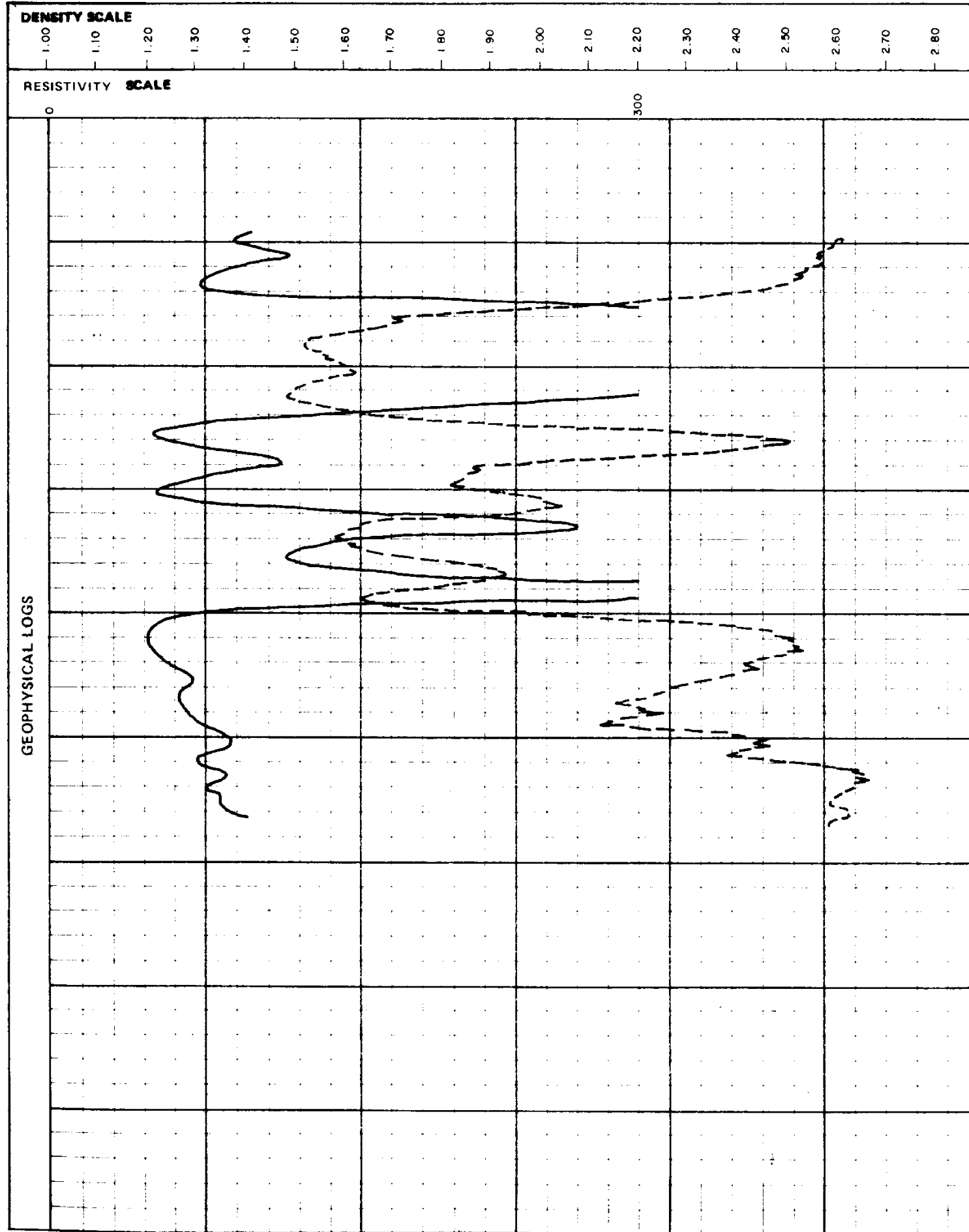
GULF CANADA RESOURCES INC.		
Calgary	Alberta	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-002 SEAM E LOWER		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. 82 DRAWING No.	

DENSITY

RESISTIVITY

DRILL NO. DDH-82-002 SEAM E Lower
SCALE 1:40

SEAM INTERVAL Apparent Thickness



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
23456	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							
	87.72		0.03 0.10 (0.13)	0.07 0.11 0.06	69.8	04868							
	88.22			0.34			13	1.57	52.33	7.76	38.34	13.70	
	89.00		0.11 0.02	0.03 0.26	100	04869							

Seam Interval (m): 86.51 - 89.00
Seam True Thickness (Coal/Rock): 1.64/0.60
Total 2.24

GEOPHYSICAL LOGS

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - E LOWER

SAMPLE ID - 4866

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	75.75	10.00	75.75	10.00	24.25	54.54	30.26	30.26
2.00	24.25	54.54	100.00	20.80			9.41	25.20

GCRI COAL DIVISION HEAD		PROJ	KPN	BLK	HC	DS	DDHB2002		
SAMPLE ID	12	DATA TYPE (REAL,BORO,AVER,CALC)					REAL		
SPLIT SAMPLE ID	HD1	DATE ANALYSED 12/10/82							
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)		ASTM					AD		
TOP SIZE (MM)	10.00								
SURFACE MOISTURE % (AD,AR)	---								
TOTAL MOISTURE %	---								
EQUILIBRIUM MOISTURE %	---								
RESIDUAL MOISTURE % (AD,EM)	1.06		TOTAL SULPHUR %					0.50	
ASH %	23.43		PHOSPHOROUS %					---	
VOLATILE MATTER %	10.44		CHLORINE (PPM)					00458	
FIXED CARBON %	65.07		SPECIFIC GRAVITY					1.59	
		FSI					---		
		HGI					91.0		
		CO2 %					5.31		
GROSS CALORIFIC VALUE (MJ/KG)		25.18							
NET CALORIFIC VALUE (MJ/KG)		---							

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	HC	DS	DDHB2002		
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			
(CM (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	DDHB2002		
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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1195.0	INITIAL TEMP.(C)	1150.0
SOFTENING TEMP.(C)	1210.0	SOFTENING TEMP.(C)	1175.0
HEMISPHERICAL TEMP.(C)	1215.0	HEMISPHERICAL TEMP.(C)	1180.0
FLUID TEMP.(C)	1250.0	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

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHDDH2002 SEAM - E LOWER

SAMPLE ID - 12

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	10.00 X 0.60		RELATIVE WEIGHT % - 59.97 ASH % - 32.25		C.V.	CUM.
		ELEMENTAL	CUM. FLOATS	CUM. SINKS	C.V.		
S.G.TME		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 43.46	73.08 17.56	26.92 62.04	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)	0.00 X 0.15		RELATIVE WEIGHT % - 21.95 ASH % - 10.80		C.V.	CUM.
		ELEMENTAL	CUM. FLOATS	CUM. SINKS	C.V.		
S.G.TME		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 13.53	89.50 5.44	10.50 42.02	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 67.00	16.08	32.00	
2.10		0.59 48.26	96.76 7.50	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

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDD82002 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	9.62			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	%	62.01
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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1230.0	INITIAL TEMP.(C)	1220.0
SOFTENING TEMP.(C)	1260.0	SOFTENING TEMP.(C)	1260.0
HEMISPHERICAL TEMP.(C)	1280.0	HEMISPHERICAL TEMP.(C)	1280.0
FLUID TEMP.(C)	1340.0	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
1	3.32
2	3.55
3	3.40
4	3.35
5	3.24
6	3.23
7	3.18
8	3.32
9	3.33
10	3.37
11	3.41
12	3.43
13	3.36
14	3.40
15	3.34
16	3.41
17	3.23
18	3.35
19	3.35
20	3.51
21	3.27
22	3.46
23	3.43
24	3.40
25	3.32

OBSERVATION NUMBER	ROMAX VALUE
26	3.36
27	3.42
28	3.13
29	3.17
30	3.36
31	3.31
32	3.42
33	3.35
34	3.25
35	3.33
36	3.43
37	3.36
38	3.30
39	3.31
40	3.64
41	3.36
42	3.25
43	3.41
44	3.32
45	3.34
46	3.63
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	3.39
VARIANCE	0.0148
STANDARD DEVIATION	0.1215
SKEWNESS	0.6088
KURTOSIS	3.4569

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
7	3.10	3	6.00
8	3.20	6	12.00
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

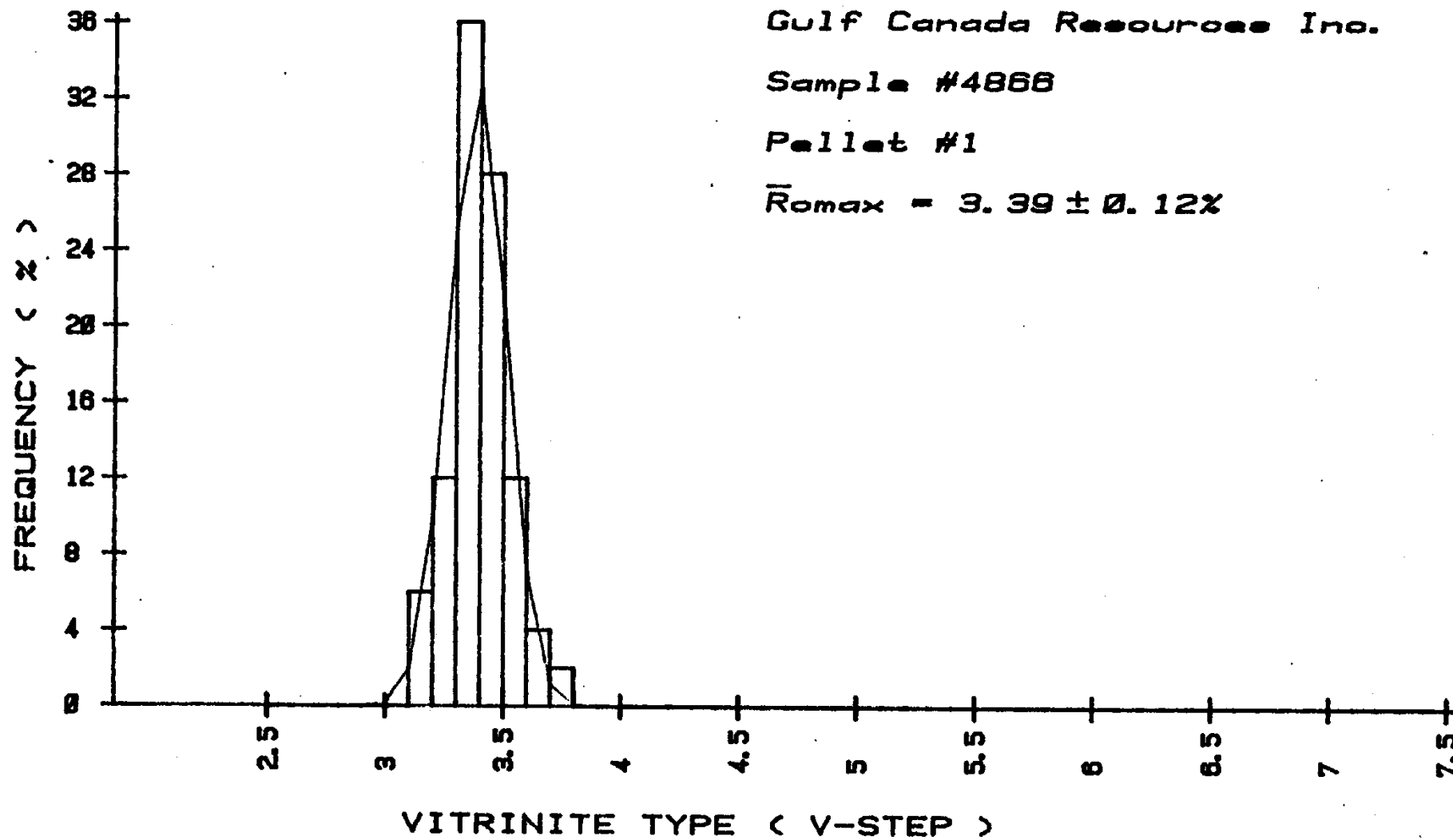
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4868

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

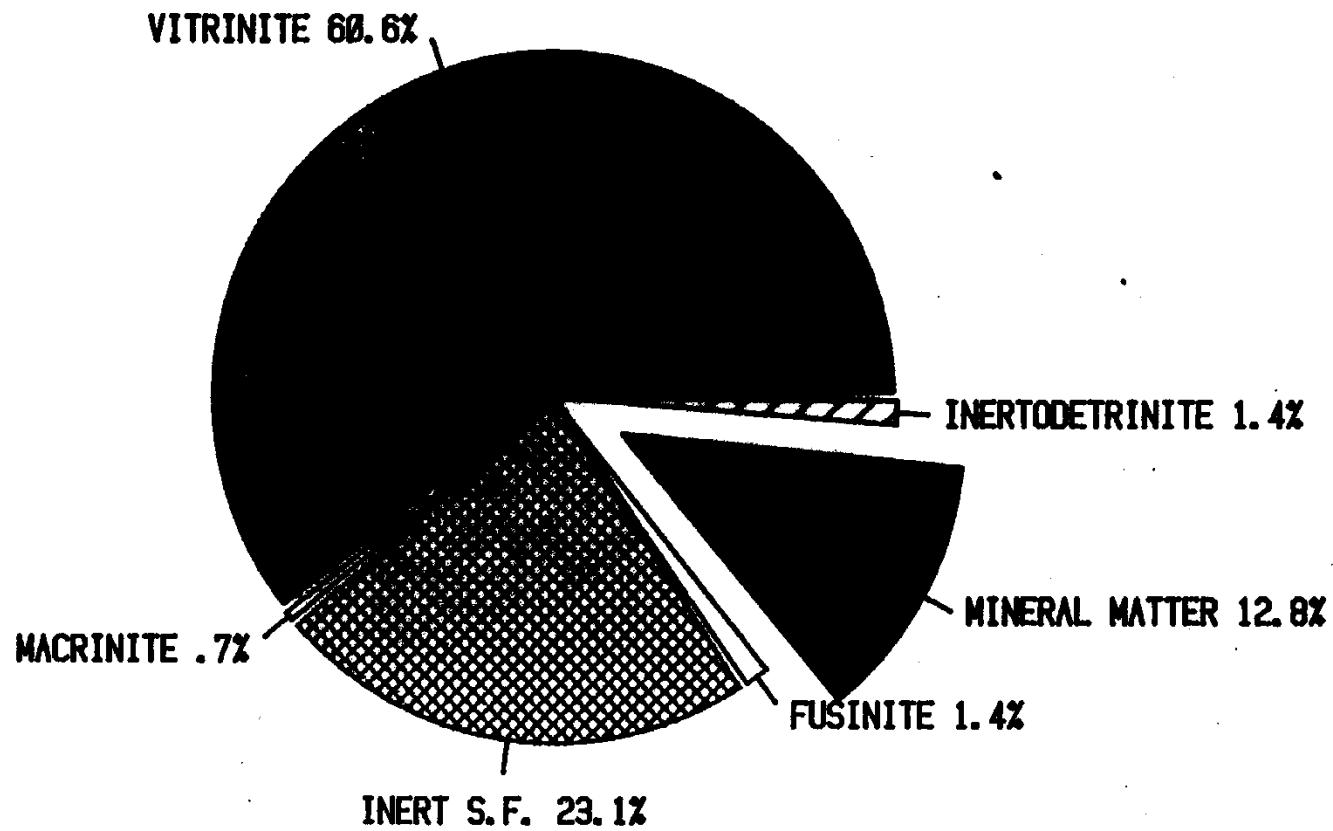
BASIC STATISTICS	MEAN	ST.DEVIATION	VARIANCE
VITRINITE	69.5	8.3	68.3
EXINITE	0.0	0.0	0.0
REACTIVE SEMIFUSINITE	0.0	0.0	0.0
TOTAL REACTIVES	69.5	8.3	68.3
MACRINITE	0.8	0.8	0.6
INERT SEMIFUSINITE	26.5	7.7	58.9
FUSINITE	1.6	2.0	4.0
INERTODETRINITE	1.6	1.8	3.2
TOTAL INERTINITES	30.5	8.3	68.3

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	37.4

MACERAL DISTRIBUTION

Gulf Sample #4866
Semifusinite - KOENSLER method



GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/12

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHDDH62002 SEAM - F LOWER

SAMPLE ID - 4867

WASHABILITY ID - WAI

FRACTION SIZE (MM)	ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00 ASH % -			
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G. GME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	3.96	12.03	3.96	12.03	96.04	80.44	29.24	29.24
2.00	56.04	80.44	100.00	77.73			4.68	5.65

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

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 % -	
		WT%	ASH%	CUM. FLOATS	CUM. SINKS	C.V.	CUM.	C.V.	
S.G. TIME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		11.55	15.60	11.55	15.60	88.45	84.88	27.96	27.96
2.00		88.45	64.88	100.00	89.19			9.12	11.30

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDHB2002 SEAM - L LOWER

SAMPLE ID - 4869

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.	C.V.	
S.C.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70	54.21	11.63	54.21	11.63	45.79	57.76	30.04	30.04		
2.00	45.79	57.76	100.00	32.76			12.15	21.85		

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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1285.0	INITIAL TEMP.(C)	1235.0
SOFTENING TEMP.(C)	1405.0	SOFTENING TEMP.(C)	1365.0
HEMISPHERICAL TEMP.(C)	1455.0	HEMISPHERICAL TEMP.(C)	1400.0
FLUID TEMP.(C)	1500.0	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 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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - E LOWER

SAMPLE ID - 13

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	10.00 X 0.60		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 74.36 ASH % - 61.46	
	ELEMENTAL WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
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	63.75	51.81	34.24	48.19	87.63	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 SIZE (MM)	0.60 X 0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 14.66 ASH % - 32.06	
	ELEMENTAL WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.40	23.11	2.39	23.11	2.39	76.89	38.50	34.49	34.49
1.50	24.36	3.39	47.47	3.93	52.53	53.85	32.67	33.56
1.60	12.03	20.38	59.50	7.26	40.50	63.60	26.33	32.10
1.70	4.70	24.80	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	3.60	56.40	78.01	15.02	21.99	83.83	12.39	28.95
2.20	2.13	63.41	80.19	16.39	19.81	85.65	8.89	28.41
2.30	1.53	70.09	81.72	17.40	18.28	87.17	6.05	28.03
2.60	10.28	87.17	100.00	30.15			0.00	22.90

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/02

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KFNHCCDH82002 SEAM - E LOWER

SAMPLE ID - 13

WASHABILITY ID - WAI

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 10.98 ASH % - 27.05			
	ELEMENTAL	CUM. FLUATS	CUM. SINKS	C.V.	CUM.			
S.G. TIME	WT% ASH%	WT% ASH%	WT% ASH%	WT% ASH%	(MJ/KG)	C.V.		
30.00	77.80 14.47	77.80 14.47	22.20 61.79	28.19	28.19			
45.00	7.87 34.72	85.67 16.33	14.33 76.66	21.45	27.57			
60.00	2.88 58.06	88.55 17.71	11.45 81.19	12.30	27.07			
90.00	1.80 74.75	90.43 18.89	9.57 82.46	4.80	26.61			
120.00	0.88 78.85	91.31 19.47	8.69 82.63	3.99	26.39			
300.00	8.69 82.85	100.00 24.98		0.00	24.10			

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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1310.0	INITIAL TEMP.(C)	1300.0
SOFTENING TEMP.(C)	1495.0	SOFTENING TEMP.(C)	1475.0
HEMISPHERICAL TEMP.(C)	1500.0	HEMISPHERICAL TEMP.(C)	1490.0
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 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)	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 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	3.50
2	3.44	27	3.58
3	3.46	28	3.45
4	3.38	29	3.25
5	3.53	30	3.51
6	3.48	31	3.51
7	3.32	32	3.36
8	3.48	33	3.33
9	3.54	34	3.62
10	3.38	35	3.37
11	3.49	36	3.55
12	3.60	37	3.43
13	3.26	38	3.37
14	3.40	39	3.29
15	3.38	40	3.47
16	3.61	41	3.39
17	3.39	42	3.43
18	3.39	43	3.38
19	3.50	44	3.17
20	3.44	45	3.39
21	3.25	46	3.31
22	3.33	47	3.61
23	3.36	48	3.55
24	3.46	49	3.47
25	3.41	50	3.49

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

BASIC STATISTICS

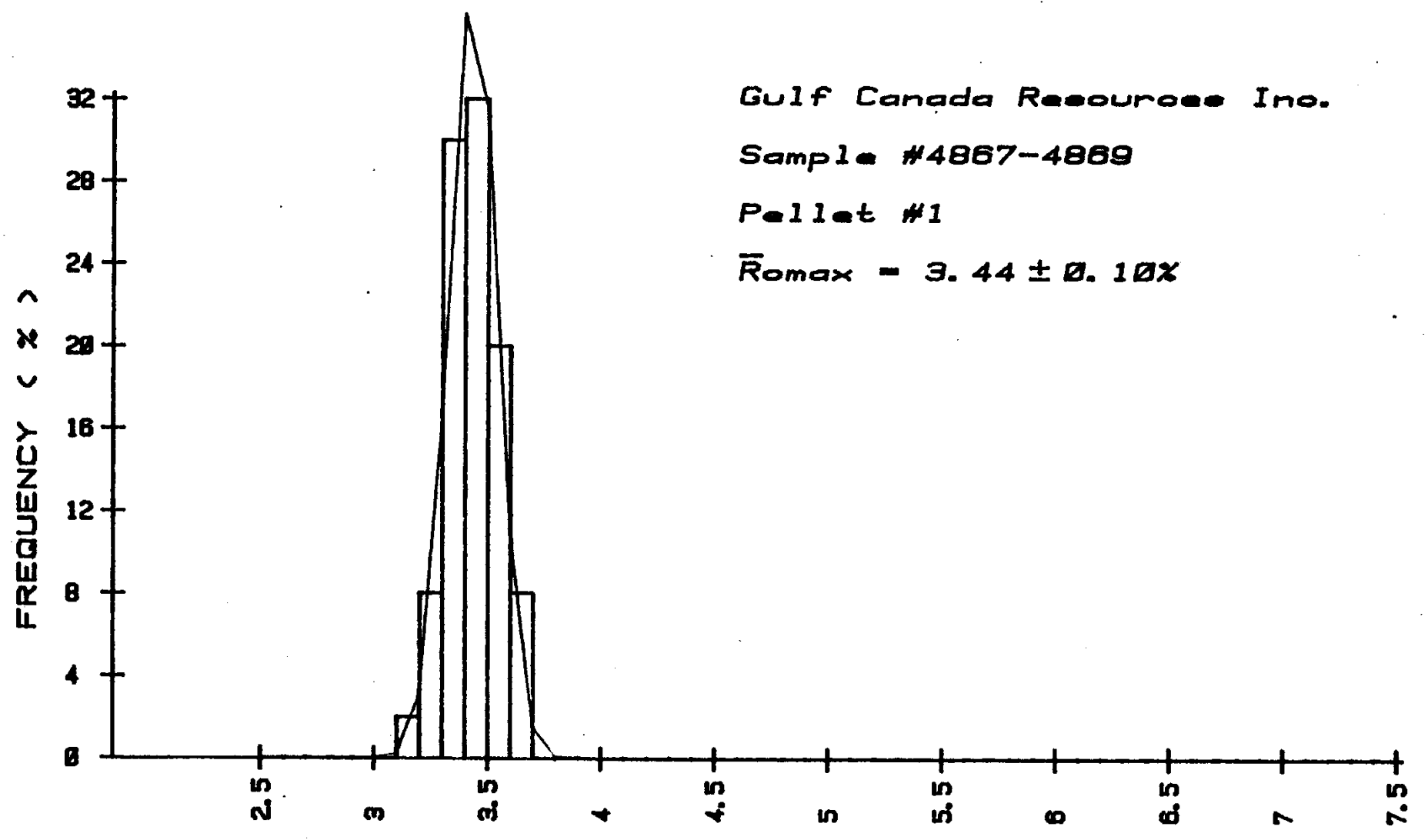
NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.44
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION	3.04
VARIANCE	0.0109
STANDARD DEVIATION	0.1043
SKEWNESS	-0.2022
KURTOSIS	2.5812

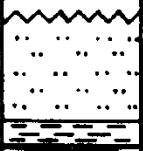
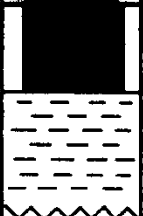

CELL STATISTICS


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.
Sample #4867-4869
Pellet #1
 $\bar{R}_{\text{omax}} = 3.44 \pm 0.10\%$



DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	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

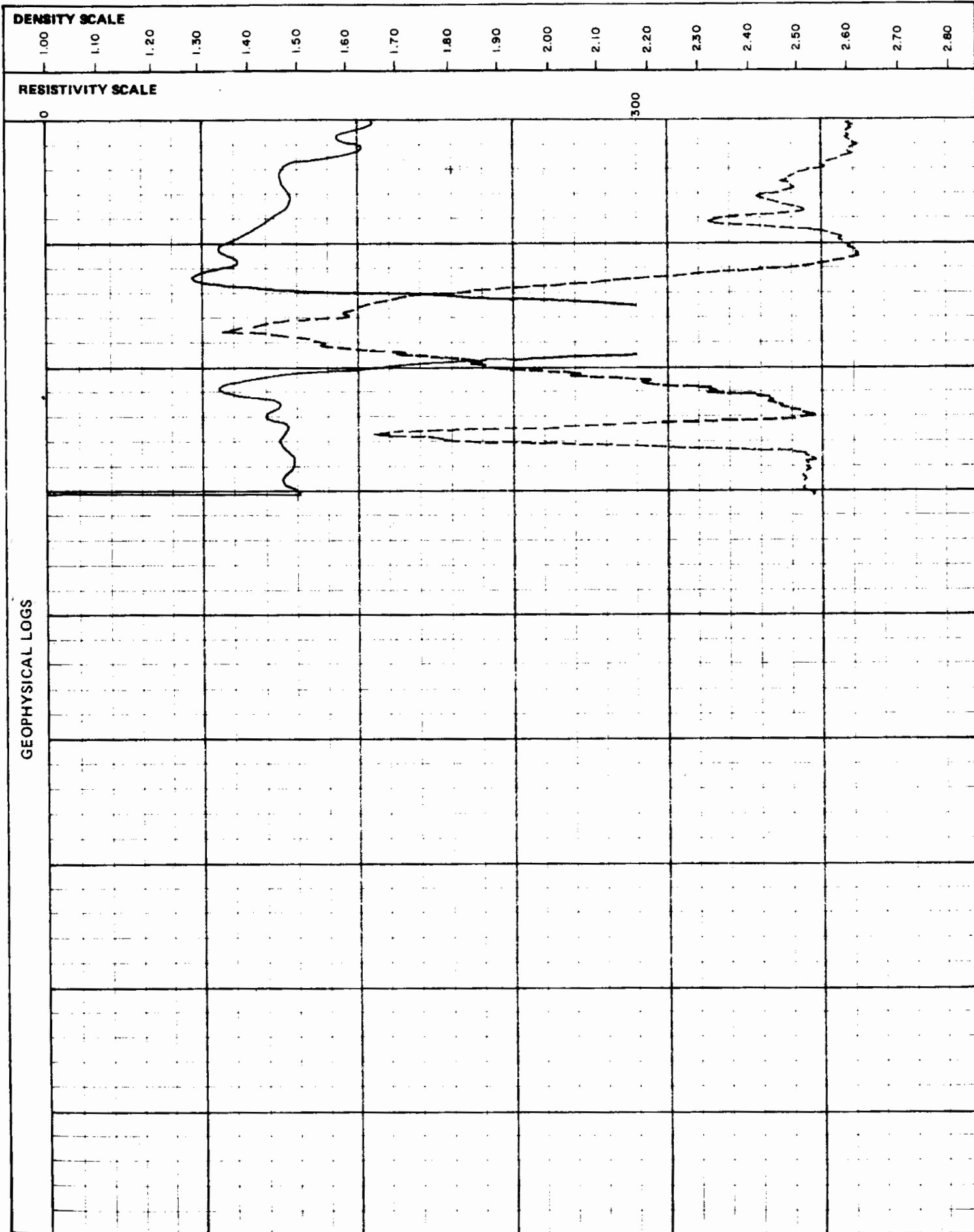
DENSITY

RESISTIVITY

DRILL NO DDH-82-002
SCALE 1:40

SEAM D

SEAM INTERVAL
Apparent Thickness



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		
	138.38			0.08												
	138.92			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													

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

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. TIME	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
2.00	33.60	52.62	100.00	25.56			11.33	23.37

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDHB2002



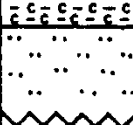
SAMPLE ID 14 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 12/10/82
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM


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)	---		

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDHB2002

SAMPLE ID 14
 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	%	1.14
CARBON	%	66.90
HYDROGEN	%	2.58
SULPHUR	%	0.59
NITROGEN	%	0.77
ASH	%	25.63
OXYGEN	%	2.39

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.		
<small>Coal Division</small>		
<small>CALGARY</small>	<small>ALBERTA</small>	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-002 SEAM C		
<small>PREPARED BY: C. L.</small>	<small>SCALE 1:40</small>	
<small>APPROVED BY: J. M. D.</small>	<small>DATE: NOV. '82</small>	<small>DRAWING No.</small>

DENSITY

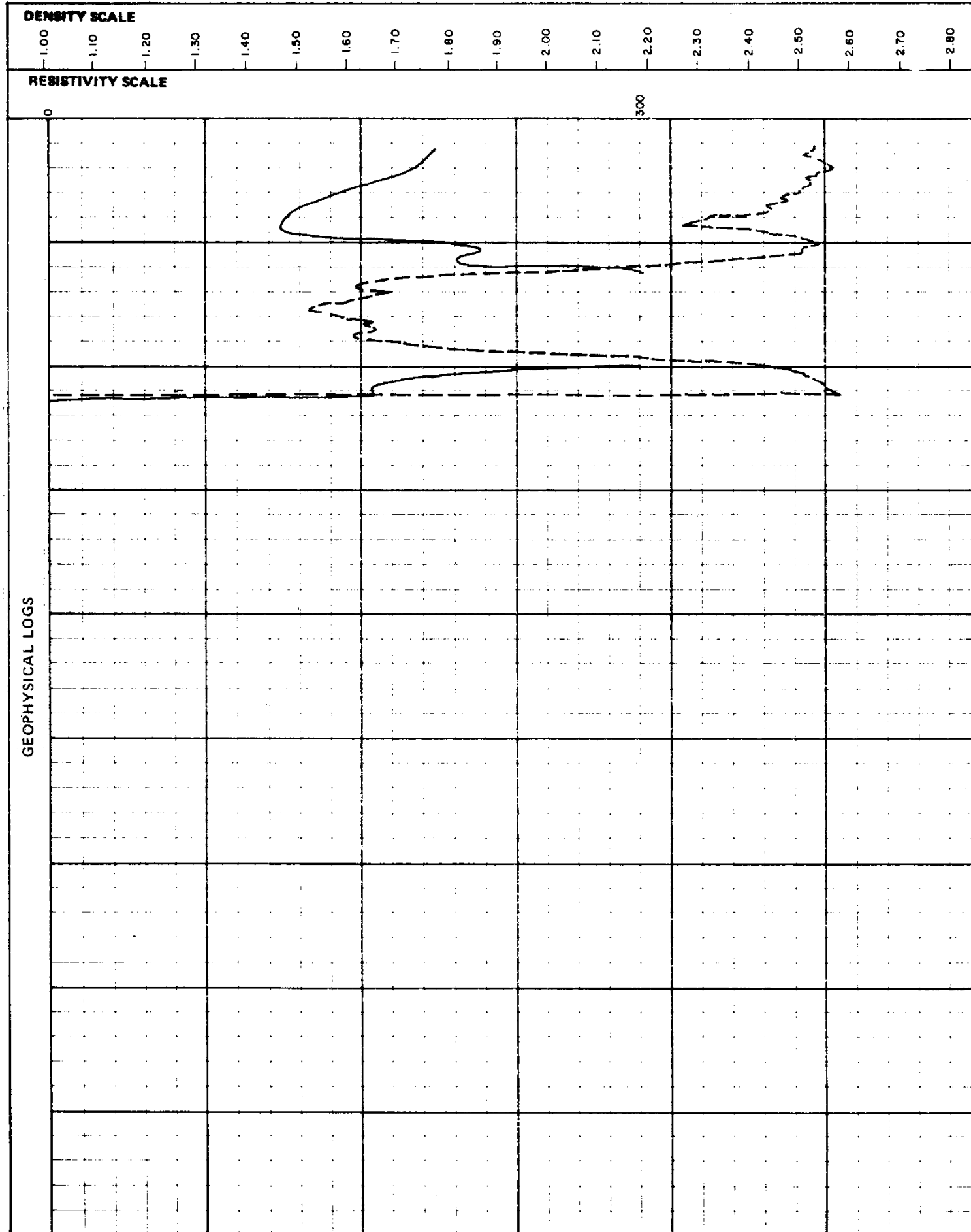
RESISTIVITY

Apparent Thickness

DRILL NO DDH-82-002
SCALE 1:40

SEAM C

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
23456	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										

GEOPHYSICAL LOGS

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDHE2002 SEAM - C

SAMPLE ID - 4871

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	76.23	14.09	76.23	14.69	23.77	59.30	29.10	29.10
2.60	23.77	59.30	100.00	25.29			10.85	24.76

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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNACDDHE2002 SEAM - C

SAMPLE ID - 15

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT % - 80.74		ASH % - 23.94	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G. TIME	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	20.73	10.62	34.77	9.65	65.23	30.65	31.26	31.68
1.60	37.96	17.62	72.73	13.81	27.27	46.79	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	46.65	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	59.35	90.53	18.08	9.47	73.73	10.29	28.13
2.30	1.21	60.56	91.74	18.64	8.26	75.06	9.06	27.88
2.60	6.26	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	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	11.72	2.76	11.72	2.76	88.28	24.67	34.52	34.52
1.50	31.80	6.27	43.52	6.79	56.48	34.21	31.90	32.61
1.60	25.95	14.97	69.47	9.65	30.53	50.57	28.75	31.17
1.70	10.50	22.67	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	18.49	29.74
2.00	0.92	47.85	86.53	13.66	13.47	77.67	15.59	29.59
2.10	1.25	54.67	87.78	14.23	12.22	80.09	13.28	29.35
2.30	1.12	62.61	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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82002 SEAM - C

SAMPLE ID - 15

WASHABILITY ID - WAI

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % -		5.89 ASH % - 36.10	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00	63.91	16.19	63.91	16.19	36.09	58.60	29.06	29.06
45.00	10.40	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	26.09
90.00	3.06	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

GRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS IDH82002

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 IDH82002

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 IDH82002

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 DDHB2002

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 DDHB2002

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 DDHB2002

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

GRI 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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1270.0	INITIAL TEMP.(C)	1255.0
SOFTENING TEMP.(C)	1285.0	SOFTENING TEMP.(C)	1270.0
HEMISPHERICAL TEMP.(C)	1310.0	HEMISPHERICAL TEMP.(C)	1295.0
FLUID TEMP.(C)	1330.0	FLUID TEMP.(C)	1315.0

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

GRI 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

GRI 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	---
% 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	R _{OMAX} VALUE
1	0.77
2	0.63
3	0.36
4	0.41
5	0.42
6	0.36
7	0.64
8	0.66
9	0.68
10	0.22
11	0.57
12	0.65
13	0.65
14	0.57
15	0.48
16	0.66
17	0.77
18	0.72
19	0.48
20	0.28
21	0.68
22	0.54
23	0.40
24	0.56
25	0.46

OBSERVATION NUMBER	R _{OMAX} VALUE
26	0.52
27	0.66
28	0.64
29	0.70
30	0.54
31	0.79
32	0.38
33	0.51
34	0.73
35	0.45
36	0.36
37	0.45
38	0.65
39	0.49
40	0.64
41	0.49
42	0.52
43	0.45
44	0.51
45	0.79
46	0.72
47	0.64
48	0.65
49	0.59
50	0.47

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	0.3295
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	8	16.00
15	3.90	1	2.00

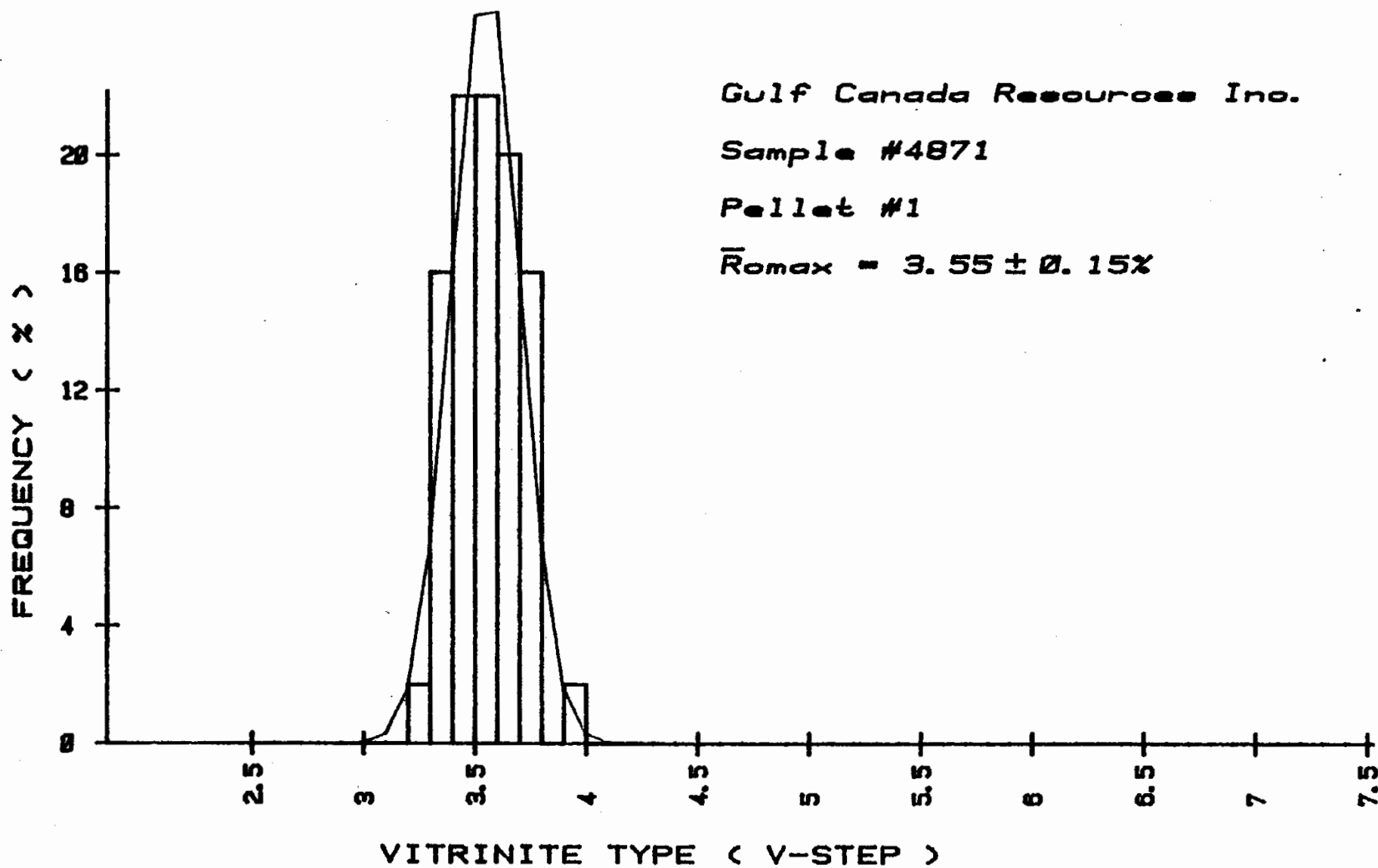
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4871

Pellet #1

$\bar{R}_{\text{max}} = 3.55 \pm 0.15\%$



- DATA SOURCE SUMMARY -

DATA SOURCE - KPNHCDDH82003

DATE - 02/06/85

- HISTORY -

START DATE - 08/10/82
 END DATE - 08/13/82

CONTRACTOR - J.T.THOMAS
 GEOLOGIST - SEVE

OPERATOR - GCRI
 SURVEYOR -

REMARKS - VERTICAL HOLE , GEOPHYSICAL LOG MEASURED FROM GROU
 ND LEVEL + APPROX. 0.6M

- LOCATION -

PROVINCE - BC
 ELEVATION - 1271.00

ZONE - 9
 NORTHING - 6343325.00
 EASTING - 515540.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 571405
 LONGITUDE - 1284433

- ORIENTATION -

LENGTH - 215.48
 CORE SIZE - 95.8

INCLINATION - 90.0
 AZIMUTH - 0.0

CEMENT -
 PLUG - Y
 PIEZ -

CASING DEPTH (M) - 19.51
 AQUIFER DEPTHS (M) - 0.00
 0.00
 LOST CIRC. DEPTHS (M) - 0.00
 0.00

*** NOTE *** 0 INDICATES NO VALUE

MT. KLAPPAN COAL PROPERTY

DIAMOND DRILL HOLES



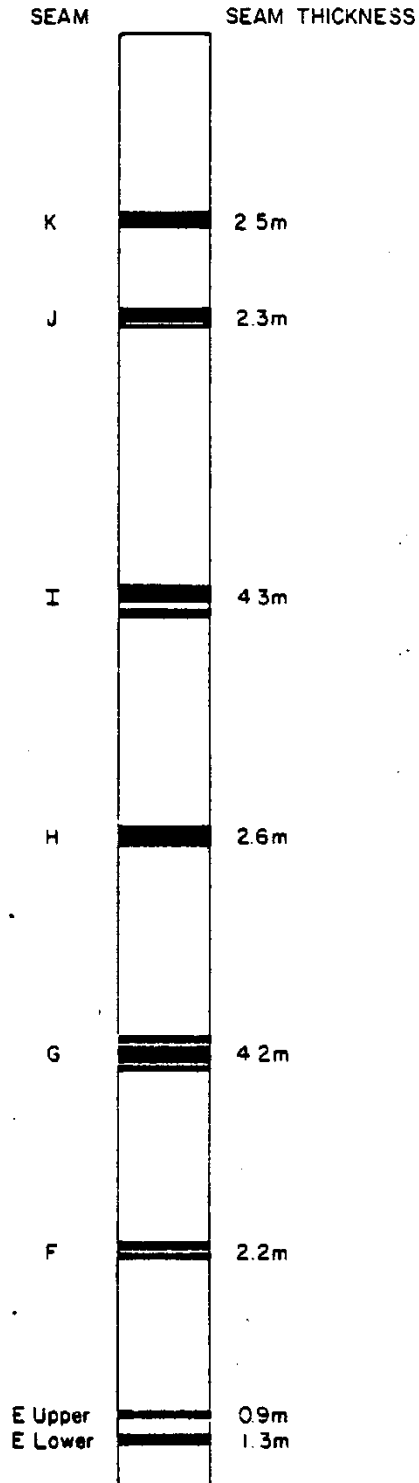
0 1 2 3 4 5 Km

FIGURE 3.4

-  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

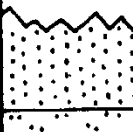



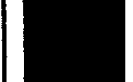
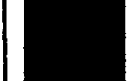

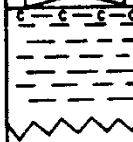
DATA SOURCE	SEAM	GULF SAMPLE I.D.	CYCLONE SAMPLE I.D.	GROSS COAL	NET COAL	DRILLED INTERVAL
KPNHCDDH82003	K	16	s1-342-547	2.24	2.06	28.90 - 32.79
	J	17	s1-342-548	2.33	2.21	44.06 - 46.62
	I	18	s1-342-549	3.92	3.21	94.57 - 98.94
	H	19	s1-342-550	2.57	2.23	127.24 - 129.81
	G	20	s1-342-551	2.89	2.41	155.24 - 158.13
	G	21	s1-342-552	1.05	0.59	158.13 - 159.18
	F	22	s1-342-553	2.17	1.70	182.38 - 184.56
	E	23	s1-342-554	0.86	0.86	205.28 - 206.14
	E	24	s1-342-555	1.28	1.16	208.17 - 209.45

GULF CANADA RESOURCES INC. - COAL DIVISION
 247JAN/83 SIMPLE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	REC CURE	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	68.40	0.63	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
	C	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	66.32	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	205.26	206.14	0.78	90.70	0.78	0.00	0.08	0.00
	E LOWER	4979	208.17	209.45	1.11	88.72	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	162.36	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 COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS.		
27.87			0.12	59	04956			
28.53		(0.81)	(0.97)	64	04957			
28.90			(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
		0.08 0.03 (0.08)	0.02 0.08 (0.15)					
32.79								

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

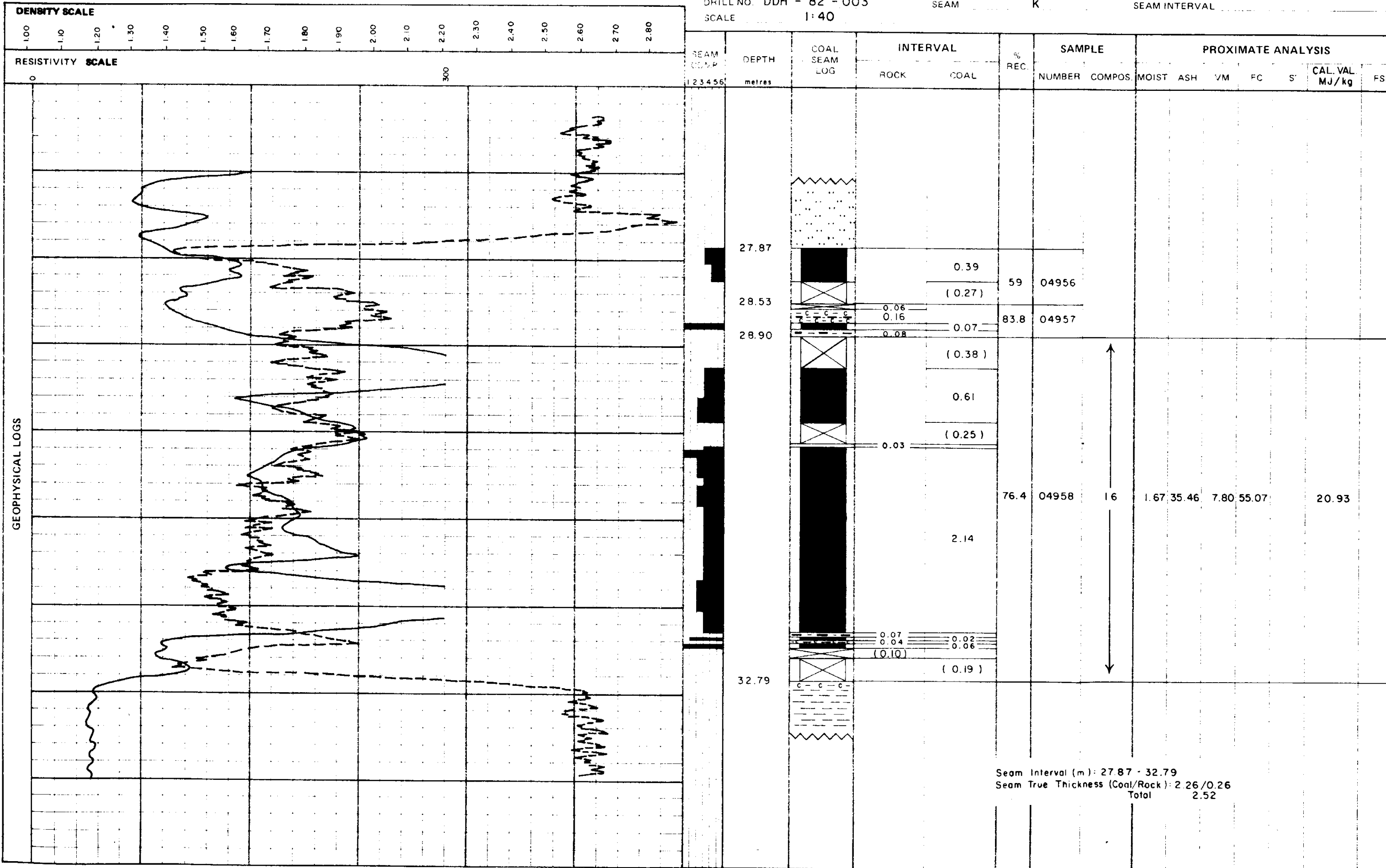
DRILL NO. DDH - 82 - 003

SEAM

K

SEAM INTERVAL

SCALE 1:40



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	27.87			0.39												
2	28.53			(0.27)	59	04956										
3	28.90		0.06 0.16	0.07	83.8	04957										
4			0.08	(0.38)												
5				0.61												
6			0.03	(0.25)												
7				2.14	76.4	04958	16	1.67	35.46	7.80	55.07	20.93				
8			0.07 0.04 (0.10)	0.02 0.06												
9	32.79			(0.19)												

Seam Interval (m): 27.87 - 32.79
Seam True Thickness (Coal/Rock): 2.26/0.26
Total 2.52

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

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		CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	C.V.
1.70		19.78	18.88	19.78	18.88	80.22	68.28	27.53	27.53
2.00		80.22	68.28	100.00	88.51			8.17	12.00

CULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH0DDH02003 SEAM - K

SAMPLE ID - 4957

WASHABILITY ID - WA1

3- ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELLMENTAL		CUM. FLOATS		CUM. SINKS	C.V.	CUM.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.7L	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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH0DDH82003 SEAM - K

SAMPLE ID - 4958

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.TNE		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			11.05	20.76

<u>GCRI COAL DIVISION</u>	<u>HEAD</u>	<u>PROJ. KPN</u>	<u>BLK HC</u>	<u>DS</u>	<u>DDHB2003</u>	
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) ---						

<u>GCRI COAL DIVISION</u>	<u>SIZE</u>	<u>PROJ KPN</u>	<u>BLK HC</u>	<u>DS</u>	<u>DDHB2003</u>			
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
0.60	0.15	12.77	26.26	---	24.15	1.27	7.65	0.74
0.15	0.00	7.04	30.31	---	22.25	0.85	8.02	0.61

<u>GCRI COAL DIVISION</u>	<u>ULTIMATE</u>	<u>PROJ KPN</u>	<u>BLK HC</u>	<u>DS</u>	<u>DDHB2003</u>
SAMPLE ID	16				
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	%	1.67
CARBON	%	57.73
HYDROGEN	%	2.16
SULPHUR	%	0.60
NITROGEN	%	0.72
ASH	%	35.46
OXYGEN	%	1.66

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT I

PAGE -

DATA SOURCE - KPNH00DH82003 SEAM - K

SAMPLE ID - 16

WASHABILITY ID - WA1

ANALYSIS TYPE - FLUAT

FRACTION	SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT % - 80.19 ASH % - 37.78			
		ELEMENTAL		CUM. FLUATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40		5.65	3.22	5.65	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	50.35	23.57	28.28
1.80		5.85	35.65	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	46.30	68.37	22.96	31.63	63.75	15.07	25.92
2.10		5.98	54.77	78.55	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 - FLUAT

FRACTION	SIZE (MM)	0.60 X		0.15		RELATIVE WEIGHT % - 12.77 ASH % - 26.26			
		ELEMENTAL		CUM. FLUATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	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		9.63	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	21.66	30.19
1.90		3.00	43.14	71.05	13.54	28.95	77.16	17.86	29.66
2.00		3.17	45.74	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	6.50	27.78
2.30		1.28	68.96	80.61	18.76	19.39	86.80	6.12	27.47
2.60		19.39	86.80	100.00	31.95			0.00	22.14

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH2003 SEAM - K

SAMPLE ID - 16

WASHABILITY ID - WAI

FRACTION SIZE (MM)		ANALYSIS TYPE - FROTH		CUM. FLUATS		CUM. SINKS		RELATIVE WEIGHT % - 7.04 ASH % - 30.31	
0.15 X 0.00		ELEMENTAL						C.V. CUM.	
S.G.	ML	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00		70.24	15.94	70.24	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	85.78	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

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDHB2003 SEAM - J

SAMPLE ID - 17

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	10.00 X		0.00		RELATIVE WEIGHT % - 80.70		ASH % - 27.54	
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.40	6.99	3.73	6.99	3.73	93.01	30.75	34.15	34.15
1.50	20.91	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	48.66	27.37	30.28
1.70	14.19	27.25	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	1.86	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	2.35	64.80	87.12	21.97	12.88	75.46	8.42	26.42
2.60	12.88	75.46	100.00	26.86			4.67	23.61

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	0.00 X		0.15		RELATIVE WEIGHT % - 13.49		ASH % - 18.54	
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. 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	8.49	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	10.91	13.14	65.09	22.38	31.02
1.90	1.51	39.00	88.37	11.01	11.63	69.00	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	12.84	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

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	26	3.45
2	3.28	27	3.35
3	3.44	28	3.29
4	3.39	29	3.39
5	3.46	30	3.39
6	3.32	31	3.35
7	3.23	32	3.39
8	3.59	33	3.18
9	3.27	34	3.30
10	3.52	35	3.23
11	3.55	36	3.30
12	3.37	37	3.29
13	3.36	38	3.32
14	3.27	39	3.30
15	3.38	40	3.27
16	3.33	41	3.34
17	3.32	42	3.33
18	3.39	43	3.34
19	3.26	44	3.29
20	3.40	45	3.26
21	3.42	46	3.28
22	3.41	47	3.25
23	3.22	48	3.32
24	3.46	49	3.25
25	3.52	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	3.08
VARIANCE	0.0107
STANDARD DEVIATION	0.1034
SKWNESS	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

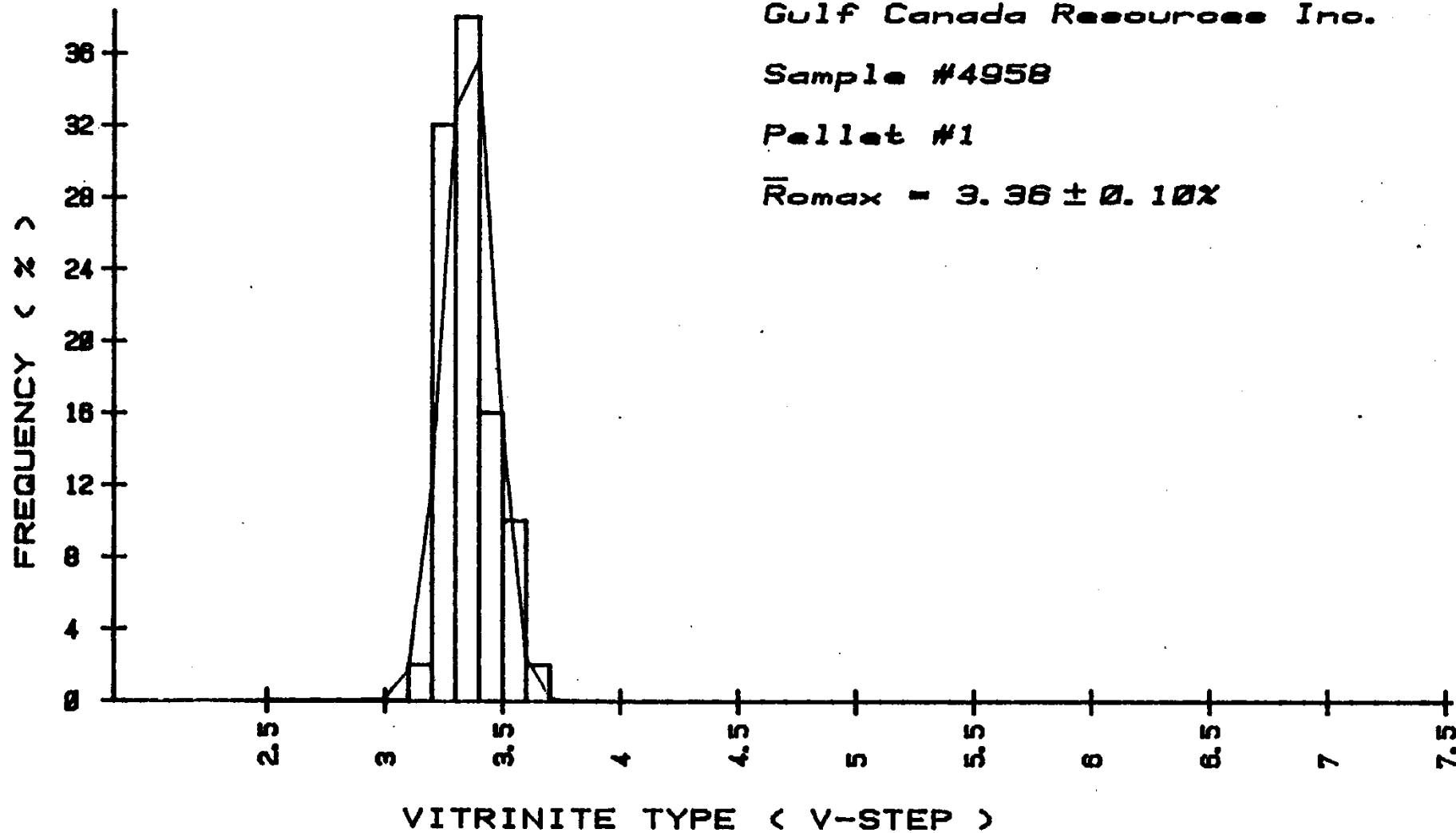
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4958

Pellet #1

$\bar{R}_{\text{omax}} = 3.36 \pm 0.10\%$



DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
44.06								
44.78			0.44	71	04959	↑	↑	↑
45.07			(0.18)	100	04960	↑	↑	↑
			0.68			17	2.21 / 0.12 2.33	2.21 / 0.12 2.33
46.62			(0.47)	68	04961	↓	↓	↓
			0.32					

GULF CANADA RESOURCES INC.		
<small>Coal Division</small>		
<small>CALGARY</small>	<small>ALBERTA</small>	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-003 SEAM J		
<small>PREPARED BY: C. L.</small>	<small>SCALE 1:40</small>	
<small>APPROVED BY: J. M. D.</small>	<small>DATE: NOV. '82 DRAWING No.</small>	

GULF CANADA RESOURCES INC. - COAL DIVISION

DLU 02782

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH02003 SEAM - J

SAMPLE ID - 4959

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	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

DENSITY

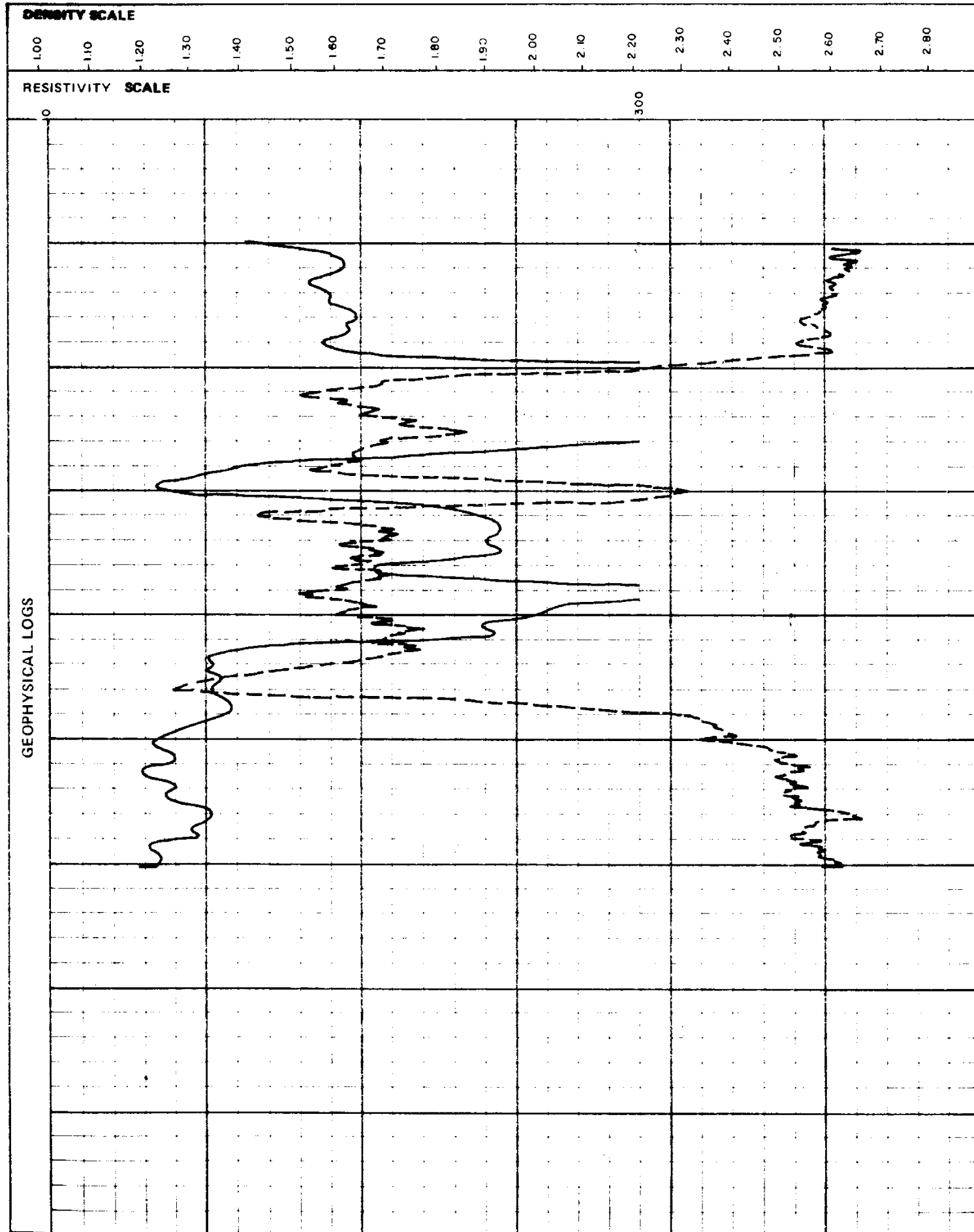
RESISTIVITY

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		
23456	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												
	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

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GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNHDDH82003 SEAM - J

SAMPLE ID - 4960

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOA1

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.
1.75	38.87	14.75	38.87	14.75	61.13	65.87	29.08	29.08
2.00	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

PAGE -

DATA SOURCE - KPNHCDDHB2003 SEAM - J

SAMPLE ID - 4961

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	84.20	15.27	84.20	15.27	15.80	45.61	27.93	27.93
2.00	15.80	45.81	100.00	20.10			15.83	26.02

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDHB2003

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 DDHB2003

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 DDHB2003

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 DDHB2003

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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1240.0	INITIAL TEMP.(C)	1150.0
SOFTENING TEMP.(C)	1270.0	SOFTENING TEMP.(C)	1185.0
HEMISPHERICAL TEMP.(C)	1280.0	HEMISPHERICAL TEMP.(C)	1200.0
FLUID TEMP.(C)	1295.0	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 DDHB2003

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 DDHB2003

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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCUDDHE2003 SEAM - J

SAMPLE ID - 17

WASHABILITY ID - WAI

FRACTION SIZE (MM)	ANALYSIS TYPE - FROTH		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 5.81 ASH % - 25.30	
	ELEMENTAL WT% ASH%		WT% ASH%		WT% ASH%		C.V. CUM.	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	26.58
60.00	2.05 50.05		87.75 16.10		12.25 78.31		14.68	26.26
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

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH0DDH82003 SEAM - 1

SAMPLE ID - 18

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

RELATIVE WEIGHT % - 75.60 ASH % - 36.23

FRACTION	SIZE (MM)	0.60 X 0.60		CUM. FLOATS		CUM. SINKS		C.V. (MJ/KG)	CUM. C.V.
		ELEMENTAL WT%	ASH%	WT%	ASH%	WT%	ASH%		
1.40		6.41	3.31	6.41	3.31	93.59	35.96	34.28	34.28
1.50		10.26	10.72	22.67	8.62	77.33	41.27	30.89	31.85
1.60		22.81	16.21	45.48	13.43	54.52	50.91	27.98	29.91
1.70		16.89	24.75	62.37	16.51	37.63	62.64	25.11	28.61
1.80		5.64	33.75	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	47.65	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	23.87			3.00	21.45

ANALYSIS TYPE - FLOAT

RELATIVE WEIGHT % - 15.26 ASH % - 36.19

FRACTION	SIZE (MM)	0.60 X 0.15		CUM. FLOATS		CUM. SINKS		C.V. (MJ/KG)	CUM. C.V.
		ELEMENTAL WT%	ASH%	WT%	ASH%	WT%	ASH%		
1.40		24.04	3.13	24.04	3.13	75.96	37.36	34.37	34.37
1.50		16.92	8.25	40.96	5.29	59.04	45.66	31.77	33.30
1.60		19.21	14.21	60.17	6.14	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	40.35	73.89	11.83	26.11	78.11	18.75	30.37
2.00		2.16	46.62	76.05	12.82	23.95	80.95	16.31	29.97
2.10		1.61	55.21	77.66	13.70	22.34	82.76	12.15	29.60
2.20		1.15	63.51	78.81	14.42	21.19	83.84	10.57	29.33
2.30		1.25	68.00	80.06	15.27	19.94	84.75	8.16	29.00
2.60		15.94	84.79	100.00	25.13			0.00	23.22

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDHB2003

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
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 DDHB2003

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)	---
SIDUAL MOISTURE (AD,EM)	0.75	SPECIFIC GRAVITY	1.44
HSH %	10.71	FSI	---
VOLATILE MATTER %	6.58	HGI	46.0
FIXED CARBON %	81.96	CO2 %	0.28

GROSS CALORIFIC VALLE (MJ/KG) 31.00
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDHB2003

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

INITIAL TEMP.(C) 1245.0
SOFTENING TEMP.(C) 1285.0
HEMISPHERICAL TEMP.(C) 1300.0
FLUID TEMP.(C) 1340.0

REDUCING ATMOSPHERE

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 DDHB2003

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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1240.0	INITIAL TEMP.(C)	1240.0
SOFTENING TEMP.(C)	1270.0	SOFTENING TEMP.(C)	1270.0
HEMISPHERICAL TEMP.(C)	1295.0	HEMISPHERICAL TEMP.(C)	1290.0
FLUID TEMP.(C)	1325.0	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 DDHB2003

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 DDHB2003

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	---
EQ 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	3.25
3	3.17	28	3.26
4	3.15	29	3.32
5	3.16	30	3.28
6	3.19	31	3.32
7	3.12	32	3.28
8	3.45	33	3.13
9	3.10	34	3.15
10	3.19	35	3.10
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	3.32	43	3.15
19	3.22	44	3.09
20	3.25	45	3.19
21	3.27	46	3.12
22	3.17	47	3.19
23	3.13	48	3.33
24	3.19	49	3.29
25	3.10	50	3.16

Gulf Canada Resources Inc.
Sample #4959-4961
Pellet #1

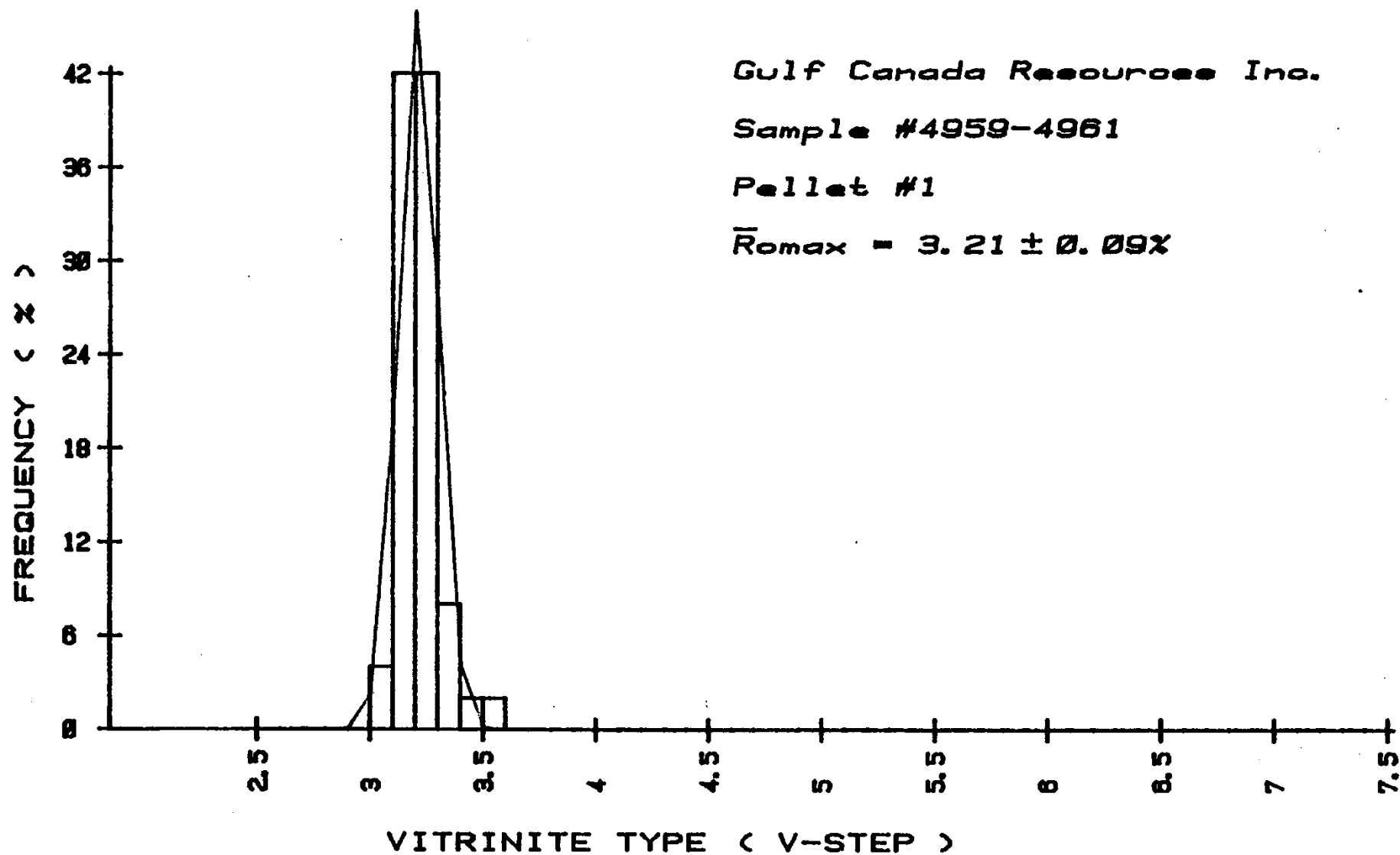
BASIC STATISTICS.

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.21
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION	2.58
VARIANCE	0.0074
STANDARD DEVIATION	0.0860
SKEWNESS	1.2762
KURTOSIS	5.5313

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



DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
94.14								
94.31			0.16	100	04962			
94.57		0.24		100	04963			
				0.67			↑ 18 ↓	↑ 3.21 / 0.71 3.92 ↓
	0.05			82	04964			
		0.33						
	0.04							
		0.60						
	0.03	0.04						
		(0.40)						
97.16		0.02	0.14					
97.69		0.47		100	04965			
		(0.10)						
			(0.28)		66	04966		
98.94			0.75					

GULF CANADA RESOURCES INC.		
<small>Coal Division</small>		
<small>CALGARY</small>	<small>ALBERTA</small>	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-003 SEAM I		
<small>PREPARED BY: C. L.</small>	<small>SCALE 1:40</small>	
<small>APPROVED BY: J. M. D.</small>	<small>DATE: NOV. '82</small>	<small>DRAWING No.</small>

DENSITY

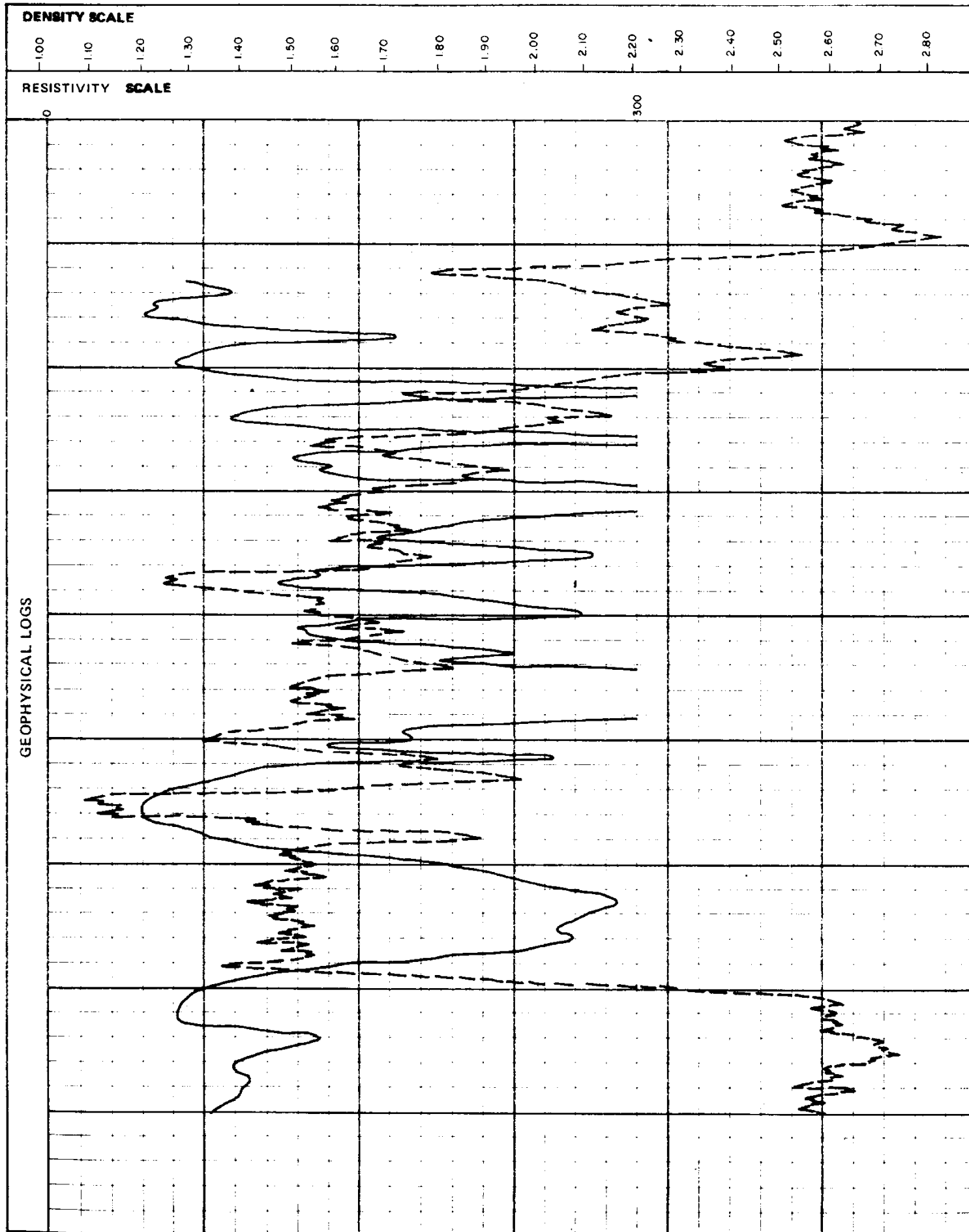
RESISTIVITY

DRILL NO. DDH - 82 - 003

SEAM

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		
	94.14			0.17			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)												
	97.16		0.02	0.15												
	97.69		0.53		100		04965									
			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

GEOPHYSICAL LOGS

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDDH82003 SEAM - 1

SAMPLE ID - 4962

WASHABILITY ID - WA1

ANALYSIS TYPE - FLDAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00				ASH % -	
	ELEMENTAL		COM. FLOATS		COM. SINKS		C.V.		COM.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70	64.72	11.79	64.72	11.79	35.28	49.80	30.45	30.45		
2.00	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 - KPNHCDU82003 SEAM - 1

SAMPLE ID - 4963

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

ACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
G.T.ME		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

DLC 02762

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82005 SEAM - I

SAMPLE ID - 4964

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	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

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DATA SOURCE - KPNHCUDDH2003 SEAM - 1

SAMPLE ID - 4965

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	18.85	6.20	18.85	93.80	75.87	27.02	27.02		
2.00	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

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DATA SOURCE - KPNHCBDR62003 SFAM - 1

SAMPLE ID - 4960

WASHABILITY ID - WA1

ANALYSIS TYPE - FLUAT

FRACTION	SIZE (MM)	ELEMENTAL		CUM. FLUATS		CUM. SINKS		RELATIVE WEIGHT % - 100.00		ASH % -	
		WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V.	CUM.	C.V.	CUM.
S.G.TME								(MJ/KG)			
1.70	9.53 X 0.00	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							
SPLIT SAMPLE ID	HD1							
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
RESIDUAL MOISTURE %<AD,EM>		1.50				SPECIFIC GRAVITY		1.65
ASH %		34.27				FSI		---
VOLATILE MATTER %		7.82				HGI		61.0
FIXED CARBON %		56.41				CO2 %		1.92
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							
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)		ASTM						
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS	
MM (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							
SPLIT SAMPLE ID	UL1							
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)		ASTM						

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 DDHB2003

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) 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 DDHB2003

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 DDHB2003

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 - KPNHCDDR82003 SEAM - 1

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.C. TIME	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

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH2003 SEAM - H

SAMPLE ID - 19

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	10.00 X 0.60		0.60		RELATIVE WEIGHT % - 78.93 ASH % - 39.70		C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
S.G. TIME								
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	31.00	32.79
1.60	18.08	17.37	33.73	12.62	66.27	51.32	28.42	30.45
1.70	15.09	28.70	48.82	17.61	51.16	57.97	23.62	28.34
1.80	8.28	30.88	57.10	20.40	42.90	62.05	19.89	27.11
1.90	0.32	43.50	63.42	22.70	36.58	65.25	17.40	26.15
2.00	5.32	47.05	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	63.01	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		0.15		RELATIVE WEIGHT % - 14.45 ASH % - 32.26		C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
S.G. TIME								
1.40	22.44	2.95	22.44	2.95	77.56	39.89	34.38	34.38
1.50	23.11	8.43	45.55	5.73	54.45	52.61	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	67.69	24.56	31.07
1.80	5.54	33.78	67.79	11.07	32.21	72.61	21.23	30.27
1.90	2.57	41.34	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	31.30			0.00	21.94

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 SAMPLE PRODUCT PROJ KPN BLK HC DS DDHB2003

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 DDHB2003

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 DDHB2003

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	---
EQ 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) ---

Gulf Canada Resources Inc.
Sample #4964-4966
Pellet #1

OBSERVATION
NUMBER

ROMAX
VALUE

OBSERVATION
NUMBER

ROMAX
VALUE

1 3.27
2 3.27
3 3.24
4 3.47
5 3.34
6 3.27
7 3.20
8 3.16
9 3.23
10 3.16
11 3.47
12 3.45
13 3.26
14 3.03
15 3.12
16 3.35
17 3.11
18 3.28
19 3.27
20 3.27
21 3.23
22 3.19
23 3.11
24 3.35
25 3.26

26 3.39
27 3.64
28 3.18
29 3.38
30 3.19
31 3.34
32 3.32
33 3.23
34 3.28
35 3.28
36 3.43
37 3.18
38 3.29
39 3.40
40 3.29
41 3.16
42 3.39
43 3.30
44 3.27
45 3.30
46 3.28
47 3.23
48 3.34
49 3.18
50 3.32

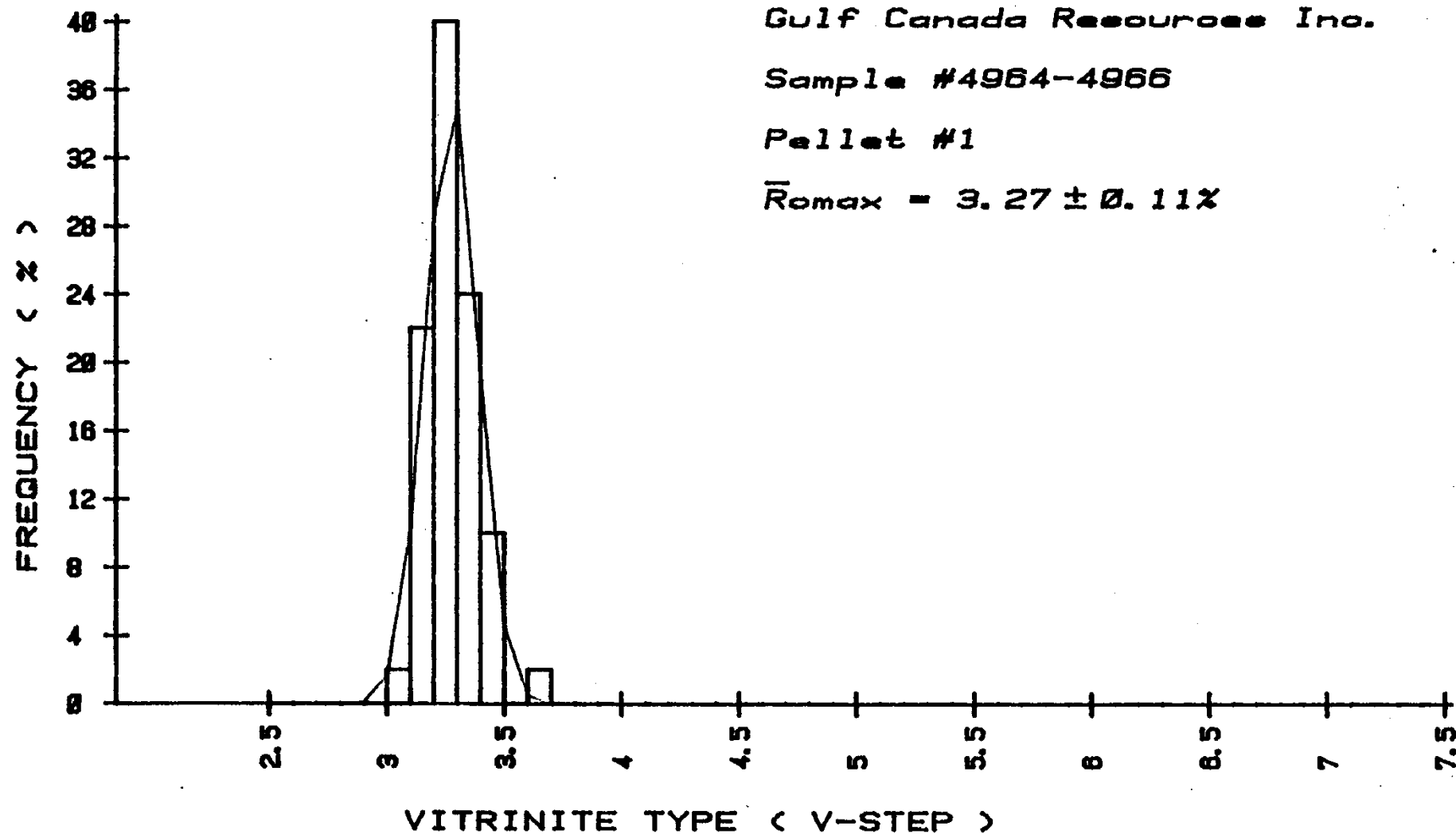
BASIC STATISTICS

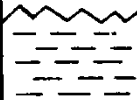





NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.27
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	3.39
VARIANCE	0.0123
STANDARD DEVIATION	0.1110
SKEWNESS	0.5967
KURTOSIS	4.1553


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



DEPTH	LOG	ROCK	COAL	NUMBER	COMPOS	TOTAL	TOTAL
127.24							
			0.32 (0.10) 0.46	87	04967	↑	↑
128.12		0.05 0.02 0.03	0.04 0.06				
		0.02 0.03	0.29 0.32 0.45	100	04968	19 ↑	2.23/0.34 2.57 ↑
129.43		0.19	0.19	100	04969	↓	↓
129.81							

GULF CANADA RESOURCES INC.		
<small>Coal Division</small>		
<small>CALGARY</small>	<small>ALBERTA</small>	
<p>MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH- 82- 003 SEAM H</p>		
<small>PREPARED BY: C. L.</small>	<small>SCALE 1: 40</small>	
<small>APPROVED BY: J. M. D.</small>	<small>DATE: NOV. '82 DRAWING No.</small>	

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

P-267 (12-80)

Apparent Thickness

DENSITY

RESISTIVITY

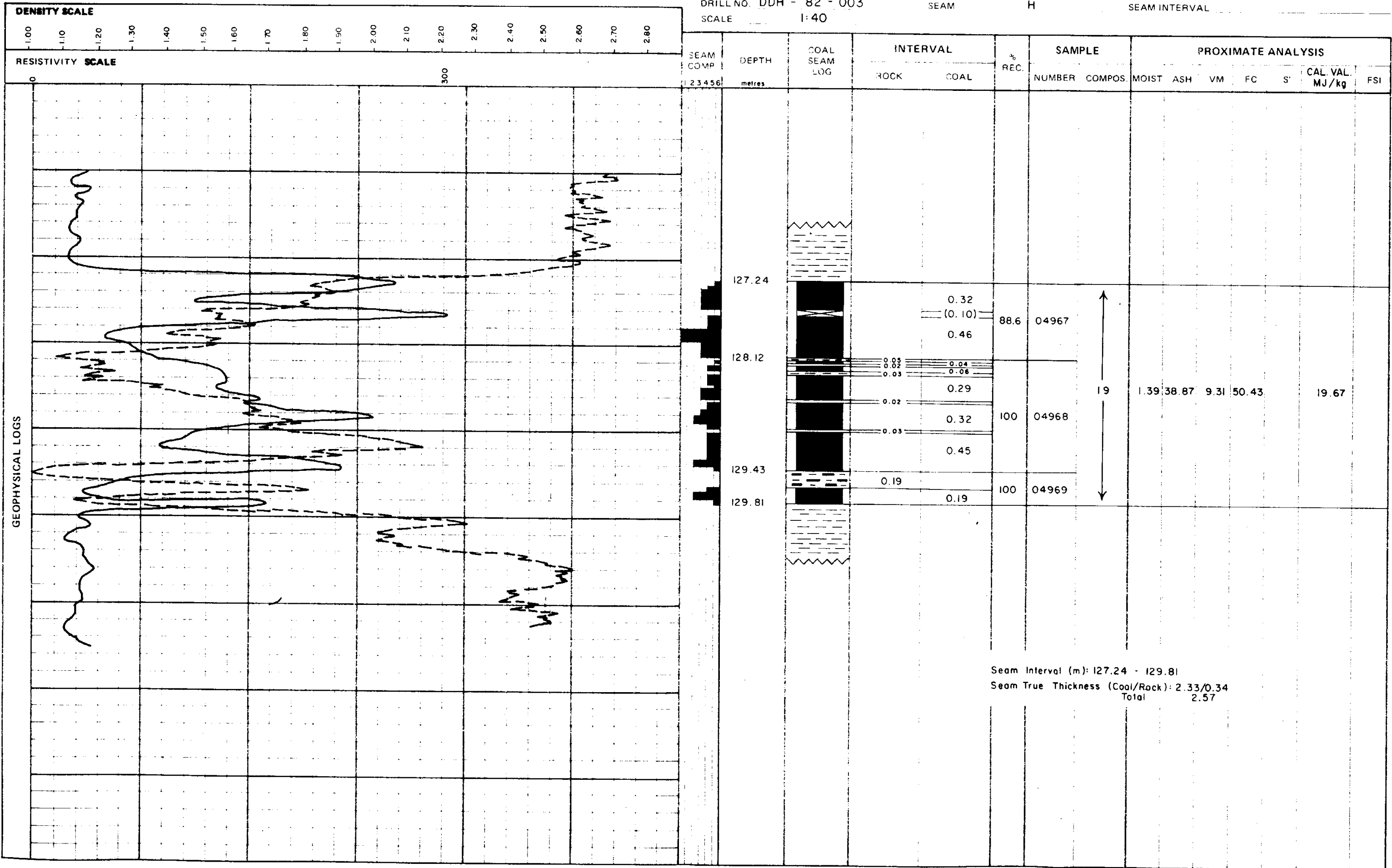
DRILL NO. DDH - 82 - 003

SEAM

H

SEAM INTERVAL

SCALE 1:40



GEOPHYSICAL LOGS

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDLH82003 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.T.M.E		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		65.89	13.49	65.89	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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDHE2005 SEAM - H

SAMPLE ID - 4968

WASHABILITY ID - WA1

FRACTION SIZE (MM)	ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.	C.V.	
S.G. INCL	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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDH82005 SEAM - H

SAMPLE ID - 4969

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.TML	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
2.00	65.97	64.57	100.00	47.03			9.97	16.85

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC. 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - H

SAMPLE ID - 19

WASHABILITY ID - WAI

FRACTION SIZE (MM)	ANALYSIS TYPE - FROTH				RELATIVE WEIGHT % - 0.02 ASH % - 35.04			
	0.15 X		0.00		CUM. SINKS		C.V.	CUM.
S.G. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00	75.32	19.80	75.32	19.80	24.68	76.00	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

GULF CANADA RESOURCES INC. - COAL DIVISION

DLC 02782

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH00DH62003 SEAM - G

SAMPLE ID - 20

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	10.00 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 86.12 ASH % - 32.66	
	ELEMENTAL WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
S.G. TIME								
1.40	6.16	3.08	6.16	3.08	93.84	34.88	34.82	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	26.62
1.80	6.63	39.44	71.94	19.76	28.06	66.67	19.23	27.73
1.90	3.21	42.09	75.15	20.74	24.85	69.76	17.62	27.27
2.00	2.32	47.69	77.47	21.55	22.53	72.62	14.15	26.88
2.10	1.61	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)	10.00 X 0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 9.54 ASH % - 31.34	
	ELEMENTAL WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
S.G. TIME								
1.40	16.73	6.96	16.73	6.96	31.27	44.62	31.60	31.60
1.50	23.61	11.36	42.54	10.29	57.46	56.41	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	72.62	24.37	29.75
1.80	4.75	35.39	62.81	15.00	37.19	76.68	20.52	29.05
1.90	1.60	44.71	64.61	15.83	35.39	78.30	16.70	28.71
2.00	1.41	49.31	66.02	16.94	33.98	79.31	14.79	28.41
2.10	2.03	54.04	68.05	17.72	31.95	81.00	10.39	27.67
2.20	2.39	63.76	70.44	19.28	29.56	82.39	9.76	27.20
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	27.94			0.00	19.30

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	ROMAX VALUE
1	3.34
2	3.49
3	3.39
4	3.31
5	3.21
6	3.19
7	3.49
8	3.23
9	3.31
10	3.13
11	3.25
12	3.40
13	3.28
14	3.22
15	3.27
16	3.26
17	3.23
18	3.27
19	3.15
20	3.23
21	3.26
22	3.35
23	3.33
24	3.36
25	3.22

OBSERVATION NUMBER	ROMAX VALUE
26	3.37
27	3.36
28	3.43
29	3.44
30	3.29
31	3.22
32	3.33
33	3.13
34	3.28
35	3.18
36	3.35
37	3.23
38	3.28
39	3.26
40	3.49
41	3.11
42	3.28
43	3.16
44	3.21
45	3.44
46	3.17
47	3.22
48	3.19
49	3.19
50	3.36

Gulf Canada Resources Inc.
Sample #4967-4969
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.29
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION	3.03
VARIANCE	0.0100
STANDARD DEVIATION	0.0999
SKEWNESS	0.3868
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

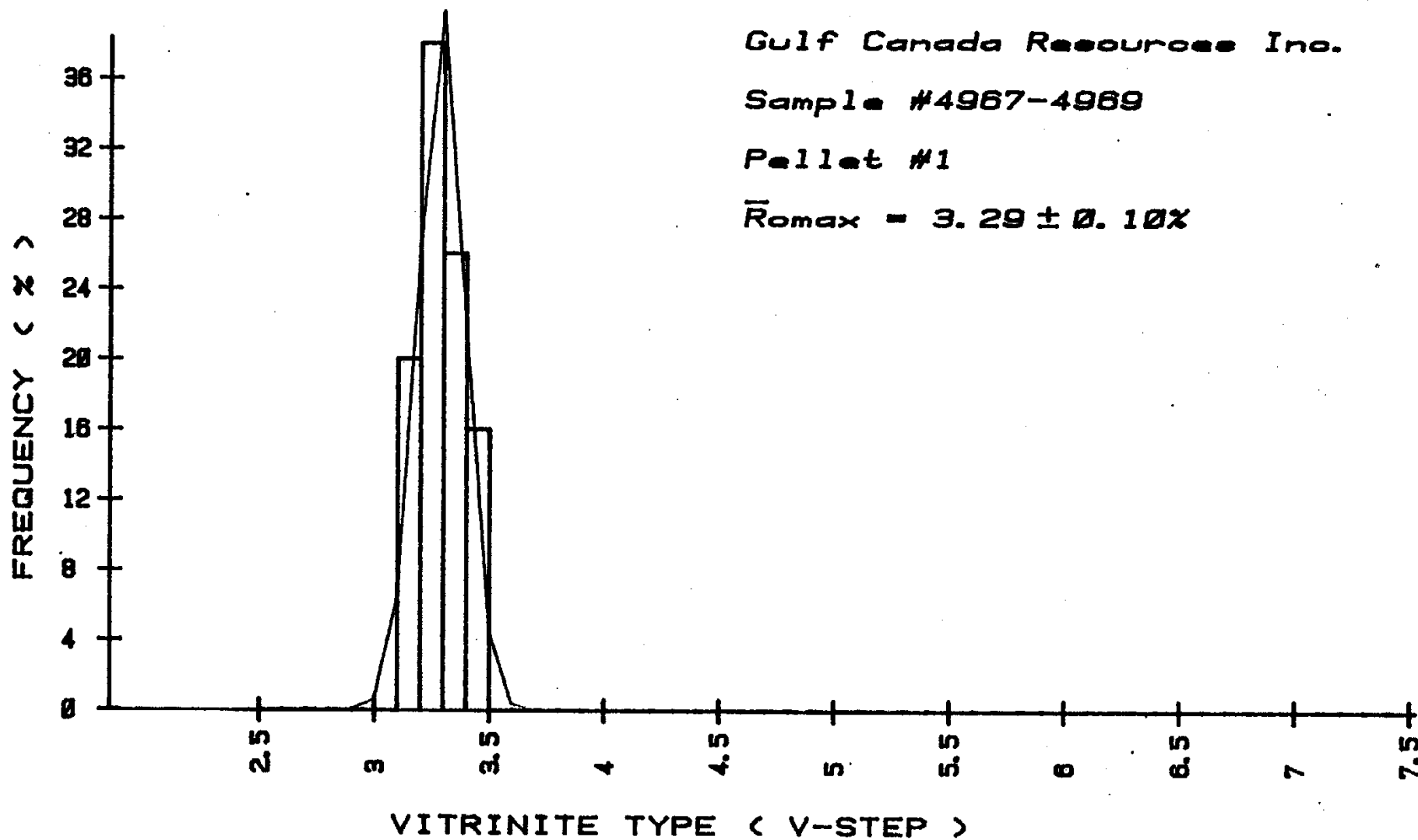
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4967-4969

Pellet #1

$\bar{R}_{\text{omax}} = 3.29 \pm 0.10\%$



GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - G

SAMPLE ID - 4970

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. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
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

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - G

SAMPLE ID - 4971

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.TML	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.70	4.28	18.25	4.28	18.25	95.72	73.70	26.66	26.66		
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

PAGE -

DATA SOURCE - KPNHCCDHE2003 SEAM - G

SAMPLE ID - 4972

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	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 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

INITIAL TEMP.(C) 1240.0
SOFTENING TEMP.(C) 1280.0
HEMISPHERICAL TEMP.(C) 1305.0
FLUID TEMP.(C) 1330.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1200.0
SOFTENING TEMP.(C) 1260.0
HEMISPHERICAL TEMP.(C) 1300.0
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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCUUHE2003 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.
S.G. TIME	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	65.00	79.46	24.00	20.54	81.90	7.05	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	83.60	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

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDNB2003 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		C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
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	32.61
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	70.61	23.07	29.87
1.80	3.76	37.12	42.51	16.00	57.49	73.61	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	46.78			3.31	15.78

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	0.60 X		0.15		RELATIVE WEIGHT % - 8.65 ASH % - 39.78		C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
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	56.95	31.36	34.01
1.60	6.09	17.79	56.42	5.26	43.58	64.68	27.71	33.53
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	2.00	44.96	68.78	10.42	31.22	76.83	17.34	31.18
2.00	2.70	51.55	71.48	11.98	28.52	79.23	14.89	30.56
2.10	1.66	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	82.66	9.48	29.40
2.60	24.04	82.80	100.00	31.16			0.60	22.33

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDH82003

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 DDH82003

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 DDH82003

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 DDHB2003

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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1210.0	INITIAL TEMP.(C)	1190.0
SOFTENING TEMP.(C)	1390.0	SOFTENING TEMP.(C)	1370.0
HEMISPHERICAL TEMP.(C)	1415.0	HEMISPHERICAL TEMP.(C)	1400.0
FLUID TEMP.(C)	1450.0	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 DDHB2003

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 DDHB2003

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

Sample #4970-4972
Pellet #1

OBSERVATION NUMBER	ROMAX VALUE
1	3.18
2	3.01
3	3.09
4	3.60
5	3.25
6	3.35
7	3.51
8	3.58
9	3.18
10	3.47
11	3.19
12	3.34
13	3.49
14	3.53
15	3.23
16	3.20
17	3.14
18	3.11
19	3.19
20	3.22
21	3.25
22	3.18
23	3.33
24	3.46
25	3.24

OBSERVATION NUMBER	ROMAX VALUE
26	3.29
27	3.22
28	3.21
29	3.34
30	3.29
31	3.13
32	3.30
33	3.21
34	3.31
35	3.44
36	3.34
37	3.25
38	3.32
39	3.25
40	3.26
41	3.29
42	3.26
43	3.25
44	3.31
45	3.37
46	3.33
47	3.47
48	3.32
49	3.26
50	3.35

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
SKEWNESS	0.3024
KURTOSIS	2.6670

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
11	3.00	2	4.00
12	3.10	8	16.00
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

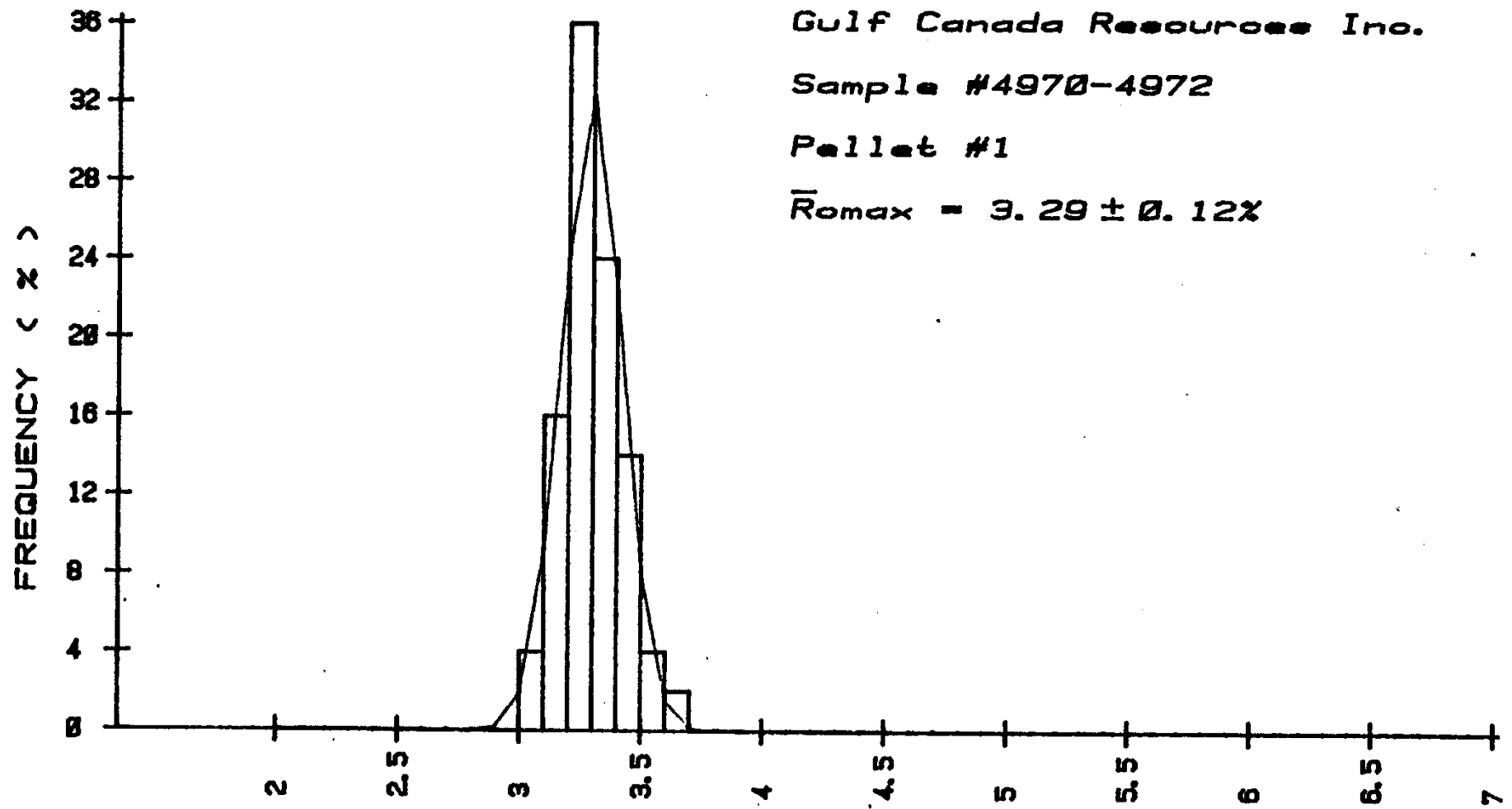
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4970-4972

Pellet #1

$\bar{R}_{\text{max}} = 3.29 \pm 0.12\%$



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

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDHE2003 SEAM - G

SAMPLE ID - 4973

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	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

DEC 02/02

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCU02H2003 SEAM - G

SAMPLE ID - 4974

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	ELEMENTAL				RELATIVE WEIGHT % - 100.00		ASH % -	
	WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.75	60.31	13.30	60.31	13.30	39.69	50.52	30.28	30.28
2.00	39.69	50.52	100.00	30.45			12.34	23.16

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDHB2003

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 DDHB2003

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 DDHB2003

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 - KPNHCCCHB2003 SEAM - C

SAMPLE ID - 21

WASHABILITY ID - WAI

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 3.31 ASH % - 47.33		CUM. C.V.	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
S.G.TME							(MJ/KG)	
30.00	53.62	22.66	53.62	22.66	46.36	71.18	26.52	26.52
45.00	13.00	50.63	66.62	26.13	33.38	79.18	13.63	24.00
60.00	3.70	67.47	70.32	30.20	29.66	80.64	6.72	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

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNHCDDHB2003 SEAM - F

SAMPLE ID - 22

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT % - 79.34		ASH % - 39.44	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G. TIME	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	20.49	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	36.00	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		RELATIVE WEIGHT % - 13.86		ASH % - 31.94	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G. TIME	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	8.61	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	23.20	59.63	11.36	40.37	59.69	25.97	30.89
1.80	8.60	36.12	68.23	14.46	31.77	66.07	20.55	29.59
1.90	3.53	43.24	71.76	15.90	28.24	68.92	17.54	29.00
2.00	3.46	48.37	75.22	17.41	24.76	71.72	14.03	28.31
2.10	2.64	53.95	77.86	18.64	22.14	73.69	12.42	27.77
2.20	1.82	60.70	79.68	19.00	20.32	75.07	9.80	27.30
2.30	1.28	63.00	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

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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1210.0	INITIAL TEMP.(C)	1210.0
SOFTENING TEMP.(C)	1335.0	SOFTENING TEMP.(C)	1325.0
HEMISPHERICAL TEMP.(C)	1380.0	HEMISPHERICAL TEMP.(C)	1360.0
FLUID TEMP.(C)	1440.0	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 DDHB2003

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 DDHB2003

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 DDHB2003

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

Gulf Canada Resources Inc.
Sample #4973-4974
Pellet #1

OBSERVATION
NUMBER

ROMAX
VALUE

OBSERVATION
NUMBER

ROMAX
VALUE

1 3.32
2 3.34
3 3.38
4 3.29
5 3.41
6 3.35
7 3.29
8 3.27
9 3.40
10 3.37
11 3.38
12 3.31
13 3.31
14 3.32
15 3.33
16 3.43
17 3.37
18 3.42
19 3.40
20 3.43
21 3.32
22 3.26
23 3.37
24 3.23
25 3.30

26 3.31
27 3.39
28 3.28
29 3.35
30 3.36
31 3.28
32 3.24
33 3.28
34 3.31
35 3.35
36 3.22
37 3.32
38 3.30
39 3.33
40 3.28
41 3.32
42 3.45
43 3.30
44 3.34
45 3.37
46 3.26
47 3.26
48 3.32
49 3.29
50 3.31

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	0.0065
STANDARD DEVIATION	0.0804
SKEWNESS	1.1476
KURTOSIS	4.8610

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
8	3.20	18	36.00
9	3.30	23	46.00
10	3.40	7	14.00
11	3.50	1	2.00
12	3.60	1	2.00

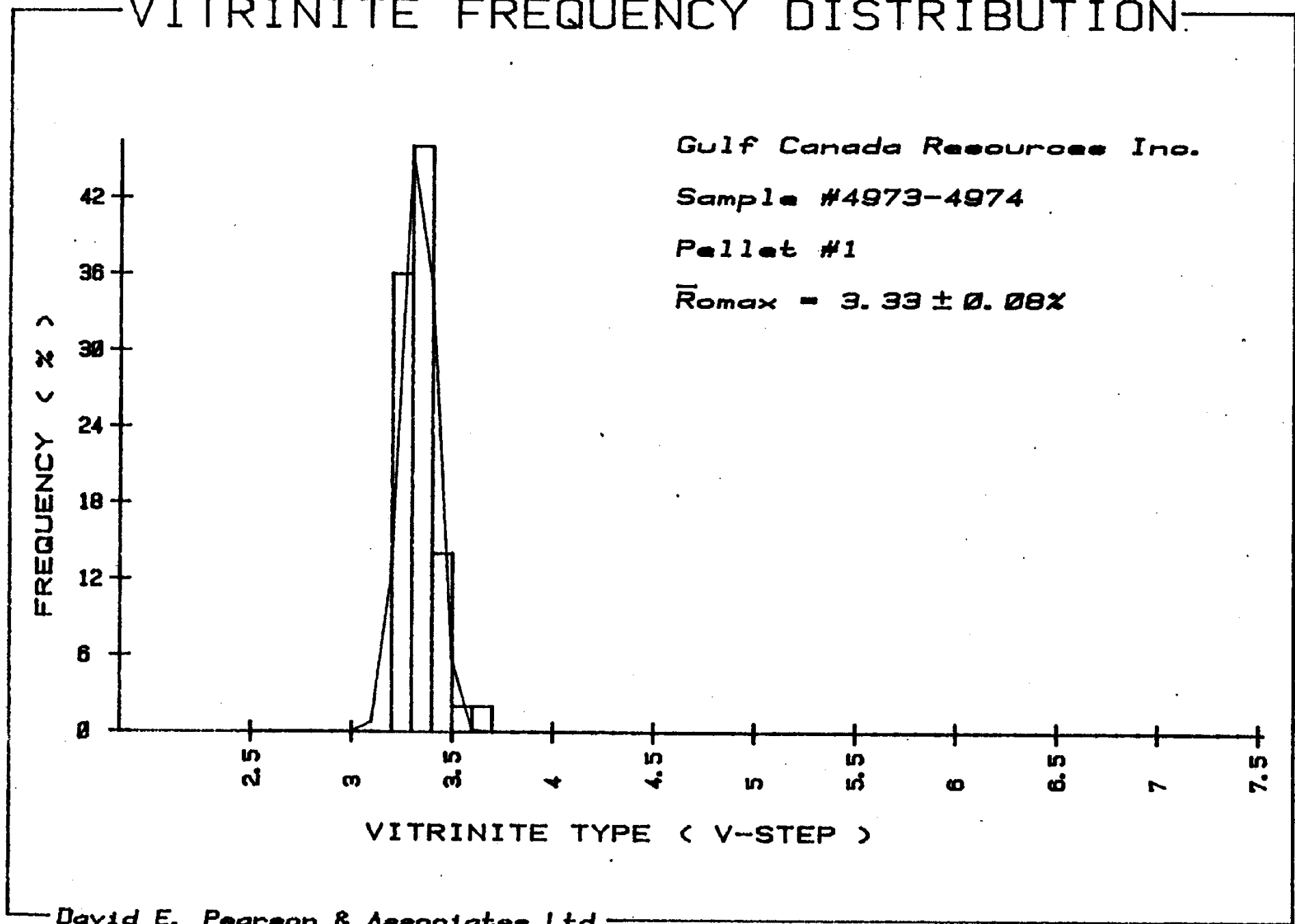
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4973-4974

Pellet #1

$\bar{R}_{\text{omax}} = 3.33 \pm 0.08\%$

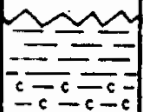


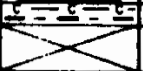





GULF CANADA RESOURCES INC.

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

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
182.38								
183.07			0.69	100	04975	↑	↑	↑
183.70	 	0.04 0.04 0.12 (0.25)	0.09 0.11	60	04976	22	1.70/0.47 2.17	1.70/0.47 2.17
184.56	 		0.85	100	04977	↓	↓	↓

GULF CANADA RESOURCES INC.		
Calgary	Coal Division	
ALBERTA		
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-003 SEAM F		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH62003 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.T.M.F.	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
2.80	37.59	55.24	100.00	29.00			10.41	22.82

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/02

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH00082003 SEAM - F

SAMPLE ID - 4970

WASHABILITY ID - WA1

ANALYSIS TYPE - FLDAT

FRACTION	SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00 ASH % -			
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.	TMC	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	67.69	100.00	60.15			5.40	13.35

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHDDUHB2003 SEAM - F

SAMPLE ID - 4977

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	WT%	ASH%
S.G. TIME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	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
2.00	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 SULPHUR % 0.39
 TOTAL MOISTURE % --- PHOSPHOROUS % ---
 EQUILIBRIUM MOISTURE % --- CHLORINE (PPM) 00302
 RESIDUAL MOISTURE %(AD,EM) 1.45 SPECIFIC GRAVITY 1.72
 FSI ---
 ASH % 37.18 HGI 48.0
 VOLATILE MATTER % 10.56 CO2 % 4.95
 FIXED CARBON % 50.81
 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 (MJ/KG)	RM	VM	TS
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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH00DH02003 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	
	ELLMENTAL		CUM. FLOATS		CUM. SINKS		CUM.	
S.G. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00	71.05	25.84	71.05	25.84	28.95	57.61	25.13	25.13
45.00	8.50	39.70	79.61	27.33	20.39	65.13	19.84	24.56
60.00	6.00	60.31	85.67	29.60	14.33	67.17	11.61	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	68.62	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 DDHB2003

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 DDHB2003

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)	---
		SPECIFIC GRAVITY	1.44
SIDUAL MOISTURE (AD,EM)	0.69	FSI	---
ASH %	10.90	HGI	35.0
VOLATILE MATTER %	6.50	CO2 %	0.37
FIXED CARBON %	81.91		

GROSS CALORIFIC VALUE (MJ/KG) 30.84
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDHB2003

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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1200.0	INITIAL TEMP.(C)	1180.0
SOFTENING TEMP.(C)	1320.0	SOFTENING TEMP.(C)	1320.0
HEMISPHERICAL TEMP.(C)	1355.0	HEMISPHERICAL TEMP.(C)	1355.0
FLUID TEMP.(C)	1400.0	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	---
50 MOISTURE %	---	CHLORINE (PPM)	---
		SPG	---
INHERENT MOISTURE <AD,EM>	1.08	FSI	---
ASH %	24.53	HGI	---
FIXED CARBON %	67.16	CO2 %	---
VOLITILE MATTER %	7.23		

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

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 3.28
12 3.10
13 3.22
14 3.25
15 3.23
16 3.31
17 3.13
18 3.30
19 3.14
20 3.11
21 3.13
22 3.24
23 3.02
24 3.12
25 3.37

26 3.21
27 3.43
28 3.23
29 3.10
30 3.17
31 3.13
32 2.94
33 3.10
34 3.24
35 3.32
36 3.47
37 3.25
38 3.36
39 3.17
40 3.22
41 3.24
42 3.29
43 3.15
44 3.15
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

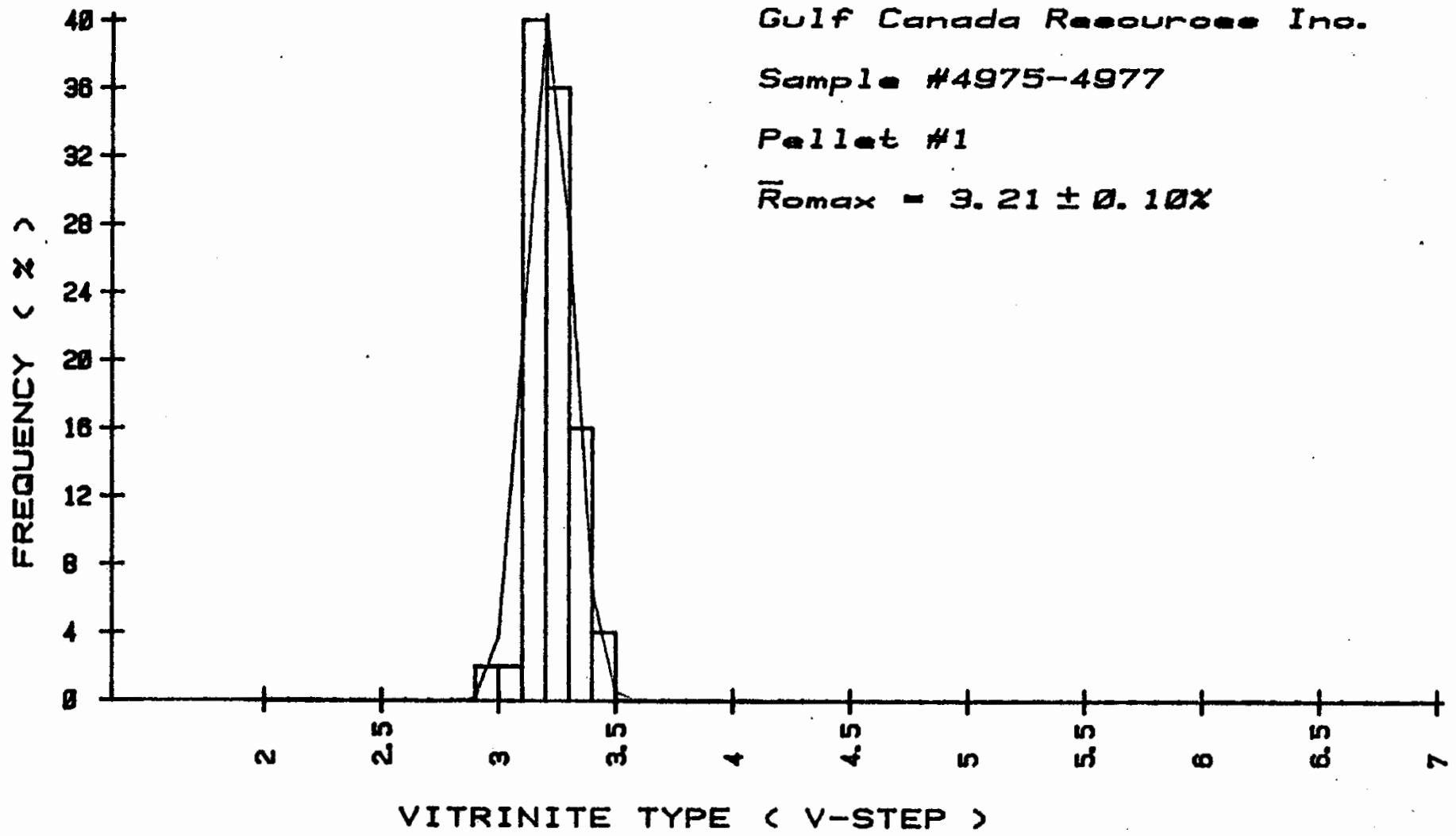
NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.21
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION	3.04
VARIANCE	0.0096
STANDARD DEVIATION	0.0978
SKEWNESS	0.0769
KURTOSIS	3.7234

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	18	36.00
14	3.30	8	16.00
15	3.40	2	4.00

VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.
Sample #4975-4977
Pellet #1
 $\bar{R}_{\text{omax}} = 3.21 \pm 0.10\%$

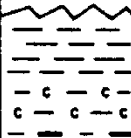

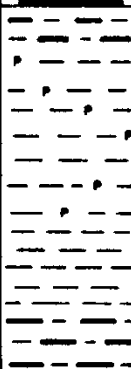




GULF CANADA RESOURCES INC.

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

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
205.28								
206.14			0.24 (0.88) 0.54	91	04978	23	0.86/0.00 0.86	0.86/0.00 0.86
208.17		2.01						
209.45			0.02 0.60 (0.17) 0.09	87	04979	24	1.16/0.12 1.28	1.16/0.12 1.28

GULF CANADA RESOURCES INC.		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-003 SEAM E		
PREPARED BY: C. L.		SCALE 1 : 40
APPROVED BY: J. M. D.		DATE: NOV '82 DRAWING No.

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH82003 SEAM - E UPPER

SAMPLE ID - 4976

WASHABILITY ID - WAI

FRACTION	SIZE (MM)		ANALYSIS TYPE - FLOAT		RELATIVE WEIGHT % - 100.00		ASH % -	
	9.53 X	0.00	ELEMENTAL		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	60.67	13.64	60.67	13.64	39.33	60.28	29.36	29.36
2.00	39.33	60.28	100.00	31.98			6.21	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 SULPHUR %	0.41
TOTAL MOISTURE %		---					PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %		---					CHLORINE (PPM)	00664
							SPECIFIC GRAVITY	1.68
RESIDUAL MOISTURE % (AD,EM)	1.37						FSI	---
ASH %	33.87						HGI	47.0
VOLATILE MATTER %	10.94						CO2 %	5.75
FIXED CARBON %	53.82							
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 (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	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	%	1.37
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

INITIAL TEMP.(C) 1205.0
 SOFTENING TEMP.(C) 1225.0
 HEMISPHERICAL TEMP.(C) 1235.0
 FLUID TEMP.(C) 1255.0

REDUCING ATMOSPHERE

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

DEC 02/82

WASHABILITY REPORT - 1

PAGE -

DATA SOURCE - KPNH00DHE2003 SEAM - E UPPER

SAMPLE ID - 23

WASHABILITY ID - WAI

FRACTION SIZE (MM)	ANALYSIS TYPE - FROTH				RELATIVE WEIGHT % - 7.88 ASH % - 31.78			
	0.15 X		0.00		CUM. SINKS		C.V.	CUM.
S.G.TRE	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	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

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH2005 SEAM - E UPPER

SAMPLE ID - 23

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT % - 76.78		ASH % - 35.60	
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.40	8.73	4.53	8.73	4.53	91.27	37.94	33.77	33.77
1.50	17.67	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	30.07	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	52.00	67.55	19.67	32.45	66.58	12.45	27.30
2.20	3.55	59.29	71.10	21.64	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	
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. 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	17.68	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	12.72	15.99	76.94	13.07	30.27
2.20	1.18	59.43	85.19	12.80	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	13.62	79.28	100.00	22.87			0.00	25.64

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS DDHB2003

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 DDHB2003

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)	---
SIDUAL 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 DDHB2003

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 DDHB2003

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

INITIAL TEMP.(C) 1150.0
SOFTENING TEMP.(C) 1425.0
HEMISPHERICAL TEMP.(C) 1445.0
FLUID TEMP.(C) 1485.0

REDUCING ATMOSPHERE

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 DDHB2003

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 DDHB2003

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 DDHB2003

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 DDHB2003

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 DDHB2003

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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1240.0	INITIAL TEMP.(C)	1235.0
SOFTENING TEMP.(C)	1290.0	SOFTENING TEMP.(C)	1285.0
HEMISPHERICAL TEMP.(C)	1310.0	HEMISPHERICAL TEMP.(C)	1300.0
FLUID TEMP.(C)	1345.0	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 DDH82003

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 DDH82003

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	---
EQ 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
1	3.37
2	3.45
3	3.64
4	3.50
5	3.63
6	3.30
7	3.46
8	3.40
9	3.23
10	3.39
11	3.31
12	3.23
13	3.46
14	3.53
15	3.56
16	3.55
17	3.56
18	3.44
19	3.46
20	3.41
21	3.46
22	3.37
23	3.28
24	3.47
25	3.35

OBSERVATION NUMBER	ROMAX VALUE
26	3.56
27	3.63
28	3.29
29	3.39
30	3.29
31	3.41
32	3.40
33	3.59
34	3.33
35	3.25
36	3.28
37	3.44
38	3.44
39	3.17
40	3.44
41	3.37
42	3.18
43	3.41
44	3.26
45	3.64
46	3.35
47	3.31
48	3.49
49	3.57
50	3.37

Gulf Canada Resources Inc.
Sample #4978
Pellet #1

BASIC STATISTICS

NUMBER OF OBSERVATIONS	50
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE	3.42
STANDARD ERROR OF THE MEAN	0.02
COEFFICIENT OF VARIATION	3.26
VARIANCE	0.0124
STANDARD DEVIATION	0.1112
SKEWNESS	0.3408
KURTOSIS	2.0992

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

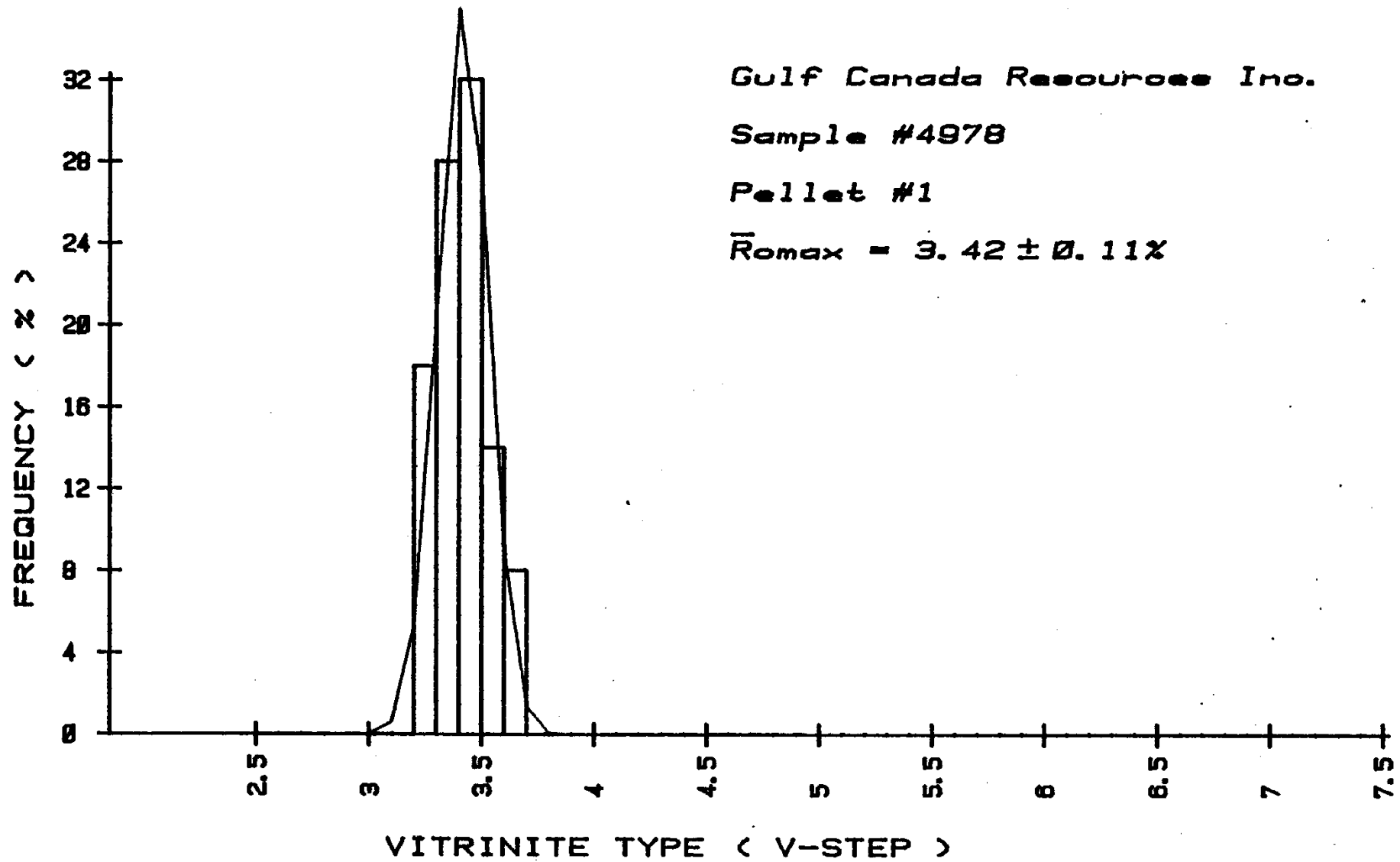
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4978

Pellet #1

$\bar{R}_{\text{max}} = 3.42 \pm 0.11\%$



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

DEC 02/82

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.	CUM.
S.G. TIME	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 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

COLF CANADA RESOURCES INC. - CUAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDE2003 SEAM - E LOWER

SAMPLE ID - 24

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM)	10.00 X 0.00		RELATIVE WEIGHT % - 83.16 ASH % - 25.00		C.V.	CUM.	
		ELEMENTAL	CUM. FLOATS	SINKS	C.V.			
S.G. TIME	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	57.26	12.84	27.29
2.20	2.83	46.81	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		C.V.	CUM.	
		ELEMENTAL	CUM. FLOATS	SINKS	C.V.			
S.G. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	49.51	2.56	49.51	2.56	50.49	29.86	34.45	34.45
1.50	20.38	8.96	69.89	4.42	30.11	44.05	31.68	33.70
1.60	8.61	17.95	78.50	5.91	21.50	54.50	27.93	33.07
1.70	2.77	26.90	81.27	6.59	18.73	58.73	24.54	32.78
1.80	2.87	33.39	84.14	7.51	15.86	63.51	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	67.32	16.16	31.91
2.10	1.22	49.36	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	26.05

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDHE2003 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. TIME	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	37.52	86.79	14.89	13.21	78.66	20.65	29.65
60.00	1.50	62.69	88.35	15.73	11.65	81.02	9.43	29.30
300.00	11.65	61.02	100.00	23.34			0.00	25.88

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK HC DS IDHS2003

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 IDHS2003

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)	---
SIDUAL 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 IDHS2003

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 DDHB2003

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 DDHB2003

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 DDHB2003

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

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDHB2003

SAMPLE ID 24
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) 1195.0
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) 1210.0
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 HC DS DDHB2003

SAMPLE ID 24
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 09/12/82

SILICON DIOXIDE %	(SI02)	39.20
ALUMINIUM OXIDE %	(AL2O3)	14.83
FERRIC OXIDE %	(FE2O3)	13.76
TITANIUM DIOXIDE %	(TI02)	0.63
PHOSPHOROUS PENTOXIDE %	(P2O5)	2.18
CALCIUM OXIDE %	(CAO)	13.68
MAGNESIUM OXIDE %	(MGO)	5.41
SULPHUR TRIOXIDE %	(SO3)	4.16
SODIUM OXIDE %	(NA2O)	0.84
POTASSIUM OXIDE %	(K2O)	0.75

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDHB2003

SAMPLE ID 24
SAMPLE PRODUCT ID SP4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 25/11/82

PYRITE	%	13.00
SULPHATE	%	2.00
ORGANIC	%	85.00

TOTAL 100.00

Vitrinite Reflectance Data For
 Gulf Canada Resources Inc.
 Sample #4979
 Pellet #1

OBSERVATION
 NUMBER

ROMAX
 VALUE

OBSERVATION
 NUMBER

ROMAX
 VALUE

1 3.39
 2 3.36
 3 3.56
 4 3.35
 5 3.44
 6 3.32
 7 3.42
 8 3.56
 9 3.43
 10 3.36
 11 3.34
 12 3.29
 13 3.49
 14 3.45
 15 3.58
 16 3.34
 17 3.33
 18 3.58
 19 3.48
 20 3.48
 21 3.59
 22 3.56
 23 3.55
 24 3.52
 25 3.50

26 3.37
 27 3.40
 28 3.60
 29 3.60
 30 3.48
 31 3.67
 32 3.47
 33 3.38
 34 3.45
 35 3.37
 36 3.48
 37 3.24
 38 3.52
 39 3.40
 40 3.50
 41 3.36
 42 3.52
 43 3.44
 44 3.53
 45 3.60
 46 3.52
 47 3.55
 48 3.42
 49 3.59
 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

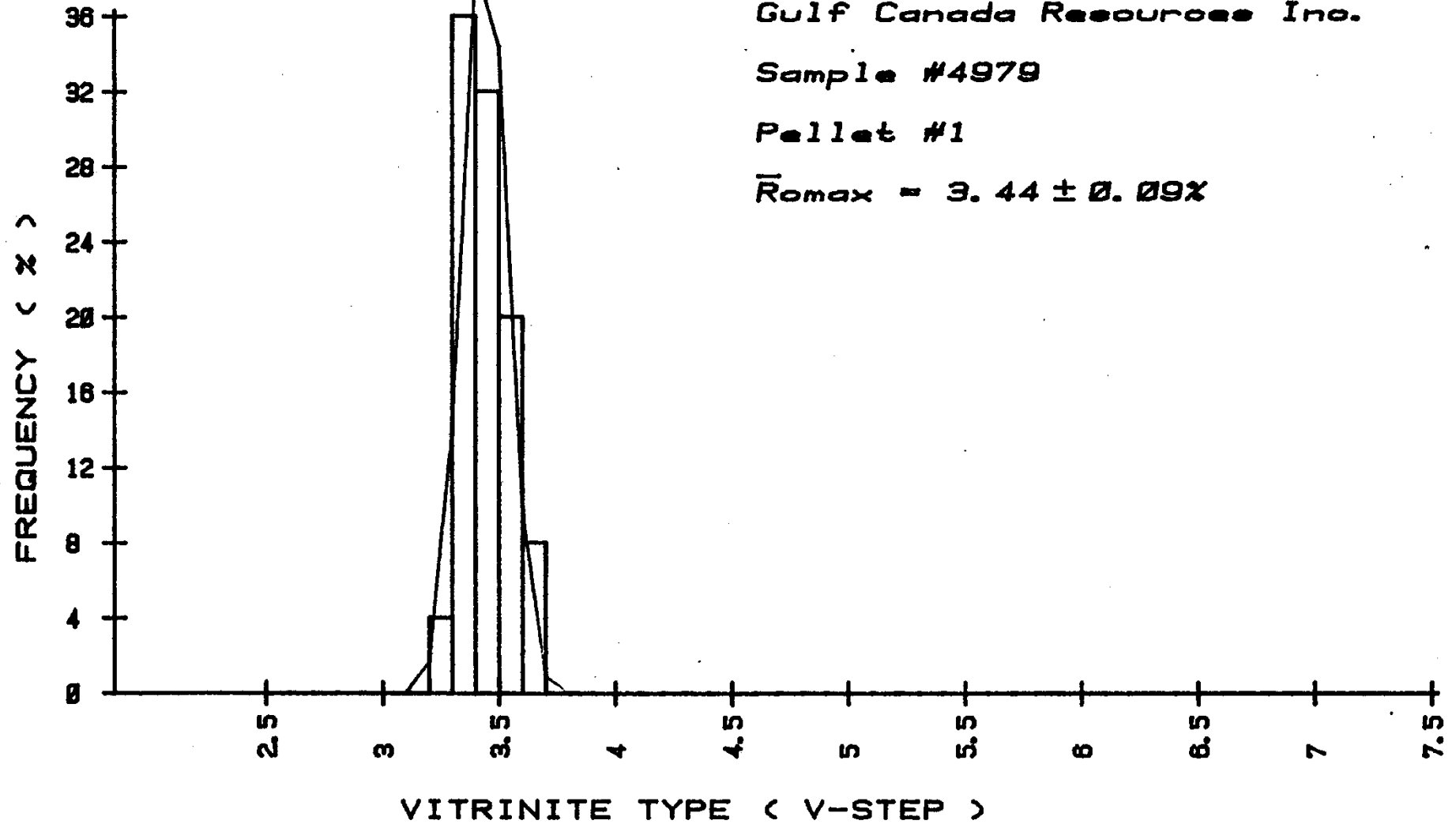
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #4979

Pellet #1

$\bar{R}_{omax} = 3.44 \pm 0.09\%$



**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	67.0	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

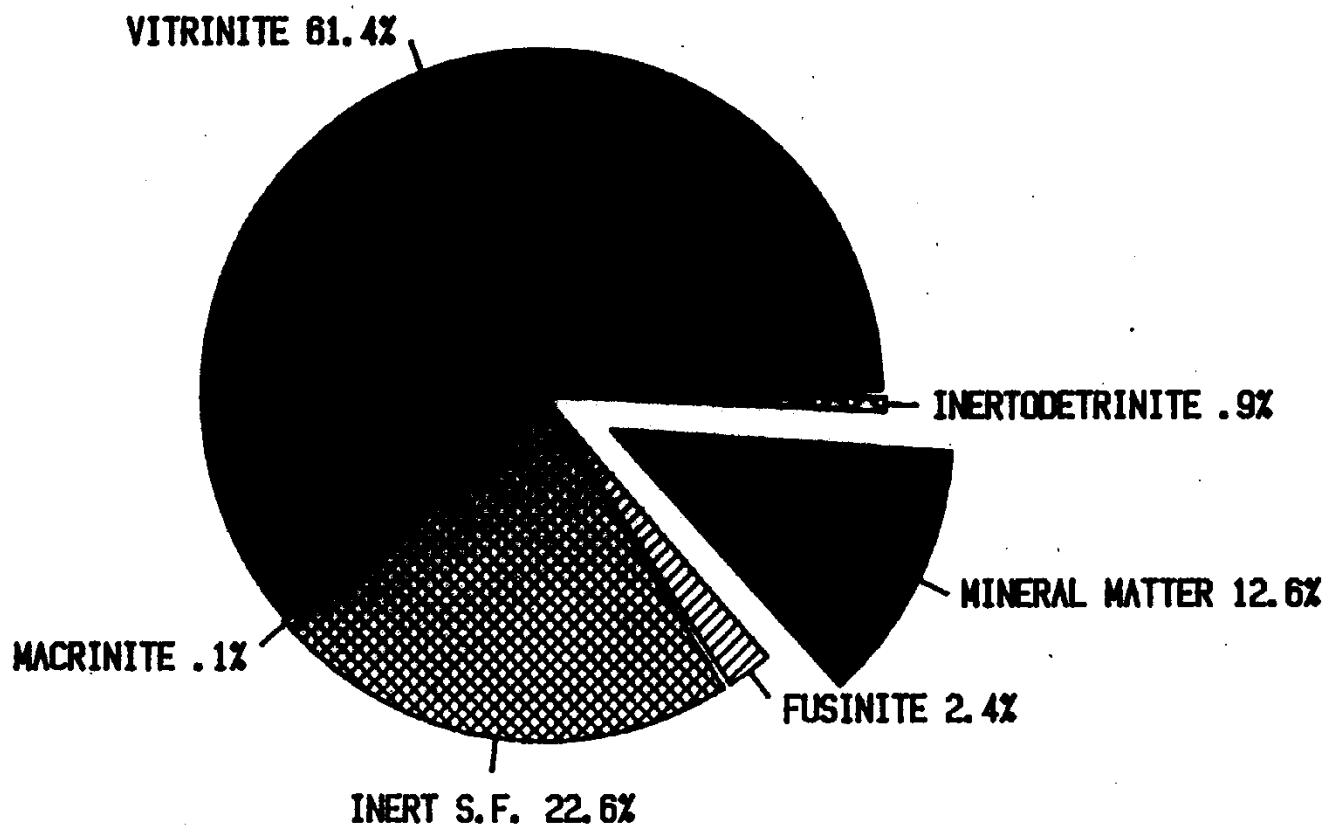
BASIC STATISTICS	MEAN	ST. DEVIATION	VARIANCE
VITRINITE	70.3	5.7	32.0
EXINITE	0.0	0.0	0.0
REACTIVE SEMIFUSINITE	0.0	0.0	0.0
TOTAL REACTIVES	70.3	5.7	32.0
MACRINITE	0.1	0.3	0.1
INERT SEMIFUSINITE	25.9	4.6	21.0
FUSINITE	2.7	1.9	3.6
INERTODETRINITE	1.0	1.4	2.0
TOTAL INERTINITES	29.7	5.7	32.0

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



- DATA SOURCE SUMMARY -

DATA SOURCE - KPNBCDDH82004

DATE - 02/06/85

- HISTORY -

START DATE - 08/15/82
 END DATE - 08/18/82

CONTRACTOR - J.T.THOMAS
 GEOLOGIST - LOUIE

OPERATOR - GCRI
 SURVEYOR -

REMARKS - GEOPHYSICAL LOG MEASURED FROM GROUND LEVEL + APPRO
 X. 0.6M

- LOCATION -

PROVINCE - BC
 ELEVATION - 1470.00

ZONE - 9
 NORTHING - 6344510.00
 EASTING - 513515.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 571443
 LONGITUDE - 1284634

- ORIENTATION -

LENGTH - 157.58

INCLINATION - 60.0
 AZIMUTH - 40.0

CORE SIZE - 95.8

CEMENT -
 PLUG - Y
 PIEZ -

CASING DEPTH (M) - 13.65
 AQUIFER DEPTHS (M) - 0.00
 0.00
 LOST CIRC. DEPTHS (M) - 0.00
 0.00

*** NOTE *** 0 INDICATES NO VALUE



MT. KLAPPAN COAL PROPERTY

DIAMOND DRILL HOLES



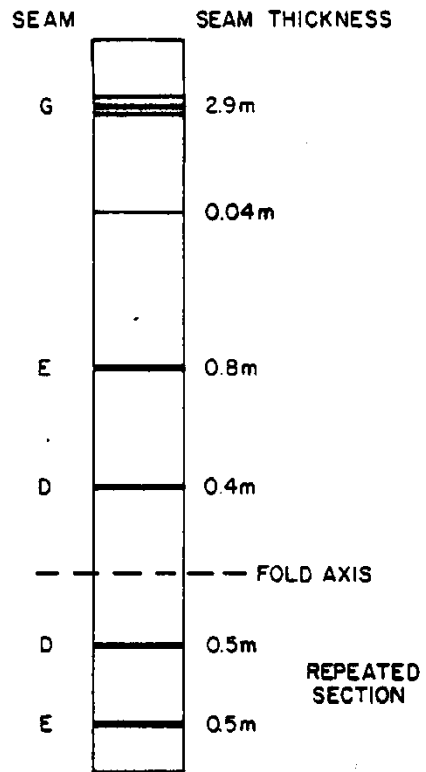
0 1 2 3 4 5 Km

FIGURE 3.4

-  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
KENBCDDH82004	G	25	sl-342-556	2.88	2.62	24.73 - 29.60
	E	26	sl-342-557	0.75	0.68	90.39 - 91.67
	D	27	sl-342-558	0.35	0.35	114.46 - 114.96
	D repeat	28	sl-342-559	0.50	0.41	139.84 - 140.34
	E repeat	29	sl-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
DDHB2004										
	G	3508	24.73	29.60	1.13	23.20	0.77	0.36	3.64	0.10
	L	3509	90.39	91.67	1.14	89.06	1.02	0.12	0.14	0.00
	U	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	26	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	ROCK	COAL	REC.	NUMBER	COMPOS	COAL/ROCK TOTAL	SECTION COAL/ROCK TOTAL
24.73		0.02	0.04 0.08					
			(1.63)	23.2	03508	25	2.62/0.26 2.88	2.62/0.26 2.88
		(0.03) 0.19	0.26					
29.60			(0.53)					
			0.10					

GULF CANADA RESOURCES INC.		
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.

CULP CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH02004 SEAM - G

SAMPLE ID - 3508

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.		C.V.
1.70	38.27	11.50	38.27	11.50	61.73	62.45	30.29		30.29	
2.00	61.73	62.45	100.00	42.95			8.34		16.74	

GCRI COAL DIVISION HEAD PROJ KPN BLK BC DS DDH82004


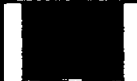
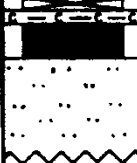
SAMPLE ID 25 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 14/10/82
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM


TOP SIZE (MM) 10.00
SURFACE MOISTURE % (AD,AR) ---
TOTAL MOISTURE % ---
EQUILIBRIUM MOISTURE % ---
RESIDUAL MOISTURE % (AD,EM) 1.63
ASH % 42.48
VOLATILE MATTER % 12.65
FIXED CARBON % 43.24
TOTAL SULPHUR % 0.68
PHOSPHOROUS % ---
CHLORINE (PPM) 00583
SPECIFIC GRAVITY 1.85
FSI ---
HGI 51.0
CO2 % 6.74
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
MPLE 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 % 1.63
CARBON % 47.81
HYDROGEN % 1.77
SULPHUR % 0.68
NITROGEN % 0.54
ASH % 42.48
OXYGEN % 5.09

DRILLING DEPTH	COAL SEAM LOG	ROCK	COAL	REC.	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 ↓
		0.07	(0.08)					
91.67			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: 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

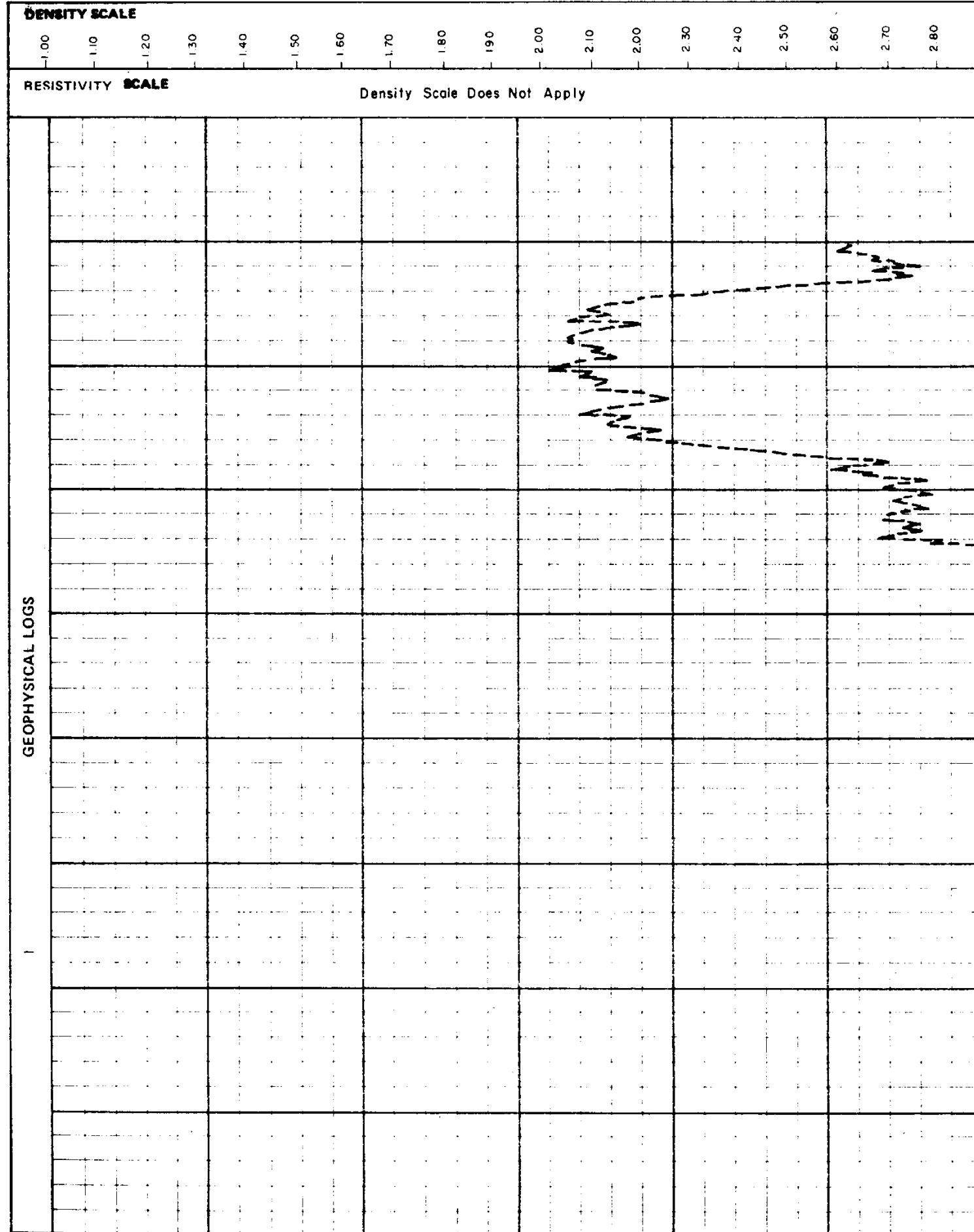
DRILL NO. DDH-82-004

SEAM E

SEAM INTERVAL

SCALE 1:40

Logged Through Drill Rods



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	90.39			0.67												
				(0.14)	89.1	03509	26	1.34	27.16	7.94	63.96			24.93		
	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													

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDHE2004 SEAM - E

SAMPLE ID - 3509

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.55 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G. TML	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.75	72.01	17.41	72.01	17.41	27.99	51.52	27.79	27.79
2.00	27.99	51.52	100.00	26.96			15.78	23.87

GCRI COAL DIVISION HEAD PROJ KPN BLK BC DS DDHB2004

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 DDHB2004

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 (MJ/KG)	RM	VM	TS
FROM (MM) TO (MM)							
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 DDHB2004

SAMPLE ID 26 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	%	1.34
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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1190.0	INITIAL TEMP.(C)	1185.0
SOFTENING TEMP.(C)	1220.0	SOFTENING TEMP.(C)	1220.0
HEMISPHERICAL TEMP.(C)	1235.0	HEMISPHERICAL TEMP.(C)	1230.0
FLUID TEMP.(C)	1255.0	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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH02004 SEAM - E

SAMPLE ID - 26

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE (MM)	0.00	X	0.00	RELATIVE WEIGHT % - 73.54 ASH % - 29.00				
S.G.TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		C.V.	CUM.		
	WT% ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
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	26.33	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	56.02	20.39	27.51		
1.90	5.03 41.46	79.87	20.59	20.13	62.91	17.50	26.89		
2.00	2.69 42.65	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	22.59	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	SIZE (MM)	0.00	X	0.15	RELATIVE WEIGHT % - 16.93 ASH % - 20.75				
S.G.TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		C.V.	CUM.		
	WT% ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.40	8.49 2.44	8.49	2.44	91.51	20.59	34.67	34.67		
1.50	39.45 7.93	48.44	6.97	51.56	30.59	32.17	32.61		
1.60	21.92 16.09	70.36	9.81	29.64	46.97	28.58	31.35		
1.70	9.95 22.90	80.31	11.43	19.69	50.10	24.95	30.50		
1.80	6.70 31.95	87.01	13.01	12.99	59.47	21.94	29.87		
1.90	2.20 40.11	89.21	13.66	10.79	63.41	18.67	29.59		
2.00	1.42 48.26	90.63	14.17	9.37	66.16	16.16	29.38		
2.10	1.26 56.74	91.91	14.68	8.04	68.66	13.83	29.16		
2.20	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	28.97		

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDRE2004 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	
	WT%	ASH%	CUM. WT%	FLUATS ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. 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	14.26	15.09	79.94	24.44	29.50
60.00	1.48	45.95	86.39	15.39	13.61	83.63	17.25	29.35
90.00	1.32	64.80	87.71	16.13	12.29	85.65	9.57	29.05
120.00	1.53	77.69	89.24	17.19	10.76	86.75	0.35	28.66
300.00	10.76	86.75	100.00	24.68			0.00	25.58

GRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK BC DS DDHB2004

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 DDHB2004

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
		SPECIFIC GRAVITY	1.58
RESIDUAL MOISTURE (AD,EM)	0.83	FSI	---
ASH %	20.28	HGI	61.0
VOLATILE MATTER %	9.30	CO2 %	0.70
FIXED CARBON %	69.59		

GROSS CALORIFIC VALUE (MJ/KG) 26.80
NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDHB2004

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	3.58
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	3.60
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	3.78
16	3.59	41	3.66
17	3.53	42	3.58
18	3.70	43	3.45
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	0.0082
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

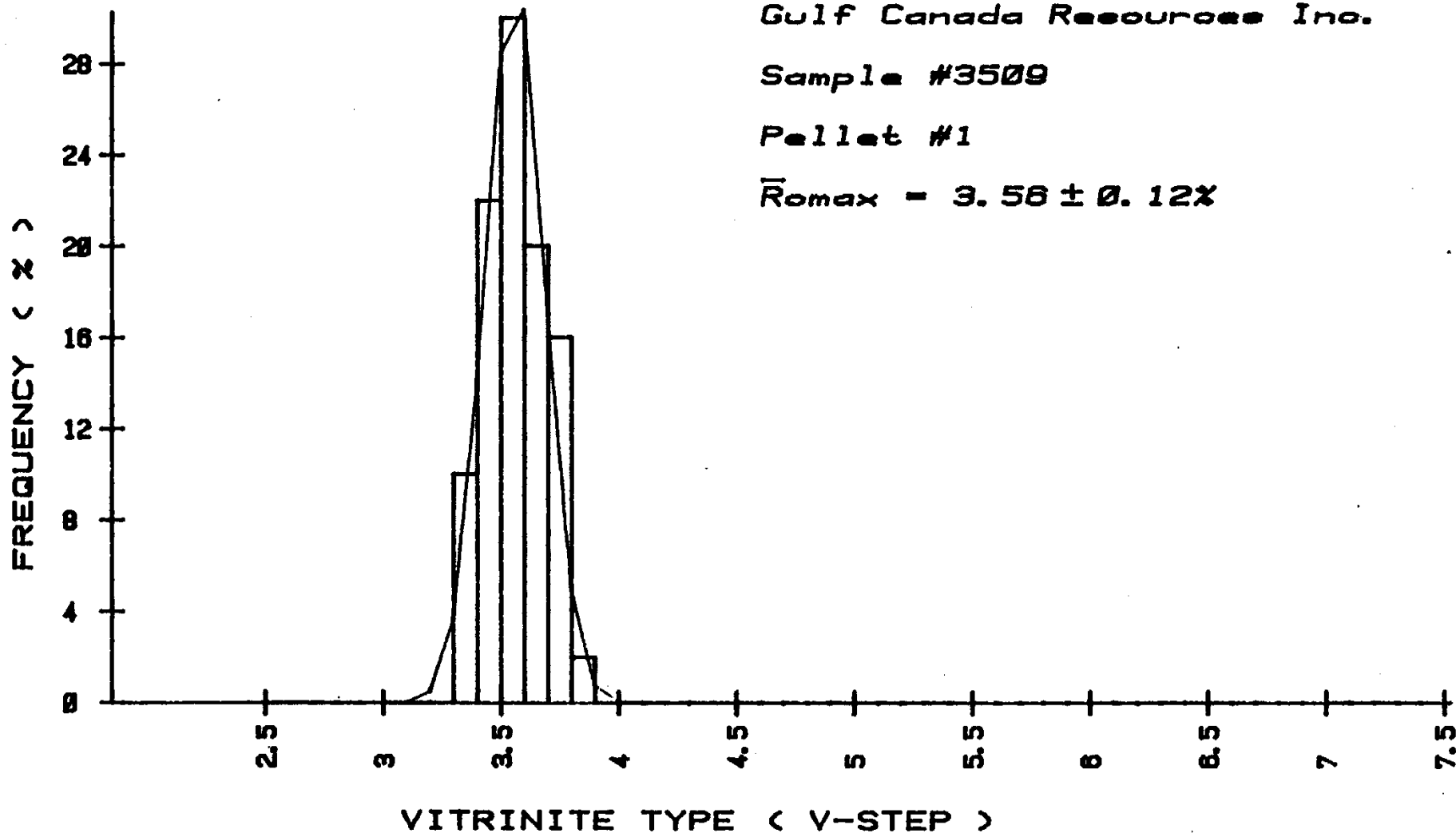
VITRINITE FREQUENCY DISTRIBUTION

Gulf Canada Resources Inc.

Sample #3509

Pellet #1

$\bar{R}_{\text{omax}} = 3.58 \pm 0.12\%$



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

DRILLING DEPTH	SEAM LOG	ROCK	COAL	REC.	NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
113.65			0.07					
		(0.23)						
114.46		0.28						
114.96			0.15	43.8	03510	↑ 27 ↓	0.35 / 0.00 0.35	0.35 / 0.00 0.35
			(0.20)					

GULF CANADA RESOURCES INC.		
<small>Coal Division</small>		
<small>CALGARY</small>	<small>ALBERTA</small>	
<p>MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-004 SEAM D</p>		
<small>PREPARED BY: C. L.</small>		<small>SCALE 1:40</small>
<small>APPROVED BY: J. M. D.</small>		<small>DATE: NOV. '82 DRAWING No.</small>

DENSITY

RESISTIVITY

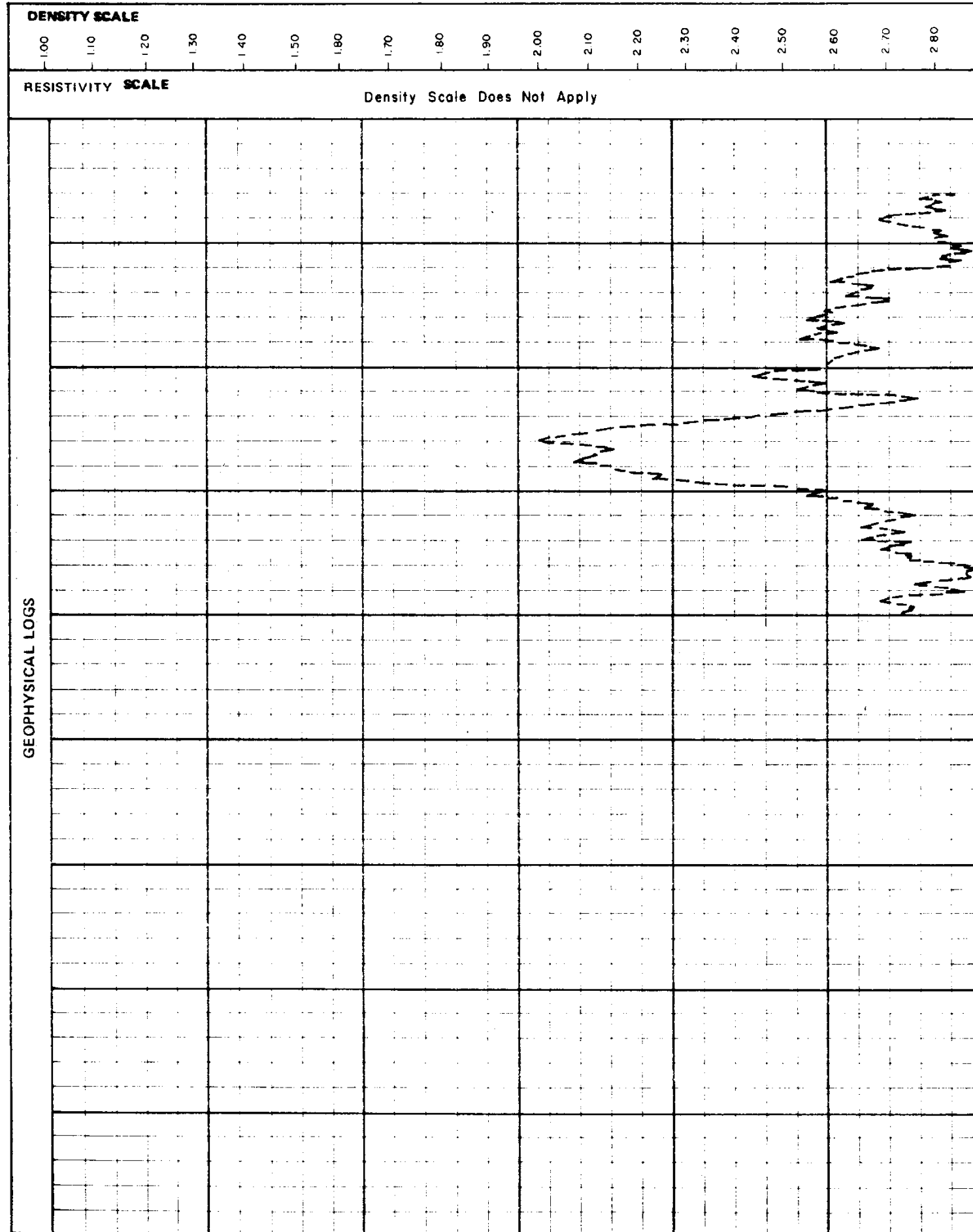
DRILL NO. DDH-82-004

SEAM D

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			
	113.65			0.10													
			(0.32)														
	114.46		0.39														
	114.96			0.21	44	03510	↑ 2.7 ↓	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														

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KFNBCDDH62004 SEAM - D

SAMPLE ID - 3510

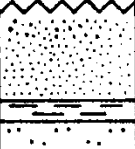
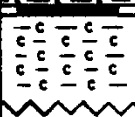
WASHABILITY ID - WA1


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	54.30	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

<u>GCRI COAL DIVISION</u>	<u>HEAD</u>	<u>PROJ</u>	<u>KPN</u>	<u>BLK</u>	<u>BC</u>	<u>DS</u>	<u>DDHS2004</u>
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	
RESIDUAL MOISTURE %<AD,EM>	1.25	SPECIFIC GRAVITY				1.69	
ASH %	35.82	FSI				---	
VOLATILE MATTER %	8.92	HGI				101.0	
FIXED CARBON %	54.01	CO2 %				3.08	
GROSS CALORIFIC VALUE (MJ/KG)	21.14						
NET CALORIFIC VALUE (MJ/KG)	---						

<u>GCRI COAL DIVISION</u>	<u>ULTIMATE</u>	<u>PROJ</u>	<u>KPN</u>	<u>BLK</u>	<u>BC</u>	<u>DS</u>	<u>DDHS2004</u>
SAMPLE ID	27						
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	%	1.25					
CARBON	%	57.12					
HYDROGEN	%	2.04					
SULPHUR	%	0.43					
NITROGEN	%	0.67					
ASH	%	35.82					
OXYGEN	%	2.67					

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
139.84								
		0.03	0.11					
			0.26	96	03511	28	0.41/0.09 0.50	0.41/0.09 0.50
140.34		0.06	10.02/0.02					

GULF CANADA RESOURCES INC.		
<small>Coal Division</small>		
<small>CALGARY</small>	<small>ALBERTA</small>	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-004 SEAM D REPEAT		
<small>PREPARED BY: C. L.</small>		<small>SCALE 1:40</small>
<small>APPROVED BY: J. M. D.</small>		<small>DATE: NOV. '82 DRAWING No.</small>

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82004 SEAM - D REPEAT

SAMPLE ID - 3511

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.		CUM.	
S.G. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.	C.V.	
1.70	55.41	18.74	55.41	18.74	44.59	63.37	27.39		27.39	
2.00	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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1270.0	INITIAL TEMP.(C)	1235.0
SOFTENING TEMP.(C)	1300.0	SOFTENING TEMP.(C)	1275.0
HEMISPHERICAL TEMP.(C)	1325.0	HEMISPHERICAL TEMP.(C)	1305.0
FLUID TEMP.(C)	1385.0	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


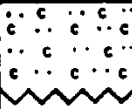
SILICON DIOXIDE %	(SI02)	53.32
ALUMINIUM OXIDE %	(AL2O3)	20.30
FERRIC OXIDE %	(FE2O3)	5.69
TITANIUM DIOXIDE %	(TI02)	0.53
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.83
CALCIUM OXIDE %	(CAO)	5.56
MAGNESIUM OXIDE %	(MGO)	3.51
SULPHUR TRIOXIDE %	(SO3)	2.57
SODIUM OXIDE %	(NA2O)	1.94
POTASSIUM OXIDE %	(K2O)	1.43


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

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
150.36			0.18 0.03 0.19	82	03512	↑ 29 ↓	↑ 0.45/0.00 0.45 ↓	↑ 0.45/0.00 0.45 ↓
150.81								

GULF CANADA RESOURCES INC.		
<small>Coal Division</small>		
<small>CALGARY</small>	<small>ALBERTA</small>	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-004 SEAM E REPEAT		
<small>PREPARED BY: C L</small>	<small>SCALE 1: 40</small>	
<small>APPROVED BY: J M O</small>	<small>DATE: NOV '82 DRAWING No.</small>	

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

P-267 (12-80)

Apparent Thickness

DENSITY

RESISTIVITY

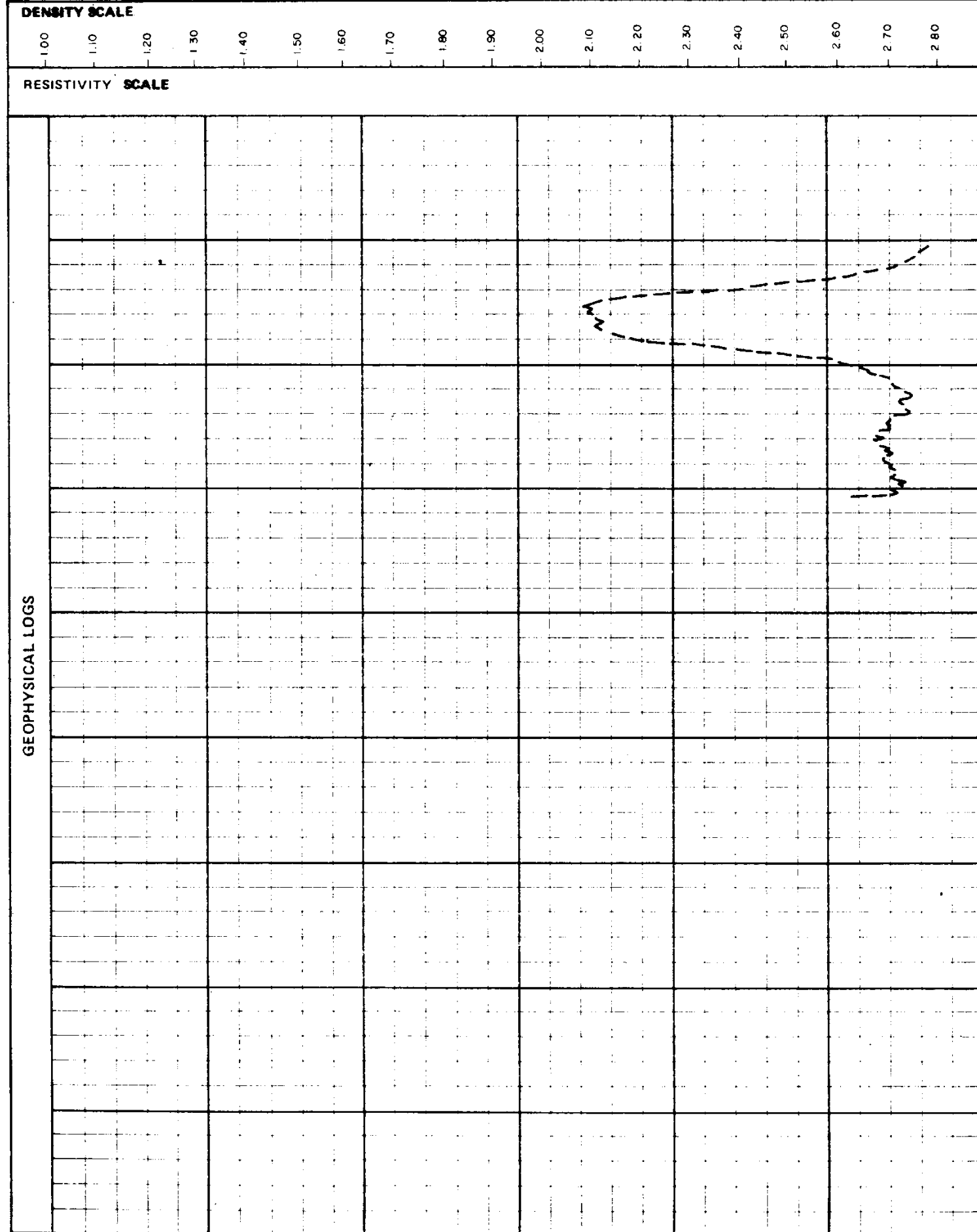
DRILL NO. DDH-82-004

SEAM E Repeat

SEAM INTERVAL

SCALE 1:40

Logged Through Drill Rods



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
1 2 3 4 5 6	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										

GULF CANADA RESOURCES INC. - COAL DIVISION

DFC 02782

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDHE2004 SEAM - E REPEAT

SAMPLE ID - 3512

WASHABILITY ID - WA1

FRACTION S.G.TML	ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 100.00				ASH % -		
	SIZE (MM)	9.53 X		0.00		CUM. SINKS		C.V.		CUM.	
		ELLMENTAL	CUM. FLOATS		CUM. SINKS		(MJ/KG)		C.V.		
	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			
2.00	32.98	49.79	100.00	27.56			14.39	23.44			

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK BC DS DDHB2004

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 DDHB2004

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 DDHB2004

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

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNBCDDH82006

DATE - 02/06/85

- HISTORY -

START DATE - 08/30/82
END DATE - 09/01/82

CONTRACTOR - J.T.THOMAS
GEOLOGIST - SWANBERGSON

OPERATOR - GCRI
SURVEYOR -

REMARKS - ANGLED HOLE AT 060

- LOCATION -

PROVINCE - BC
ELEVATION - 1489.00

ZONE - 9
NORTHING - 6344865.00
EASTING - 512650.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 571455
LONGITUDE - 1284725

- ORIENTATION -

LENGTH - 172.98

INCLINATION - 60.0
AZIMUTH - 345.0

CORE SIZE - 95.8

CEMENT -
PLUG - Y
PIEZ -

CASING DEPTH (M) - 3.66
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

MT. KLAPPAN COAL PROPERTY

DIAMOND DRILL HOLES



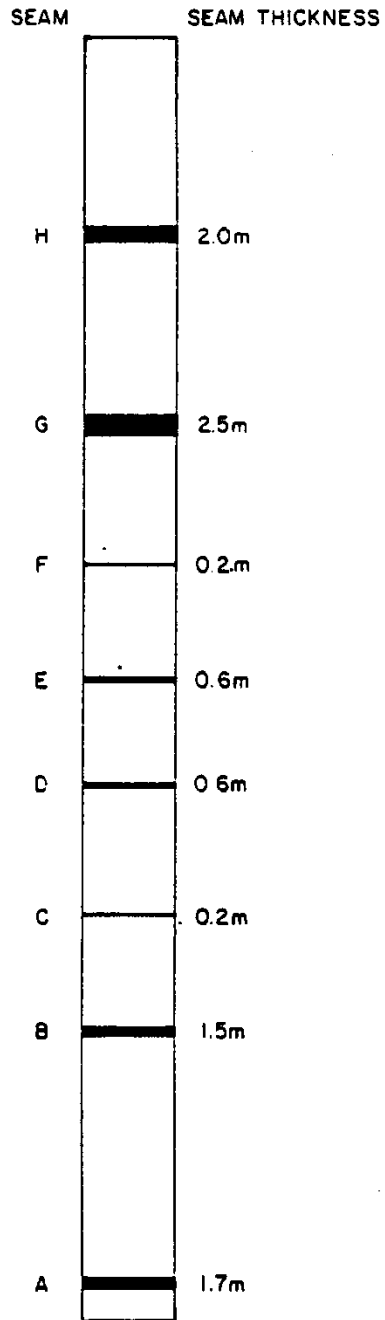
0 1 2 3 4 5 Km

FIGURE 3.4

- Prepared Rail Bed
- - - Provincial Park Boundary
- ★ Camp
- Diamond Drill Hole
- Redefined Property Boundary
- ▲ Peaks

MT. KLAPPAN COAL PROPERTY

DDH82006



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/63 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
DDHB2000										
	H	4872	26.09	26.93	0.58	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	45.83	0.15	0.07	0.15	0.11
	G	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	65.88	86.51	0.47	74.60	0.45	0.02	0.16	0.00
	D	4880	99.36	99.97	0.53	69.83	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	133.65	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/63 COMPOSITE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SLAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDHC2066												
	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	0.00
	G	42	4876	4878	52.39	53.60	0.93	76.66	0.53	0.40	0.15	0.13
	E	43	4879	4879	85.86	86.51	0.47	74.60	0.45	0.02	0.16	0.00
	D	44	4880	4880	99.36	99.97	0.53	89.83	0.46	0.07	0.06	0.00
	E	45	4881	4882	132.35	133.65	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	COAL SEAM	INTERVAL		REF	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS	COAL/ROCK TOTAL	COAL/ROCK TOTAL
25.54								
25.68		(0.87)	0.14					
26.09		0.31						
		0.02	0.14					
26.93			0.04	69	04872	↑	↑	↑
			(0.26)					
			0.17					
27.62		0.09	0.12	67.7	04873	40	131/070 2 01	131/070 2 01
		(0.12)	(0.26)					
28.10		0.19	0.02	45.8	04874	↓	↓	↓
		0.17	0.05					
		(0.11)	(0.15)					
		0.04	0.06					

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY		ALBERTA
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

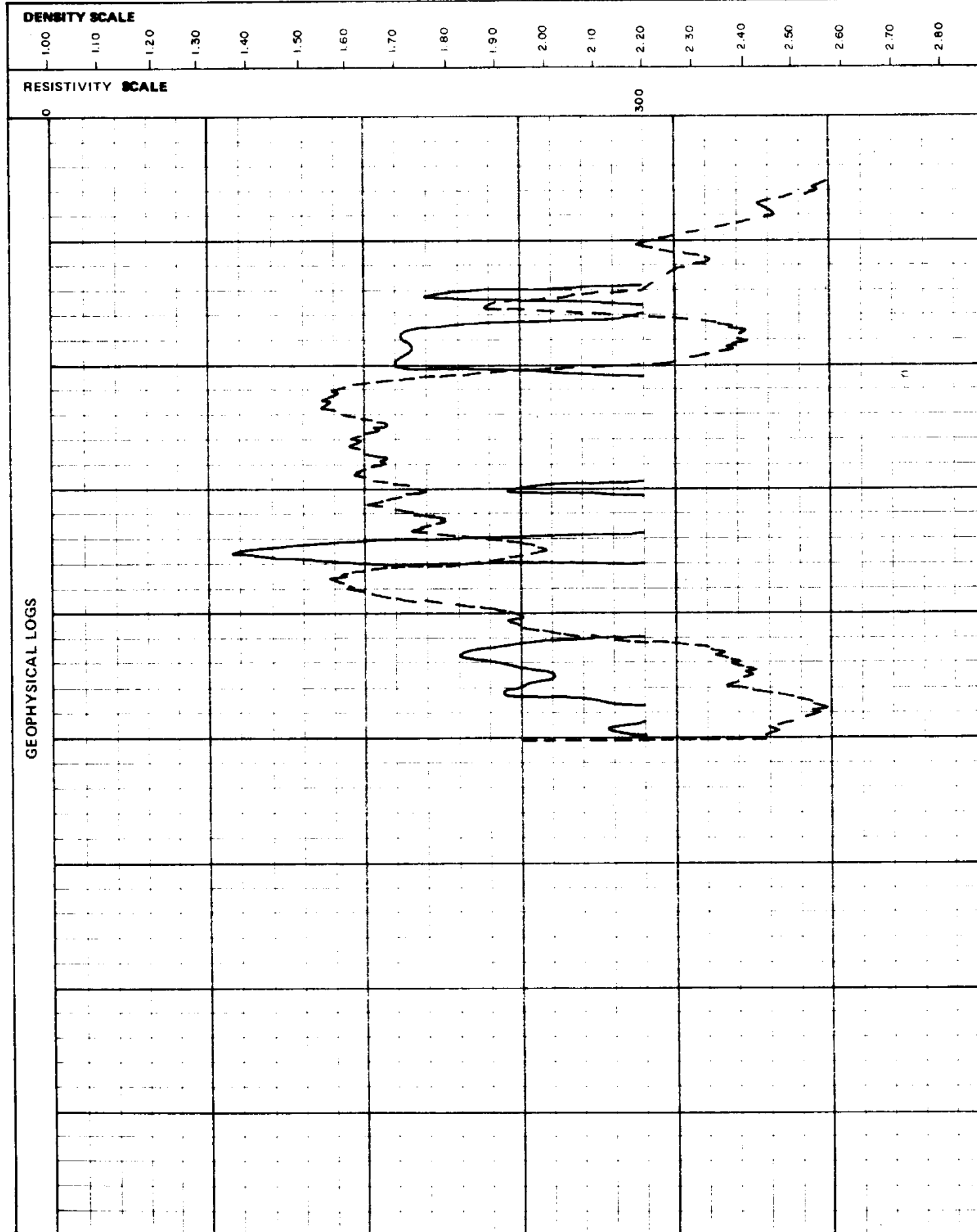
RESISTIVITY

DRILL NO DDH - 82 - 006

SEAM H

SEAM INTERVAL

SCALE 1:40



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	25.54			0.14												
			(0.07)													
	26.09		0.34													
			0.02	0.14												
				0.04												
	26.93			(0.26)	69	04872										
			0.09	0.17												
			(0.12)	0.12												
				(0.26)				40	0.71	45.68	9.46	44.15		17.16		
			0.10		67.7	04873										
			0.02	0.02												
	27.62		0.17	0.02												
			0.03	0.05												
				0.04												
	28.10		(0.11)	(0.15)	45.8	04874										
			0.04	0.06												

Seam Interval (m): 26.09 - 28.10
 Seam True Thickness (Coal/Rock): 1.31/0.70
 Total 2.01

GEOPHYSICAL LOGS

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 12/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDHB2000 SEAM - H

SAMPLE ID - 4872

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.50 X		0.00		RELATIVE WEIGHT % - 100.00 ASH % -			
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G. TIME	W1%	ASH%	W1%	ASH%	W1%	ASH%	(MJ/KG)	C.V.
1.70	37.60	22.04	37.60	22.04	62.40	56.48	26.18	26.18
2.00	62.40	56.48	100.00	43.53			12.25	17.49

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNCDDHE2000 SEAM - H

SAMPLE ID - 4673

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	WT%	ASH%	CUM. FLOATS WT% ASH%	CUM. SINKS WT% ASH%	C.V. (MJ/KG)	CUM. C.V.		
1.70	15.79	20.99	15.79	20.99	84.21	72.52	26.91	26.91
2.00	84.21	72.52	100.00	64.38			6.01	9.31

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNCDDHB2006 SEAM - H

SAMPLE ID - 4874

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.	C.V.	
S.G.T.M.E	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		
1.76	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	

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82000 SEAM - H

SAMPLE ID - 40

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION	SIZE (MM) 10.00 X 0.60		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 79.94 ASH % - 48.40	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. 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	5.10	41.59	57.79	26.99	42.21	67.03	18.06	24.31		
2.00	5.43	47.33	63.22	28.74	36.78	70.03	15.20	23.53		
2.10	6.80	52.32	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		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 12.32 ASH % - 38.36	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. 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	31.06	33.03		
1.60	8.92	20.11	45.10	8.74	54.90	60.87	24.60	31.36		
1.70	8.53	26.04	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	74.03	18.65	28.72		
2.00	4.11	46.87	66.94	17.25	33.06	76.06	15.54	27.91		
2.10	2.89	55.32	69.83	18.83	30.17	80.24	12.30	27.27		
2.20	1.85	61.26	71.68	19.93	28.32	81.46	10.55	26.83		
2.30	2.05	66.38	73.73	21.22	26.27	82.06	7.60	26.30		
2.60	26.27	82.06	100.00	37.36			0.00	19.39		

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNRCDHRB2000 SEAM - B

SAMPLE ID - 40

WASHABILITY ID - WAI

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT %		7.74 ASH % - 43.06	
	ELEMENTAL WT%	ASH%	CUM. FLUATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. 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	67.20	24.55	32.74	80.89	11.21	25.73
90.00	3.17	68.50	70.43	26.54	29.57	82.17	6.20	24.95
120.00	3.00	77.62	73.43	28.63	26.57	82.08	4.06	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 DDHB2006

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 DDHB2006

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 DDHB2006

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 DDHB2006

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 DDHB2006

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 DDHB2006

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

DEPTH	COAL SEAM LOG	INTERVAL		RF	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	CL		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	0.10					
		0.01	0.17					
52.39		0.15		53.6	04876			1.84 / 0.61
52.67		(0.13)						2.45
			0.35	76.1	04877	42	0.68 / 0.53	
			0.59				1.21	
53.13		0.12						
		0.13		91.5	04878			
53.60								

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-006 SEAM G		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV '82 (DRAWING No.)	

DENSITY

RESISTIVITY

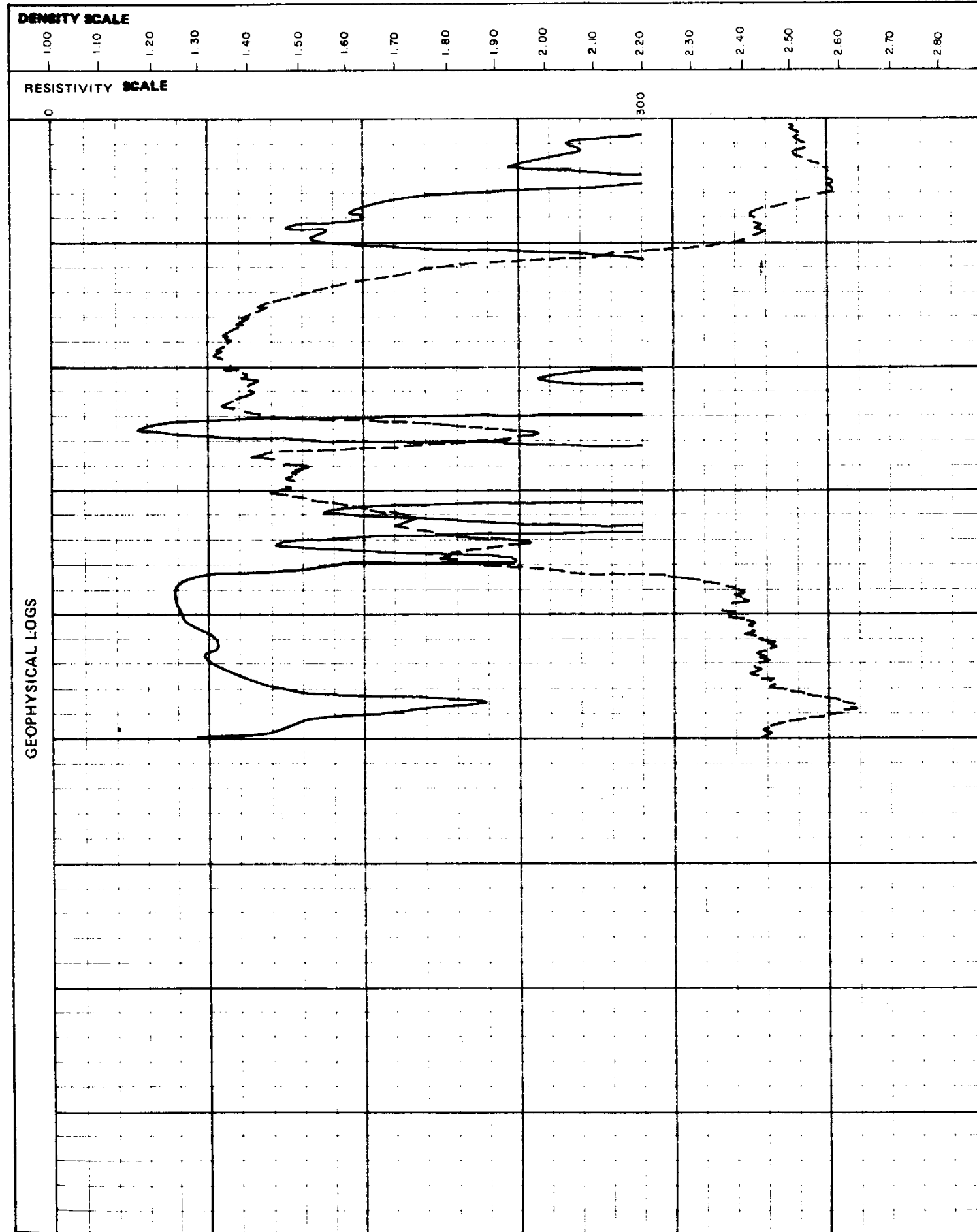
DRILL NO. DDH - 82 - 006

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			
23456	51.15			(0.16)													
			0.05	0.22													
			0.01	0.20	87.1	04875	41	0.97	18.48	6.65	43.90		28.37				
			0.01	0.10													
			0.01	0.17													
	52.39			0.15													
	52.67			(0.11)	53.6	04876											
				0.35	76.1	04877	42	1.26	41.16	9.81	47.77		18.64				
	53.13		0.12	0.09													
			0.13	0.09	91.5	04878											
	53.60			(0.08)													

Seam Interval (m): 51.15 - 53.60
 Seam True Thickness (Coal/Rock): 1.84/0.61
 Total 2.45

GEOPHYSICAL LOGS

GULF CANADA RESOURCES INC. - COAL DIVISION

DLG 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNH000H02000 SEAM - G

SAMPLE ID - 4875

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. IMF	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	79.12	11.44	79.12	11.44	20.88	46.06	30.59	30.59
2.00	20.88	46.06	100.00	18.80			15.74	27.49

<u>GCRI COAL DIVISION</u>	<u>HEAD</u>	<u>PROJ</u>	<u>KPN</u>	<u>BLK</u>	<u>BC</u>	<u>DS</u>	<u>DDHB2006</u>		
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 SULPHUR %		1.38		
TOTAL MOISTURE %		---			PHOSPHOROUS %		---		
EQUILIBRIUM MOISTURE %		---			CHLORINE (PPM)		00279		
					SPECIFIC GRAVITY		1.51		
RESIDUAL MOISTURE %<AD,EM>		0.97			FSI		---		
ASH %		18.48			HGI		41.0		
VOLATILE MATTER %		6.65			CO2 %		0.68		
FIXED CARBON %		73.90							
GROSS CALORIFIC VALUE (MJ/KG) 28.37									
NET CALORIFIC VALUE (MJ/KG) ---									

<u>GCRI COAL DIVISION</u>	<u>SIZE</u>	<u>PROJ</u>	<u>KPN</u>	<u>BLK</u>	<u>BC</u>	<u>DS</u>	<u>DDHB2006</u>		
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		
MM (MM) TO (MM)				(MJ/KG)					
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		

<u>GCRI COAL DIVISION</u>	<u>ULTIMATE</u>	<u>PROJ</u>	<u>KPN</u>	<u>BLK</u>	<u>BC</u>	<u>DS</u>	<u>DDHB2006</u>		
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							

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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1240.0	INITIAL TEMP.(C)	1180.0
SOFTENING TEMP.(C)	1350.0	SOFTENING TEMP.(C)	1240.0
HEMISPHERICAL TEMP.(C)	1365.0	HEMISPHERICAL TEMP.(C)	1290.0
FLUID TEMP.(C)	1380.0	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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82000 SEAM - G

SAMPLE ID - 41

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT % - 80.83 ASH % - 18.12		C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
S.G.TME								
1.40	16.41	4.16	16.41	4.16	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	23.90	31.40
1.80	2.63	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	54.36	19.50	30.64
2.00	4.64	42.75	91.26	13.51	8.74	60.43	17.14	29.95
2.10	2.55	51.00	93.81	14.53	6.19	64.28	13.90	29.51
2.20	1.22	55.77	95.03	15.00	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	17.01			6.69	28.19

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	0.00 X		0.15		RELATIVE WEIGHT % - 10.71 ASH % - 22.31		C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
S.G.TME								
1.40	18.57	3.06	18.57	3.06	81.43	25.13	33.62	33.62
1.50	29.33	7.00	47.90	5.47	52.10	35.32	32.00	32.74
1.60	11.78	15.14	59.68	7.38	40.32	41.21	26.48	31.90
1.70	9.00	22.25	68.71	9.34	31.29	46.69	24.92	30.98
1.80	6.76	28.59	75.49	11.07	24.51	51.70	22.28	30.20
1.90	6.90	38.85	82.39	13.38	17.61	58.82	19.68	29.27
2.00	1.63	42.17	84.02	15.22	15.98	62.75	17.25	28.50
2.10	3.47	45.14	87.49	16.50	12.51	65.71	14.59	27.97
2.30	2.90	55.48	90.39	17.62	9.61	74.59	11.47	27.47
2.60	5.61	74.55	100.00	21.00			0.00	25.92

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82000 SEAM - G

SAMPLE ID - 41

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 8.46		ASH % - 24.74	
	ELEMENTAL WT%	ASH%	CUM. FLATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
30.00	72.00	14.71	72.00	14.71	27.94	46.34	28.55	28.55
45.00	12.60	25.04	84.72	16.34	15.28	63.49	25.37	26.07
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	69.00	92.45	19.21	7.55	76.70	7.98	26.99
300.00	7.55	76.70	100.00	23.55			5.16	25.34

GCRI COAL DIVISION SAMPLE PRODUCT PROJ KPN BLK BC DS DDHB2006

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 DDHB2006

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)	---
		SPECIFIC GRAVITY	1.44
SIDUAL MOISTURE (AD,EM)	0.73	FSI	---
ASH %	10.37	HGI	38.0
VOLATILE MATTER %	7.04	CO2 %	0.16
FIXED CARBON %	81.86		

GROSS CALORIFIC VALUE (MJ/KG) 30.88
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDHB2006

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

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1240.0	INITIAL TEMP.(C)	1240.0
SOFTENING TEMP.(C)	1410.0	SOFTENING TEMP.(C)	1400.0
HEMISPHERICAL TEMP.(C)	1425.0	HEMISPHERICAL TEMP.(C)	1420.0
FLUID TEMP.(C)	1440.0	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

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNBCDDHB2006 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		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70		6.51	13.64	6.51	13.64	93.49	76.48	29.70	29.70
2.00		93.49	76.48	100.00	72.39			5.74	7.30

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNBDDH82006 SEAM - C

SAMPLE ID - 4877

WASHABILITY ID - WAI

ANALYSIS TYPE - FLUAT

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	84.70	9.25	84.70	9.25	15.30	55.42	31.37		51.37	
2.60	15.30	55.42	100.00	16.31			8.70		27.91	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNBCDDH82006 SEAM - G

SAMPLE ID - 4878

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. TML	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	27.09	17.58	27.09	17.58	72.91	61.77	27.79	27.79
2.00	72.91	61.77	100.00	49.80			10.36	15.08

GCRI COAL DIVISION HEAD PROJ KPN BLK BC DS DDHB2006

SAMPLE ID 42 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 %	0.72
TOTAL MOISTURE %	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00247
		SPECIFIC GRAVITY	1.75
RESIDUAL MOISTURE % (AD,EM)	1.26	FSI	---
ASH %	41.16	HGI	42.0
VOLATILE MATTER %	9.81	CO2 %	3.73
FIXED CARBON %	47.77		

GROSS CALORIFIC VALUE (MJ/KG) 18.64
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK BC DS DDHB2006

SAMPLE ID 42 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 22/10/82

FRACTION SIZE	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00 0.60	83.00	41.52	---	18.73	1.21	9.80	0.59
0.60 0.15	10.53	31.74	---	22.68	1.33	8.05	0.78
0.15 0.00	6.45	36.40	---	20.83	1.13	8.73	0.73

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDHB2006

SAMPLE ID 42
 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	%	1.26
CARBON	%	51.54
HYDROGEN	%	1.92
SULPHUR	%	0.72
NITROGEN	%	0.65
ASH	%	41.16
OXYGEN	%	2.75

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

INITIAL TEMP.(C) 1260.0
SOFTENING TEMP.(C) 1290.0
HEMISPHERICAL TEMP.(C) 1315.0
FLUID TEMP.(C) 1380.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1195.0
SOFTENING TEMP.(C) 1235.0
HEMISPHERICAL TEMP.(C) 1285.0
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 % (SI02) 46.28
ALUMINIUM OXIDE % (AL2O3) 23.83
FERRIC OXIDE % (FE2O3) 9.06
TITANIUM DIOXIDE % (TI02) 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

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DATA SOURCE - KPNBCDDH2000 SEAM - G

SAMPLE ID - 42

WASHABILITY ID - WAI

ANALYSIS TYPE - FLUAT									
FRACTION SIZE (MM)	10.00 X		0.00		RELATIVE WEIGHT % - 83.00 ASH % - 41.52				
S.G. TIME	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	12.26	47.07	69.90	22.42	30.27	
1.90	2.35	39.40	55.28	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	26.63	
2.20	0.70	55.40	60.65	16.63	39.35	74.39	12.36	26.44	
2.30	2.98	62.37	63.63	18.77	36.37	75.36	9.15	27.54	
2.60	36.37	75.36	100.00	39.36			4.24	19.06	

ANALYSIS TYPE - FLUAT									
FRACTION SIZE (MM)	0.00 X		0.15		RELATIVE WEIGHT % - 10.55 ASH % - 31.74				
S.G. TIME	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	9.16	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	33.52	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	31.64			0.00	22.20	

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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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.TMF	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	7.64	30.31	74.25	21.95	25.72	74.43	21.17	26.47
60.00	2.63	49.50	77.11	22.96	22.89	77.52	15.73	26.08
90.00	3.72	63.27	60.83	24.82	19.17	60.28	10.34	25.36
120.00	3.82	73.57	64.65	27.02	15.35	61.95	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 DDHS2006

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 DDHS2006

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)	---
BIDUAL 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 DDHS2006

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 DDHB2006

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 DDHB2006

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 DDHB2006

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)	CUTOPOINT	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 DDHB2006

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 DDHB2006

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 DDHB2006

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

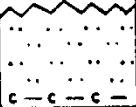
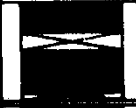

Gulf Canada Resources Inc.
Sample #4876-4878
Pellet #1


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

DEPTH	COAL SEAM LOG	INTERVAL		REC	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL/ROCK TOTAL	COAL/ROCK TOTAL		
85.88			0.16 (0.11)					
			0.21 (0.03)	74.6	04879	43	0.61/0.02 0.63	0.61/0.02 0.63
86.51			0.02 0.02					

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY		ALBERTA
MT. KLAPPAN COAL PROJECT SEAM DETAIL TRUE THICKNESS DDH-82-006 SEAM E		
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

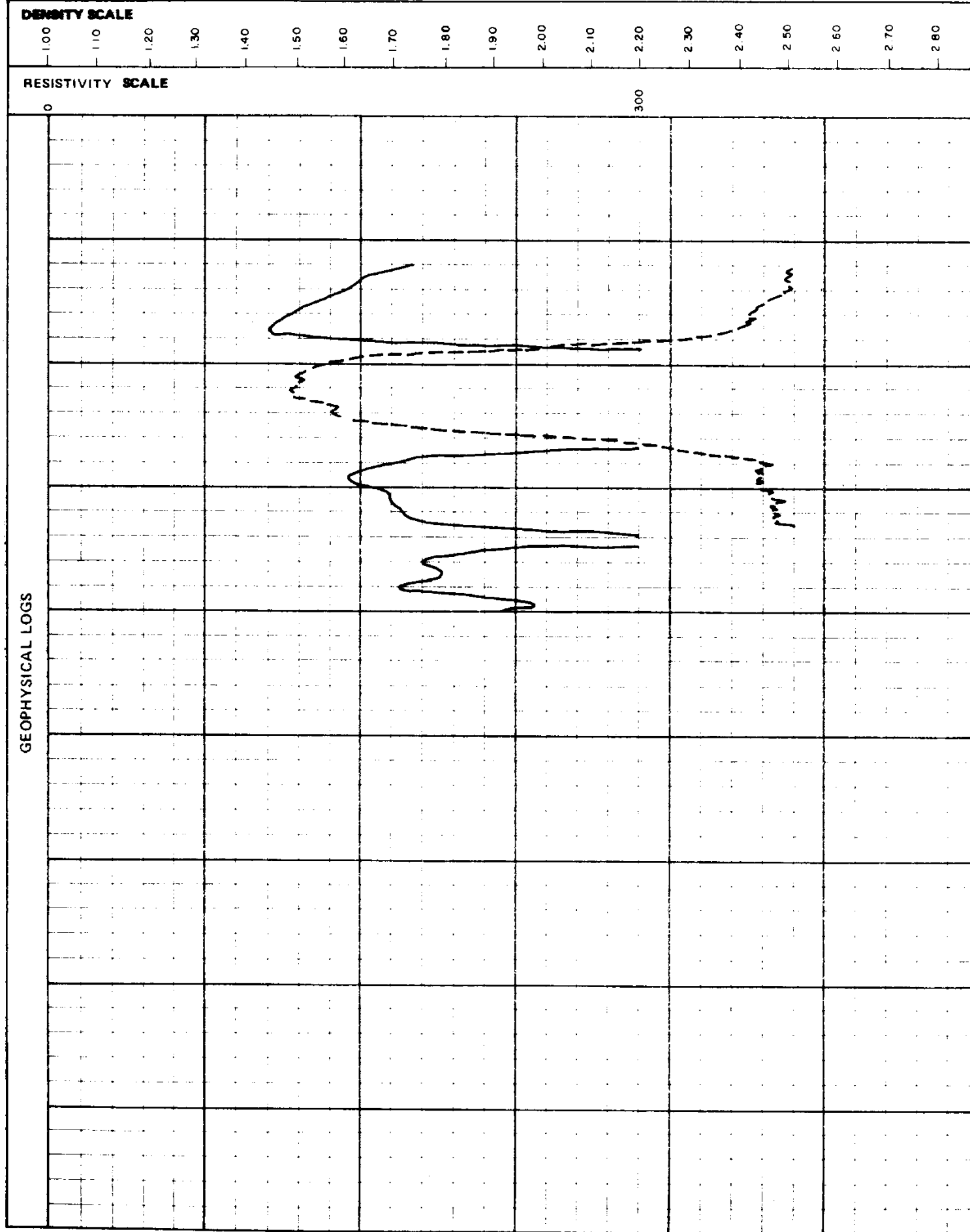
RESISTIVITY

DRILL NO. DDH - 82 - 006

SEAM E

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	85.88																
	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														

GEOPHYSICAL LOGS

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/02

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDMB2006 SEAM - E

SAMPLE ID - 4879

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00		ASH % -	
	WT%	ASH%	CUM. FLUATS	WT%	ASH%	C.V.	CUM.	
S.G. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.70	07.52	15.22	07.52	15.22	32.48	57.52	28.87	28.67
2.80	32.46	57.52	100.00	28.96			9.05	22.03

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 SULPHUR %	0.44
TOTAL MOISTURE %		---				PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %		---				CHLORINE (PPM)	00246
						SPECIFIC GRAVITY	1.65
RESIDUAL MOISTURE %<AD,EM>	0.96					FSI	---
ASH %	30.94					HGI	46.0
VOLATILE MATTER %	8.62					CO2 %	2.80
FIXED CARBON %	59.48						
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 (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	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	%	0.96					
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

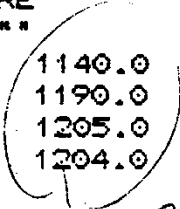
OXIDIZING ATMOSPHERE

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

DLC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82008 SEAM - E

SAMPLE ID - 43

WASHABILITY ID - WAI

ANALYSIS TYPE - FLDAT									
FRACTION	SIZE (MM)	10.00 X		0.00		RELATIVE WEIGHT % - 83.79 ASH % - 31.11			
S.G.TME	ELEMENTAL		CUM. FLDATS		CUM. SINKS		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	10.63	69.31	100.00	30.62			4.23	22.60	

ANALYSIS TYPE - FLDAT									
FRACTION	SIZE (MM)	0.60 X		0.15		RELATIVE WEIGHT % - 10.20 ASH % - 25.74			
S.G.TME	ELEMENTAL		CUM. FLDATS		CUM. SINKS		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	10.39	17.32	64.81	10.23	35.19	52.50	26.64	31.47	
1.70	7.85	25.40	72.66	11.87	27.34	60.27	24.22	30.69	
1.80	4.46	32.02	77.12	13.07	22.88	65.67	20.97	30.13	
1.90	3.85	40.02	80.97	14.10	19.83	69.61	18.62	29.69	
2.10	5.16	46.02	86.27	16.13	14.73	77.08	15.60	28.85	
2.30	2.80	63.10	89.07	17.62	11.93	80.36	9.64	28.23	
2.60	11.93	80.36	100.00	25.11			0.00	24.87	

COLF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - E

SAMPLE ID - 43

WASHABILITY ID - WA1

FRACTION	ANALYSIS TYPE - FRTH		0.15 X		6.00		RELATIVE WEIGHT % -		6.01 ASH % - 30.51	
	SIZE (MM)	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	74.49	16.07	74.49	16.07	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	18.62	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	2.20	73.06	86.97	22.46	13.03	76.73	6.30	25.62		
300.00	13.03	76.73	100.00	25.55			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	29.53
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)	---
		SPECIFIC GRAVITY	1.43
SIDUAL MOISTURE (AD,EM)	0.67	FSI	---
ASH %	9.50	HGI	---
VOLATILE MATTER %	6.52	CO2 %	---
FIXED CARBON %	83.31		

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 DDHB2006

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 DDHB2006

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 DDHB2006

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
SKEWNESS	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

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS	COAL/ROCK TOTAL	COAL/ROCK TOTAL
99.38								
			(0.06) 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 0.07	0.02 0.04					

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



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.

DENSITY

RESISTIVITY

DRILL NO. DDH - 82 - 006

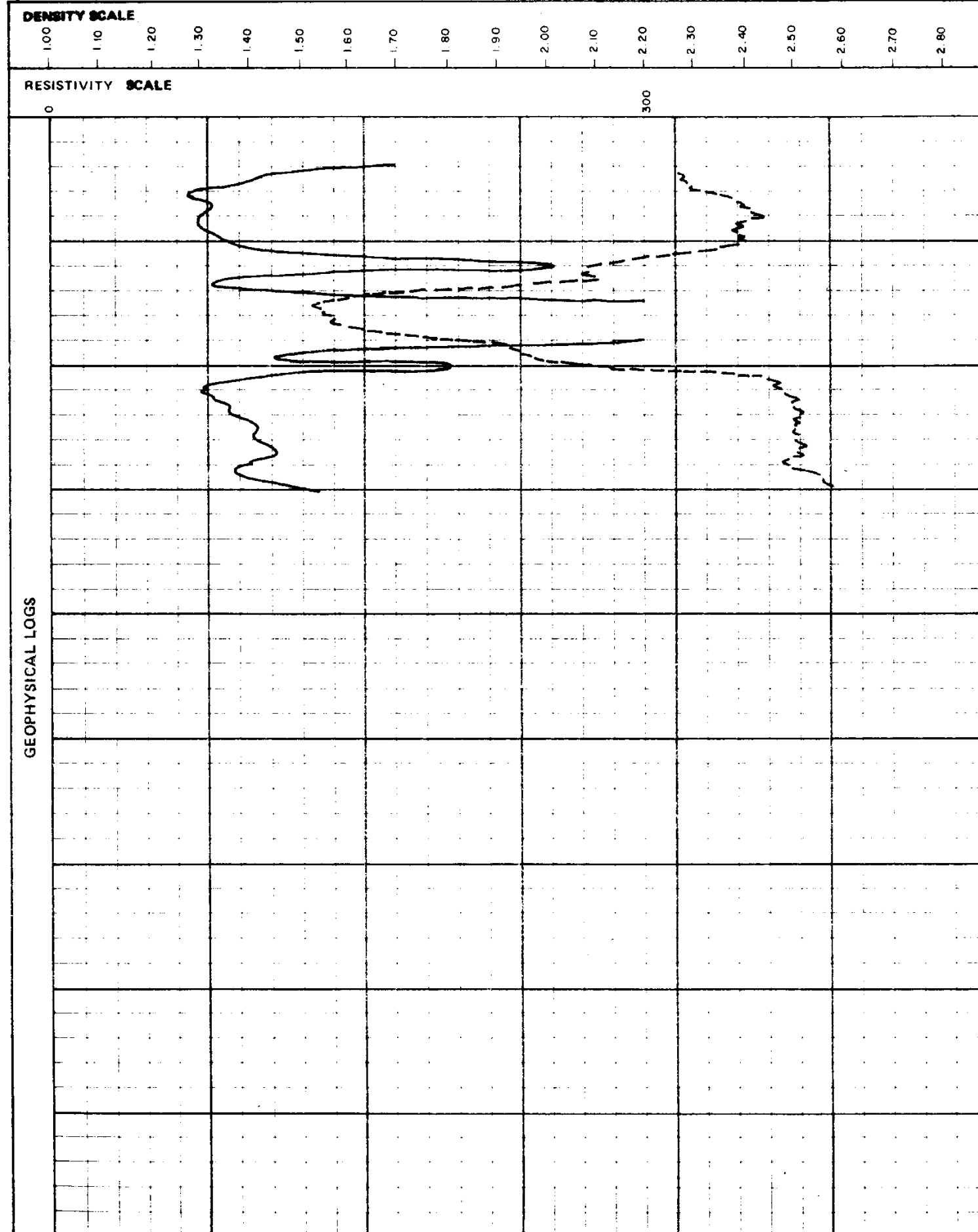
SEAM

D

SEAM INTERVAL

Apparent Thickness

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			
123456	99.38			(0.06) 0.19													
			0.03	0.21	89.8	04880	44	1.57	35.78	7.40	55.25		21.06				
	99.97		8.87	8.82													
			Seam Interval (m): 99.38 - 99.97 Seam True Thickness (Coal/Rock): 0.52/0.07 Total 0.59														

GEOPHYSICAL LOGS

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNCDDHE2006 SEAM - D

SAMPLE ID - 4880

WASHABILITY ID - WAI

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.TMF		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.		C.V.
1.70		62.24	18.42	62.24	18.42	37.76	62.57	27.87		27.87	
2.00		37.76	62.57	100.00	35.09			9.67		21.00	

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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCLDHE2006 SEAM - D

SAMPLE ID - 44 WASHABILITY ID - WA1

ANALYSIS TYPE - FLUAT

FRACTION SIZE (MM)	10.00 X		0.60		RELATIVE WEIGHT % - 83.62 ASH % - 35.28		C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLUATS WT%	ASH%	CUM. SINKS WT%	ASH%		
S.G. TIME								
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	19.63	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	26.49
1.80	6.30	31.00	71.91	18.22	28.09	60.91	22.28	27.95
1.90	2.91	41.67	74.82	19.13	25.18	69.62	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	55.83	82.24	22.13	17.76	77.12	9.96	26.18
2.60	17.76	77.12	100.00	31.90			3.89	22.22

ANALYSIS TYPE - FLUAT

FRACTION SIZE (MM)	0.60 X		0.15		RELATIVE WEIGHT % - 10.13 ASH % - 37.04		C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLUATS WT%	ASH%	CUM. SINKS WT%	ASH%		
S.G. TIME								
1.40	7.26	4.20	7.26	4.20	92.64	37.55	33.74	33.74
1.50	23.20	9.02	30.86	7.87	69.14	47.25	31.27	31.86
1.60	10.27	16.73	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	8.20	32.22	64.54	16.14	35.46	69.60	21.45	28.46
1.90	4.20	46.63	68.74	17.60	31.26	73.97	18.74	27.66
2.00	4.42	42.78	73.16	19.12	26.84	78.05	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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH2006 SEAM - D

SAMPLE ID - 44

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % -		0.25 ASH % - 46.77	
	ELEMENTAL WT%	ASH%	CUM. FLUATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
20.00	56.65	24.96	56.65	24.96	43.37	71.89	25.76	25.76
45.00	5.25	53.02	61.86	27.39	38.12	74.40	14.02	24.76
60.00	2.79	60.77	64.67	28.63	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 DDHB2006

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 DDHB2006

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)	---
		SPECIFIC GRAVITY	1.56
SIDUAL MOISTURE (AD,EM)	1.23	FSI	---
ASH %	19.99	HGI	41.0
VOLATILE MATTER %	8.88	CO2 %	0.69
FIXED CARBON %	69.90		

GROSS CALORIFIC VALUE (MJ/KG) 27.06
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK BC DS DDHB2006

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 DDHB2006

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 DDHB2006

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 DDHB2006

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

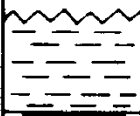
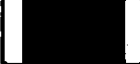



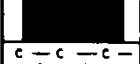
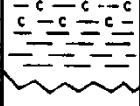
Gulf Canada Resources Inc.
Sample #4880
Pellet #1


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
SKWNESS	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

DEPTH	COAL SEAM LOG	INTERVAL		% REC	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPTS	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.		
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

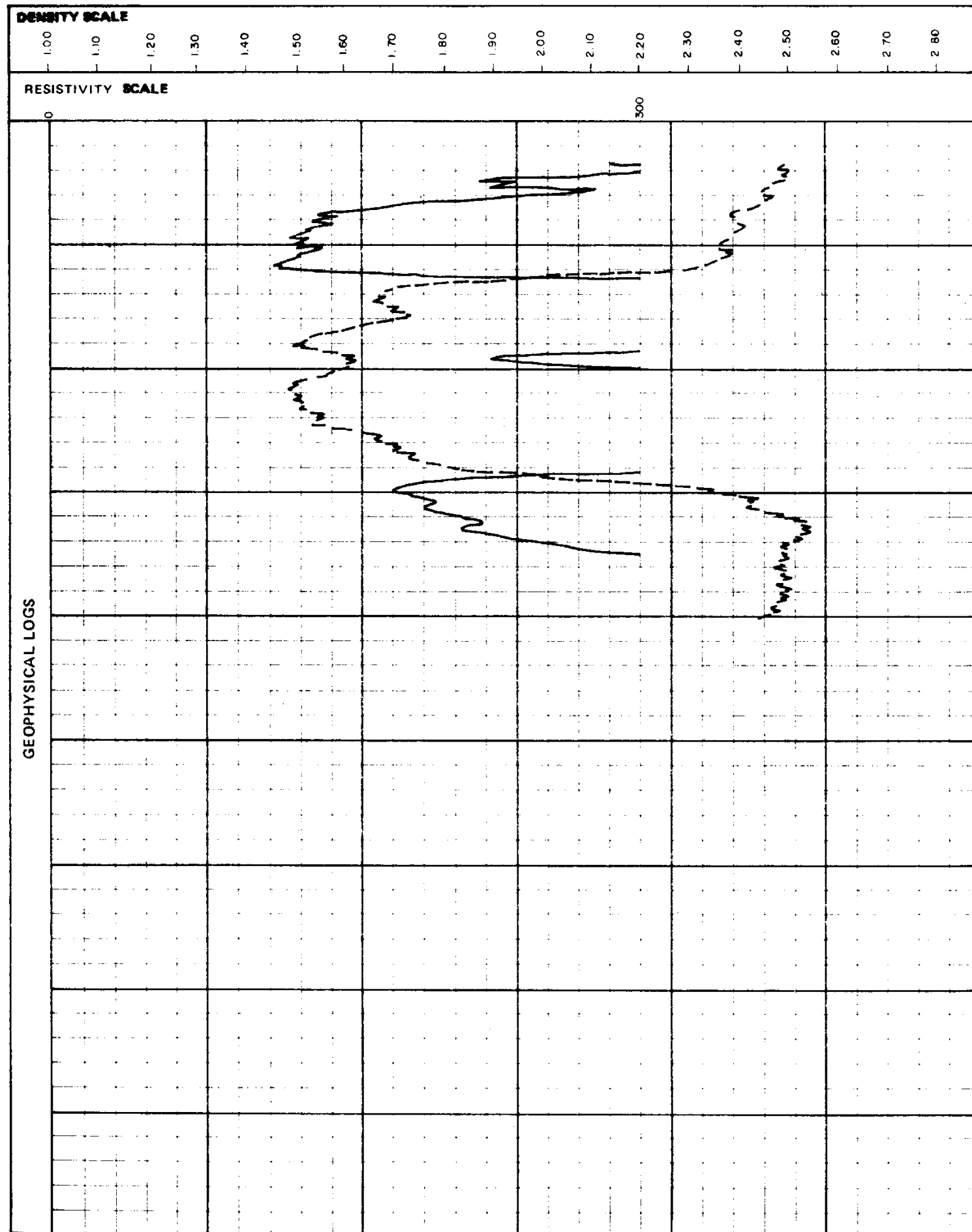
RESISTIVITY

DRILL NO. DDH - 82 - 006

SEAM B

SEAM INTERVAL

SCALE 1:40



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		
	132.35			0.37	100	04881										
	132.90		0.02	0.16												
			(0.15)	(0.18)												
			0.02	0.06	65.3	04882										
	133.85		0.05	0.30												
				0.19												
						Seam Interval (m): 132.35-133.85 Seam True Thickness (Coal/Rock): 1.26/0.24 Total 1.50										

GEOPHYSICAL LOGS

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDHE2006 SEAM - B

SAMPLE ID - 4881

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	66.69	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

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDRB2000 SEAM - B

SAMPLE ID - 4882

WASHABILITY ID - WA1

ANALYSIS TYPE - FLUAT

FRACTION SIZE (MM)	9.53 X		0.00		RELATIVE WEIGHT % - 100.00 ASH % -			
	ELLMENTAL	ASH%	CUM. FLOATS	ASH%	CUM. SINKS	ASH%	C.V.	CUM.
S.G. TIME	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	27.70			13.66	24.17

GCRI COAL DIVISION		HEAD	PROJ	KPN	BLK	BC	DS	DDHB2006	
SAMPLE ID		45							
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 %	3.05	
TOTAL MOISTURE %			---				PHOSPHOROUS %	---	
EQUILIBRIUM MOISTURE %			---				CHLORINE (PPM)	00299	
RESIDUAL MOISTURE %(AD,EM)			0.86				SPECIFIC GRAVITY	1.63	
ASH %			28.83				FSI	---	
VOLATILE MATTER %			7.39				HGI	43.0	
FIXED CARBON %			62.92				CO2 %	1.27	
GROSS CALORIFIC VALUE (MJ/KG)			24.15						
NET CALORIFIC VALUE (MJ/KG)			---						

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	BC	DS	DDHB2006	
SAMPLE ID		45							
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	
.OM (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	DDHB2006	
SAMPLE ID		45							
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	%	0.86							
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 %	(SiO2)	50.24
ALUMINIUM OXIDE %	(AL2O3)	19.01
FERRIC OXIDE %	(FE2O3)	11.15
TITANIUM DIOXIDE %	(TiO2)	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

COLF CANADA RESOURCES INC. - COAL DIVISION

DEC 02/82

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDHREZ006 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	
	ELEMENTAL WT%	ASH%	CUM. FLUATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. 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	26.13
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	10.50	26.97
2.10	2.03	51.12	84.82	20.76	15.18	71.68	14.43	26.67
2.20	1.91	56.09	86.73	21.54	13.27	74.15	12.64	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	26.52			4.72	23.55

ANALYSIS TYPE - FLOAT

FRACTION SIZE (MM)	0.60 X		0.15		RELATIVE WEIGHT % - 11.10		ASH % - 23.16	
	ELEMENTAL WT%	ASH%	CUM. FLUATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.40	17.53	2.75	17.53	2.75	82.47	26.40	34.24	34.24
1.50	30.41	7.52	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	23.03	30.93
1.80	6.38	30.00	80.45	11.49	19.55	64.50	22.41	30.26
1.90	3.16	36.88	83.61	12.93	16.39	69.63	19.60	29.68
2.10	3.72	50.30	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

PAGE -

DATA SOURCE - KPNBCDDH82000 SEAM - B

SAMPLE ID - 45

WASHABILITY ID - WAI

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT %		6.45 ASH % - 31.96	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00	73.49	15.89	73.49	15.89	26.51	89.19	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	26.60
300.00	17.03	83.27	100.00	20.02			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 DDH82006

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 DDH82006

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 DDH82006

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


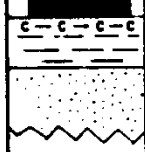
Gulf Canada Resources Inc.
Sample #4881-4882
Pellet #1


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

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	0.13					
		0.01	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.

DENSITY

RESISTIVITY

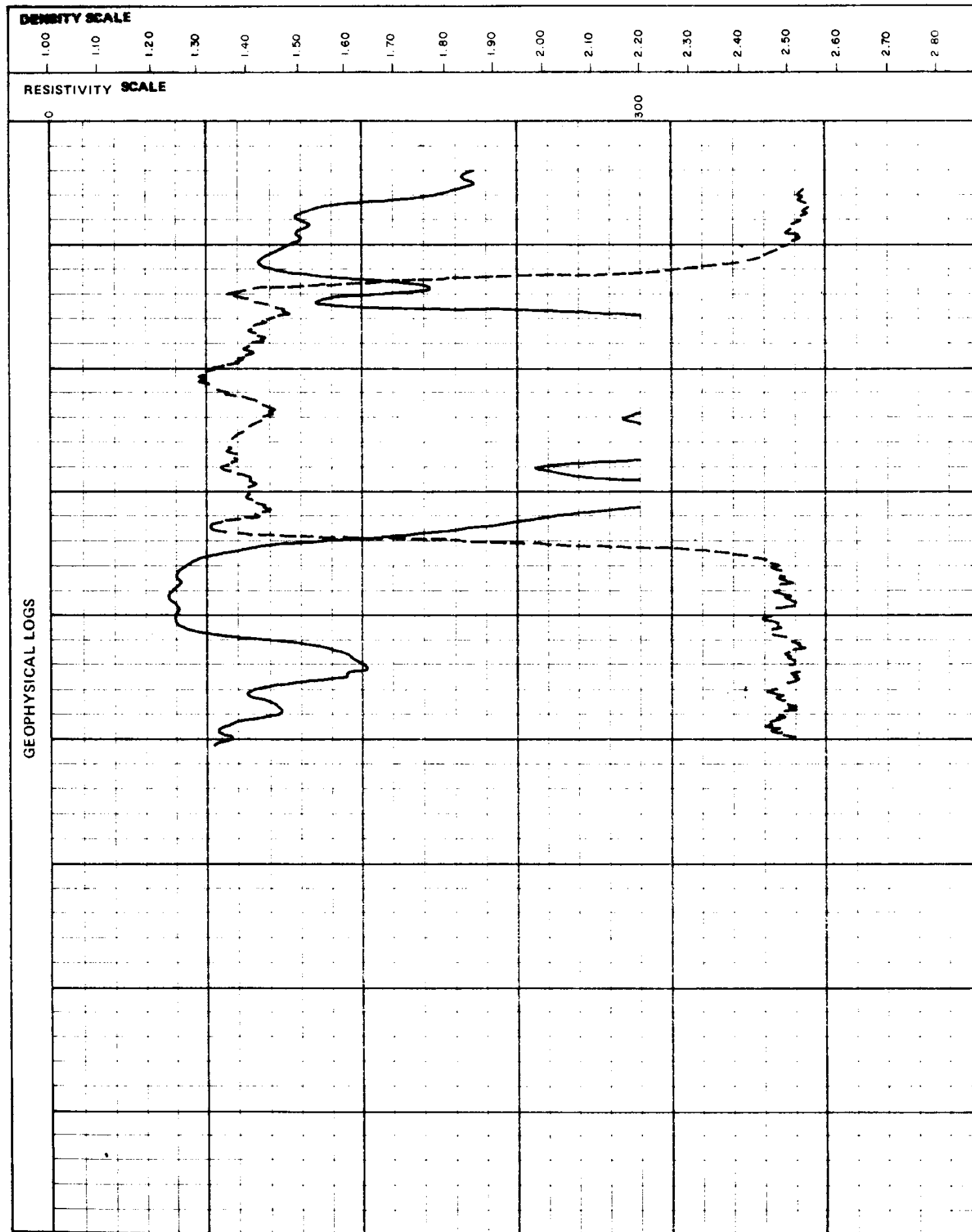
DRILL NO. DDH - 82 - 006

SEAM

A

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 ^c Cal. Val. MJ/kg	FSI		
123456	166.31		0.04	0.14											
			0.01	0.31											
	168.37			1.56	100	04883	46	0.75	17.19	8.54	73.52	28.33			
			Seam Interval (m): 166.31 - 168.37 Seam True Thickness (Coal/Rock): 1.62/0.05 Total 1.67												

GEOPHYSICAL LOGS

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDHE2006 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.
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 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

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 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

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH82006 SEAM - A

SAMPLE ID - 46

WASHABILITY ID - WAI

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.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
S.G.TME								
1.40	21.01	3.28	21.01	3.28	78.39	21.25	53.65	53.85
1.50	34.77	6.42	56.56	6.45	43.62	31.45	31.64	32.49
1.60	18.21	10.91	74.59	9.00	25.41	41.86	28.00	31.39
1.70	7.63	24.37	82.22	10.43	17.76	49.37	24.14	30.72
1.80	2.81	29.62	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	45.69	90.52	12.83	9.48	60.56	13.46	29.57
2.30	0.68	52.20	91.20	13.12	8.80	61.21	10.66	29.43
2.60	0.00	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.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
S.G.TME								
1.40	19.06	2.25	19.06	2.25	80.94	13.01	34.20	34.20
1.50	48.57	5.89	67.65	4.86	32.37	23.09	31.93	32.57
1.60	18.07	13.70	85.70	6.74	14.30	36.22	28.77	31.77
1.70	5.80	20.57	91.50	7.62	8.50	40.90	25.48	31.37
1.80	2.17	26.50	93.67	8.07	6.33	53.73	22.97	31.15
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	29.64

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNBCDDH2000 SEAM - A

SAMPLE ID - 40

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE (MM)	0.15 X		0.00		RELATIVE WEIGHT % - 15.74 ASH % - 16.38			
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G. TIME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
30.00	80.62	8.66	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 DDHS2006

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 DDHS2006

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)	-----
SIDUAL MOISTURE (AD,EM)	0.76	SPECIFIC GRAVITY	1.42
HSH %	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 DDHS2006

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 DDHB2006

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 DDHB2006

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 DDHB2006

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 TOTAL 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	---
FG 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

MOUNT KLAPPAN COAL PROJECT
HOBBIT - BROATCH AREA
GEOLOGICAL REPORT
1984

APPENDIX V

VOLUME II

1984 DIAMOND DRILL HOLE
COAL QUALITY DATA



GULF CANADA RESOURCES INC.
COAL DIVISION

695

MOUNT KLAPPAN COAL PROJECT

APPENDIX V

COAL QUALITY DATA

===== GULF CANADA RESOURCES INC. =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNHCDDH84001

DATE - 01/24/85

- HISTORY -

START DATE - 04/12/84
END DATE - 04/12/84

CONTRACTOR - J.T. THOMAS
GEOLOGIST - G. SEVE

OPERATOR - G.C.R.I.
SURVEYOR -

REMARKS - GEOPHYSICAL LOG SUITE INCOMPLETE DUE TO HOLE CAVIN
G

- LOCATION -

PROVINCE - BC
ELEVATION - 1305.00

ZONE - 9
NORTHING - 6343197.00
EASTING - 515125.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 571401
LONGITUDE - 1284458

- ORIENTATION -

LENGTH - 57.00

INCLINATION - 80.0
AZIMUTH - 54.1

CORE SIZE - 63.5

CEMENT -
PLUG -
PIEZ -

CASING DEPTH (M) - 8.84
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

=====

GULF CANADA RESOURCES INC. - COAL DIVISION
 21/MAR/85 SIMPLE SAMPLE SUMMARY PAGE 1
 APPARENT THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK
DDH84001										
	I	2211	22.73	25.16	28.80	0.55	0.15	1.26	0.47	1.81- 0.62
	I	2204	26.48	27.31	100.00	0.00	0.83	0.00	0.00	0.00- 0.83
	H	2220	50.73	52.14	100.00	1.12	0.27	0.00	0.00	1.12- 0.27
	H	2205	54.68	56.77	100.00	0.00	2.09	0.00	0.00	0.00- 2.09

GULF CANADA RESOURCES INC. - COAL DIVISION
 06/MAR/85 COMPOSITE SAMPLE SUMMARY PAGE 1
 APPARENT THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	COMP ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL-ROCK
DDH84001												
	I	1	2211	2211	22.73	25.16	28.80	0.55	0.15	1.26	0.47	1.81- 0.62
	H	2	2220	2220	50.73	52.14	100.00	1.12	0.27	0.00	0.00	1.12- 0.27

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN HC DDH84001 SEAM : 1 INTERVAL(M) : 22.73 - 25.16 ELEVATION(M) : 1305.0
 GEOLOGIST : G. SEVE SCALE: DATE : JAN 29/85 DRAWING NO. :

SEAM COMP.	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		% REC.	SAMPLE ID		COAL/ROCK TOTAL		COAL QUALITY A.D.B.							
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	CAL VAL MJ/KG		
		↑															
	22.73	X		0.24													
		X		(0.35)													
		X	0.09	3.07													
		X		(0.38)													
		X		28.6	2211	1	1.88 / 0.58		1.41	39.68	9.08	48.87	0.34	19.14			
		X		(0.14)			2.27										
		X		(0.69)													
	25.16	X		0.10													
		↓															

PLOT 2 15.15.36 TUES 29 JAN, 1985 JOB-TSTCEGO GULF CANADA LRT D155FLR 9.2

```

GCRI COAL DIVISION  HEAD  PROJ. KPN  BLK HC  DS  DDH84001
=====
SAMPLE ID 1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 24/06/84
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 50.00
SURFACE MOISTURE % ---
TOTAL MOISTURE % ---
EQUILIBRIUM MOISTURE % ---
RESIDUAL MOISTURE % 1.41
ASH % 39.66
VOLATILE MATTER % 9.06
FIXED CARBON % 49.87

TOTAL SULPHUR % 0.34
PHOSPHOROUS % ---
CHLORINE (PPM) ---
SPECIFIC GRAVITY 1.76
FSI ---
HGI ---
CO2 % ---

GROSS CALORIFIC VALUE (MJ/KG) 19.14
NET CALORIFIC VALUE (MJ/KG) ---

```

```

GCRI COAL DIVISION  SIZE  PROJ KPN  BLK HC  DS  DDH84001
=====
SAMPLE ID 1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SZ1 DATE ANALYSED 28/05/84
FRACTION SIZE WT% ASH% FSI CAL RM VM TS
FROM (MM) TO (MM) (MJ/KG)
50.00 25.00 38.66 --- --- --- --- --- ---
25.00 12.00 18.90 --- --- --- --- --- ---
12.00 6.00 12.80 --- --- --- --- --- ---
6.00 1.00 17.21 --- --- --- --- --- ---
1.00 0.50 3.83 --- --- --- --- --- ---
0.50 0.15 4.32 --- --- --- --- --- ---
0.15 0.00 4.28 --- --- --- --- --- ---

```

```

GCRI COAL DIVISION  ULTIMATE  PROJ KPN  BLK HC  DS  DDH84001
=====
SAMPLE ID 1
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 DATE ANALYSED 24/06/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER % 1.41
CARBON % 52.59
HYDROGEN % 1.78
SULPHUR % 0.34
NITROGEN % 0.67
ASH % 40.23
OXYGEN % 2.98

```

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH84001
 =====

SAMPLE ID 1
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 24/06/84

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1246.0
 SOFTENING TEMP.(C) 1325.0
 HEMISPHERICAL TEMP.(C) 1373.0
 FLUID TEMP.(C) 1398.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1217.0
 SOFTENING TEMP.(C) 1289.0
 HEMISPHERICAL TEMP.(C) 1317.0
 FLUID TEMP.(C) 1367.0

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH84001
 =====

SAMPLE ID 1
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 24/06/84

SILICON DIOXIDE %	(SI02)	63.54
ALUMINIUM OXIDE %	(AL2O3)	18.90
FERRIC OXIDE %	(FE2O3)	5.71
TITANIUM DIOXIDE %	(TI02)	0.87
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.64
CALCIUM OXIDE %	(CAO)	2.69
MAGNESIUM OXIDE %	(MGO)	3.94
SULPHUR TRIOXIDE %	(SO3)	0.89
SODIUM OXIDE %	(NA2O)	1.44
POTASSIUM OXIDE %	(K2O)	0.86

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84001 SEAM - I

SAMPLE ID - 1

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	50.00 X		6.00		RELATIVE WEIGHT % - 70.36 ASH % -		CUM. C.V.
		ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	
S.G.TME								
1.38	0.50	2.11		0.50	2.11	99.50	36.50	
1.40	1.57	3.17		2.07	2.91	97.93	37.03	
1.45	27.11	8.92		29.18	8.49	70.82	47.79	
1.50	14.62	12.66		43.80	9.88	56.20	56.93	
1.60	10.66	20.33		54.46	11.93	45.54	65.50	
1.70	9.28	30.15		63.74	14.58	36.26	74.55	
1.80	6.65	40.56		70.39	17.04	29.61	82.18	
1.90	0.12	43.88		70.51	17.08	29.49	82.33	
2.00	0.22	49.68		70.73	17.18	29.27	82.58	
2.60	29.27	82.58		100.00	36.32			

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	6.00 X		1.00		RELATIVE WEIGHT % - 17.21 ASH % -		CUM. C.V.
		ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	
S.G.TME								
1.38	2.01	1.34		2.01	1.34	97.99	50.09	
1.40	3.17	2.13		5.18	1.82	94.82	51.69	
1.45	16.61	7.00		21.79	5.77	78.21	61.18	
1.50	10.53	11.34		32.32	7.58	67.68	68.94	
1.60	8.92	17.08		41.24	9.64	58.76	76.81	
1.70	3.04	25.83		44.28	10.75	55.72	79.59	
1.80	1.54	33.19		45.82	11.50	54.18	80.91	
1.90	1.40	40.52		47.22	12.36	52.78	81.98	
2.00	1.61	53.12		48.83	13.71	51.17	82.89	
2.60	51.17	82.89		100.00	49.11			

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84001 SEAM - I

SAMPLE ID - 1

WASHABILITY ID - WA1

FRACTION	ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 3.83 ASH % -				
	SIZE(MM)	1.00 X		0.50		CUM. SINKS		C.V.	CUM.
		ELEMENTAL		CUM. FLOATS		WT% ASH%	(MJ KG)	C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%			
1.38	0.87	1.44	0.87	1.44	99.13	42.17			
1.40	2.79	1.93	3.66	1.81	96.34	43.34			
1.45	16.97	4.43	20.63	3.97	79.37	51.66			
1.50	8.70	9.83	29.33	5.71	70.67	56.81			
1.60	14.27	14.10	43.60	8.45	56.40	67.61			
1.70	7.48	20.81	51.08	10.26	48.92	74.77			
1.80	4.18	31.81	55.26	11.89	44.74	78.78			
1.90	1.22	39.42	56.48	12.49	43.52	79.89			
2.00	1.57	45.38	58.05	13.38	41.95	81.18			
2.60	41.95	81.18	100.00	41.82					

FRACTION	ANALYSIS TYPE - FLOAT				RELATIVE WEIGHT % - 4.32 ASH % -				
	SIZE(MM)	0.50 X		0.15		CUM. SINKS		C.V.	CUM.
		ELEMENTAL		CUM. FLOATS		WT% ASH%	(MJ KG)	C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%			
1.38	0.66	2.36	0.66	2.36	99.34	43.81			
1.40	1.69	3.33	2.35	3.06	97.65	44.51			
1.45	16.16	4.13	18.51	3.99	81.49	52.52			
1.50	6.76	5.95	25.27	4.52	74.73	56.73			
1.60	13.37	10.04	38.64	6.43	61.36	66.90			
1.70	7.35	16.27	45.99	8.00	54.01	73.79			
1.80	5.14	24.88	51.13	9.70	48.87	78.94			
1.90	1.98	33.13	53.11	10.57	46.89	80.87			
2.00	1.10	51.85	54.21	11.41	45.79	81.57			
2.60	45.79	81.57	100.00	43.54					

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDHB4001 SEAM - I

SAMPLE ID - 1

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION	SIZE(MM)	0.15 X 0.00		RELATIVE WEIGHT % - 4.28		ASH % - 33.67		
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
240.00	100.00	33.67	100.00	33.67				


```

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH84001
=====
SAMPLE ID 2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 24/06/84
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 50.00
SURFACE MOISTURE % ---
TOTAL MOISTURE % ---
EQUILIBRIUM MOISTURE % ---
RESIDUAL MOISTURE % 1.73
ASH % 38.85
VOLATILE MATTER % 8.69
FIXED CARBON % 50.73

TOTAL SULPHUR % 0.60
PHOSPHOROUS % ---
CHLORINE (PPM) ---
SPECIFIC GRAVITY 1.75
FSI ---
HGI ---
CO2 % ---

GROSS CALORIFIC VALUE (MJ/KG) 19.67
NET CALORIFIC VALUE (MJ/KG) ---

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GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH84001
=====
SAMPLE ID 2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SZ1 DATE ANALYSED 28/05/84
FRACTION SIZE WT% ASH% FSI CAL RM VM TS
FROM (MM) TO (MM) (MJ/KG)
50.00 25.00 29.01 --- --- --- --- --- ---
25.00 12.00 21.03 --- --- --- --- --- ---
12.00 6.00 15.53 --- --- --- --- --- ---
6.00 1.00 25.87 --- --- --- --- --- ---
1.00 0.50 3.82 --- --- --- --- --- ---
0.50 0.15 2.92 --- --- --- --- --- ---
0.15 0.00 1.82 --- --- --- --- --- ---

```

```

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH84001
=====
SAMPLE ID 2
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 DATE ANALYSED 24/06/84
ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER % 1.73
CARBON % 53.44
HYDROGEN % 1.54
SULPHUR % 0.61
NITROGEN % 0.62
ASH % 39.53
OXYGEN % 2.53

```

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84001 SEAM - H

SAMPLE ID - 2

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 50.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 65.58 ASH % -	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ KG)	CUM. C.V.
1.38	0.49	2.19	0.49	2.19	99.51	41.62				
1.40	0.59	5.90	1.08	4.22	98.92	41.83				
1.45	2.78	8.02	3.86	6.96	96.14	42.81				
1.50	6.61	13.69	10.47	11.21	89.53	44.96				
1.60	22.15	21.50	32.62	18.20	67.38	52.67				
1.70	18.16	30.23	50.78	22.50	49.22	60.95				
1.80	12.49	36.18	63.27	25.20	36.73	69.37				
1.90	3.81	42.10	67.08	26.16	32.92	72.52				
2.00	4.63	51.35	71.71	27.79	28.29	75.99				
2.60	28.29	75.99	100.00	41.42						

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 6.00 X 1.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 25.87 ASH % -	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ KG)	CUM. C.V.
1.38	5.72	2.57	5.72	2.57	94.28	35.41				
1.40	9.06	2.70	14.78	2.65	85.22	38.89				
1.45	12.36	6.90	27.14	4.59	72.86	44.31				
1.50	11.42	12.41	38.56	6.90	61.44	50.24				
1.60	16.81	19.58	55.37	10.75	44.63	61.79				
1.70	8.81	26.72	64.18	12.94	35.82	70.42				
1.80	2.78	33.69	66.96	13.80	33.04	73.51				
1.90	5.02	38.32	71.98	15.51	28.02	79.82				
2.00	2.08	46.97	74.06	16.40	25.94	82.45				
2.60	25.94	82.45	100.00	33.53						

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84001 SEAM - H

SAMPLE ID - 2

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	1.00 X		0.50		RELATIVE WEIGHT % - 3.82 ASH % -		C.V. (MJ KG)	CUM. C.V.
	WT%	ASH%	WT%	ASH%	WT%	ASH%		
S.G.TME								
1.38	3.38	1.41	3.38	1.41	96.62	31.33		
1.40	9.45	2.20	12.83	1.99	87.17	34.48		
1.45	15.75	5.00	28.58	3.65	71.42	40.98		
1.50	9.41	9.12	37.99	5.00	62.01	45.82		
1.60	12.02	17.19	50.01	7.93	49.99	52.70		
1.70	7.34	20.68	57.35	9.56	42.65	58.21		
1.80	10.87	28.41	68.22	12.57	31.78	68.41		
1.90	4.23	37.65	72.45	14.03	27.55	73.13		
2.00	3.27	45.30	75.72	15.38	24.28	76.88		
2.60	24.28	76.88	100.00	30.31				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	0.50 X		0.15		RELATIVE WEIGHT % - 2.92 ASH % -		C.V. (MJ KG)	CUM. C.V.
	WT%	ASH%	WT%	ASH%	WT%	ASH%		
S.G.TME								
1.38	4.41	2.02	4.41	2.02	95.59	35.33		
1.40	4.51	3.04	8.92	2.54	91.08	36.93		
1.45	15.91	4.29	24.83	3.66	75.17	43.84		
1.50	7.50	8.27	32.33	4.73	67.67	47.79		
1.60	11.10	12.62	43.43	6.75	56.57	54.69		
1.70	8.62	20.48	52.05	9.02	47.95	60.83		
1.80	6.84	26.87	58.89	11.09	41.11	66.49		
1.90	5.98	34.22	64.87	13.23	35.13	71.98		
2.00	4.21	43.47	69.08	15.07	30.92	75.86		
2.60	30.92	75.86	100.00	33.87				

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84001 SEAM - H

SAMPLE ID - 2

WASHABILITY ID - WA1

FRACTION SIZE(MM)		ANALYSIS TYPE - FROTH		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 1.81		ASH % - 45.18	
S.G. TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.	
240.00	100.00	45.18	100.00	45.18							

===== GULF CANADA RESOURCES INC. =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNHCDDH84002

DATE - 01/24/85

- HISTORY -

START DATE - 04/18/84

END DATE - 04/19/84

CONTRACTOR - J.T. THOMAS

GEOLOGIST - G. SEVE

OPERATOR - G.C.R.I.

SURVEYOR -

REMARKS -

- LOCATION -

PROVINCE - BC
ELEVATION - 0.00

ZONE - 9
NORTHING - 6343493.00
EASTING - 514717.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 571410
LONGITUDE - 1284522

- ORIENTATION -

LENGTH - 67.05
CORE SIZE - 63.5

INCLINATION - 90.0
AZIMUTH - 0.0

CEMENT -
PLUG -
PIEZ -

CASING DEPTH (M) - 7.56
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

=====

21/MAR/85 GULF CANADA RESOURCES INC. - COAL DIVISION
 SIMPLE SAMPLE SUMMARY PAGE 1
 APPARENT THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL-ROCK
DDH84002		2202	11.12	13.17	100.00	0.00	2.05	0.00	0.00	0.00- 2.05
	I	2212	24.15	26.37	97.74	2.05	0.12	0.05	0.00	2.10- 0.12
		2203	30.61	31.73	100.00	0.00	1.12	0.00	0.00	0.00- 1.12
	H	2213	54.93	56.58	77.57	1.01	0.27	0.20	0.17	1.21- 0.44
		2210	56.58	57.23	100.00	0.00	0.65	0.00	0.00	0.00- 0.65
		2201	57.23	58.30	100.00	0.00	1.07	0.00	0.00	0.00- 1.07

GULF CANADA RESOURCES INC. - COAL DIVISION
 06/MAR/85 COMPOSITE SAMPLE SUMMARY PAGE 1
 APPARENT THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	COMP ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK
DDH84002												
	I	3	2212	2212	24.15	26.37	97.74	2.05	0.12	0.05	0.00	2.10- 0.12
	H	4	2213	2213	54.93	56.58	77.57	1.01	0.27	0.20	0.17	1.21- 0.44

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN HC DDH84002 SEAM : 1 INTERVAL(M) : 24.15 - 26.37 ELEVATION(M) :
 GEOLOGIST : G. SEVE SCALE: DATE : JAN 29/85 DRAWING NO. :

SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		% REC.	SAMPLE ID		COAL/ROCK TOTAL		COAL QUALITY A.D.B.							
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	CAL VAL MJ/KG		
	24.15	↑		0.48			↑										
				0.97	97.7	2212	3	2.10 / 0.12 2.22		1.32	15.88	9.84	72.93	0.48	28.27		
	26.37	↓		0.49			↓										

DISSEPLR 9-2

JOB-TSTOCEGO GULF CANADA LMT

19.46.37 TUES 29 JAN, 1985

PLOT 2

```

GCRI COAL DIVISION  HEAD      PROJ. KPN      BLK HC      DS      DDH84002
=====
SAMPLE ID              3      DATA TYPE (REAL,BORO,AVER,CALC)      REAL
SPLIT SAMPLE ID      HD1      DATE ANALYSED      24/06/84
                                ANALYSIS BASIS TYPE (AD,DB,AR,EM)      AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)      ASTM

TOP SIZE (MM)              50.00
SURFACE MOISTURE %      ---
TOTAL MOISTURE %      ---
EQUILIBRIUM MOISTURE %  ---
RESIDUAL MOISTURE %      1.32
ASH %                    15.89
VOLATILE MATTER %      9.86
FIXED CARBON %          72.93

TOTAL SULPHUR %          0.48
PHOSPHOROUS %          ---
CHLORINE (PPM)          ---
SPECIFIC GRAVITY        1.54
FSI                      ---
HGI                      ---
CO2 %                   ---

GROSS CALORIFIC VALUE (MJ/KG)  28.27
NET CALORIFIC VALUE (MJ/KG)  ---

```

```

GCRI COAL DIVISION  SIZE      PROJ KPN      BLK HC      DS      DDH84002
=====
SAMPLE ID              3      DATA TYPE (REAL,BORO,AVER,CALC)      REAL
SPLIT SAMPLE ID      SZ1      DATE ANALYSED      15/05/84
FRACTION SIZE        WT%      ASH%      FSI      CAL      RM      VM      TS
FROM (MM) TO (MM)    (MJ/KG)
50.00  25.00  13.61  ---
25.00  12.00  19.64  ---
12.00   6.00  17.07  ---
 6.00   1.00  29.48  ---
 1.00   0.50   6.55  ---
 0.50   0.15   7.39  ---
 0.15   0.00   6.26  ---

```

```

GCRI COAL DIVISION  ULTIMATE      PROJ KPN      BLK HC      DS      DDH84002
=====
SAMPLE ID              3
SAMPLE PRODUCT ID      SP1      DATA TYPE (REAL,BORO,AVER,CALC)      REAL
SPLIT SAMPLE ID      UL1      DATE ANALYSED      24/06/84

ANALYSIS BASIS TYPE (DAF,DB,AD)      AD

WATER      %      1.32
CARBON     %      74.10
HYDROGEN  %      2.38
SULPHUR   %      0.49
NITROGEN  %      0.91
ASH        %      16.10
OXYGEN    %      4.70

```

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84002 SEAM - I

SAMPLE ID - 3

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM) 50.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 50.32 ASH % -	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ KG)	CUM. C.V.
S.G.TME										
1.40	0.09	2.37	0.09	2.37	99.91	19.36				
1.45	4.08	2.50	4.17	2.50	95.83	20.07				
1.50	35.16	7.02	39.33	6.54	60.67	27.64				
1.60	22.90	16.14	62.23	10.07	37.77	34.61				
1.70	16.85	25.19	79.08	13.29	20.92	42.19				
1.80	6.77	31.33	85.85	14.72	14.15	47.39				
1.90	3.33	37.42	89.18	15.56	10.82	50.46				
2.00	3.07	45.74	92.25	16.57	7.75	52.33				
2.60	7.75	52.33	100.00	19.34						

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM) 6.00 X 1.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 29.48 ASH % -	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ KG)	CUM. C.V.
S.G.TME										
1.38	0.06	1.65	0.06	1.65	99.94	11.00				
1.40	0.81	1.79	0.87	1.78	99.13	11.07				
1.45	21.66	2.92	22.53	2.88	77.47	13.35				
1.50	35.92	5.76	58.45	4.65	41.55	19.91				
1.60	22.48	11.72	80.93	6.61	19.07	29.57				
1.70	9.96	19.29	90.89	8.00	9.11	40.81				
1.80	3.82	27.16	94.71	8.77	5.29	50.67				
1.90	1.04	36.18	95.75	9.07	4.25	54.22				
2.00	0.59	40.48	96.34	9.26	3.66	56.43				
2.60	3.66	56.43	100.00	10.99						

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84002 SEAM - I

SAMPLE ID - 3

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 1.00 X		0.50		RELATIVE WEIGHT % -		6.55 ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.38	0.99	1.93	0.99	1.93	99.01	10.32		
1.40	9.26	2.19	10.25	2.16	89.75	11.16		
1.45	31.68	3.04	41.93	2.83	58.07	15.59		
1.50	16.41	5.73	58.34	3.64	41.66	19.48		
1.60	21.29	10.17	79.63	5.39	20.37	29.21		
1.70	10.56	16.11	90.19	6.64	9.81	43.30		
1.80	3.56	25.44	93.75	7.36	6.25	53.48		
1.90	1.11	35.17	94.86	7.68	5.14	57.43		
2.00	0.74	40.52	95.60	7.94	4.40	60.28		
2.60	4.40	60.28	100.00	10.24				

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 0.50 X		0.15		RELATIVE WEIGHT % -		7.39 ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.38	4.16	2.13	4.16	2.13	95.84	10.79		
1.40	8.66	2.40	12.82	2.31	87.18	11.63		
1.45	21.53	2.92	34.35	2.69	65.65	14.48		
1.50	23.45	3.93	57.80	3.19	42.20	20.34		
1.60	19.55	7.75	77.35	4.35	22.65	31.22		
1.70	6.48	13.64	83.83	5.06	16.17	38.26		
1.80	8.26	19.09	92.09	6.32	7.91	58.28		
1.90	0.98	33.01	93.07	6.60	6.93	61.85		
2.00	0.82	38.14	93.89	6.88	6.11	65.03		
2.60	6.11	65.03	100.00	10.43				

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84002 SEAM - I

SAMPLE ID - 3

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION S.G.TME	SIZE(MM) 0.15 X		0.00		RELATIVE WEIGHT % -		6.26 ASH % - 12.91	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V. CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
240.00	100.00	12.91	100.00	12.91				


```

GCRI COAL DIVISION  HEAD      PROJ  KPN      BLK  HC      DS  DDH84002
=====
SAMPLE ID              4      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID      HD1      DATE ANALYSED  24/06/84
                                ANALYSIS BASIS TYPE (AD,DB,AR,EM)  AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)  ASTM

TOP SIZE (MM)                50.00
SURFACE MOISTURE %           ---
TOTAL MOISTURE %             ---
EQUILIBRIUM MOISTURE %      ---
RESIDUAL MOISTURE %          1.67
ASH %                        37.27
VOLATILE MATTER %           10.70
FIXED CARBON %              50.36

TOTAL SULPHUR %              0.45
PHOSPHOROUS %                ---
CHLORINE (PPM)              ---
SPECIFIC GRAVITY            1.75
FSI                           ---
HGI                           ---
CO2 %                         ---

GROSS CALORIFIC VALUE (MJ/KG) 19.69
NET CALORIFIC VALUE (MJ/KG)  ---

```

```

GCRI COAL DIVISION  SIZE      PROJ  KPN      BLK  HC      DS  DDH84002
=====
SAMPLE ID              4      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID      SZ1      DATE ANALYSED  15/05/84
  FRACTION SIZE      WT%      ASH%      FSI      CAL      RM      VM      TS
FROM (MM) TO (MM)
50.00  25.00  20.78  ---  ---  ---  ---  ---
25.00  12.00  21.35  ---  ---  ---  ---  ---
12.00   6.00  15.54  ---  ---  ---  ---  ---
 6.00   1.00  27.51  ---  ---  ---  ---  ---
 1.00   0.50   5.64  ---  ---  ---  ---  ---
 0.50   0.15   5.39  ---  ---  ---  ---  ---
 0.15   0.00   3.79  ---  ---  ---  ---  ---

```

```

GCRI COAL DIVISION  ULTIMATE  PROJ  KPN      BLK  HC      DS  DDH84002
=====
SAMPLE ID              4
SAMPLE PRODUCT ID     SP1      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID      UL1      DATE ANALYSED  24/06/84

ANALYSIS BASIS TYPE (DAF,DB,AD)  AD

WATER      %      1.67
CARBON     %      53.43
HYDROGEN  %      1.82
SULPHUR   %      0.46
NITROGEN  %      0.63
ASH        %      37.90
OXYGEN    %      4.09

```

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84002 SEAM - H

SAMPLE ID - 4

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	50.00 X		6.00		RELATIVE WEIGHT % - 57.67		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40		0.09	2.03	0.09	2.03	99.91	38.37		
1.45		0.61	5.26	0.70	4.84	99.30	38.58		
1.50		2.88	11.28	3.58	10.02	96.42	39.39		
1.60		16.17	20.43	19.75	18.54	80.25	43.21		
1.70		20.72	28.55	40.47	23.67	59.53	48.31		
1.80		14.25	33.15	54.72	26.14	45.28	53.09		
1.90		15.08	38.54	69.80	28.82	30.20	60.35		
2.00		6.35	46.57	76.15	30.30	23.85	64.02		
2.60		23.85	64.02	100.00	38.34				

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	6.00 X		1.00		RELATIVE WEIGHT % - 27.51		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.38		1.03	1.16	1.03	1.16	98.97	36.08		
1.40		7.20	1.93	8.23	1.83	91.77	38.76		
1.45		5.41	6.49	13.64	3.68	86.36	40.78		
1.50		7.55	9.75	21.19	5.84	78.81	43.75		
1.60		15.59	17.38	36.78	10.73	63.22	50.26		
1.70		15.09	24.83	51.87	14.83	48.13	58.23		
1.80		10.71	31.41	62.58	17.67	37.42	65.91		
1.90		6.27	38.69	68.85	19.59	31.15	71.38		
2.00		4.56	47.21	73.41	21.30	26.59	75.53		
2.60		26.59	75.53	100.00	35.72				

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84002 SEAM - H

SAMPLE ID - 4

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM)		1.00 X		0.50		RELATIVE WEIGHT % -		5.64 ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.		
1.40	18.47	3.29	18.47	3.29	81.53	37.23				
1.45	6.65	3.29	25.12	3.29	74.88	40.24				
1.50	9.79	6.28	34.91	4.13	65.09	45.35				
1.60	8.26	12.65	43.17	5.76	56.83	50.11				
1.70	9.50	18.78	52.67	8.11	47.33	56.39				
1.80	15.07	28.90	67.74	12.73	32.26	69.24				
1.90	4.26	39.40	72.00	14.31	28.00	73.78				
2.00	3.55	47.59	75.55	15.87	24.45	77.58				
2.60	24.45	77.58	100.00	30.96						

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -		5.39 ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.		
1.40	9.45	1.72	9.45	1.72	90.55	33.44				
1.45	21.70	2.26	31.15	2.10	68.85	43.26				
1.50	9.69	8.11	40.84	3.52	59.16	49.02				
1.60	6.78	11.84	47.62	4.71	52.38	53.83				
1.70	8.76	19.91	56.38	7.07	43.62	60.64				
1.80	9.76	29.85	66.14	10.43	33.86	69.52				
1.90	4.57	38.11	70.71	12.22	29.29	74.42				
2.00	3.06	46.55	73.77	13.64	26.23	77.67				
2.60	26.23	77.67	100.00	30.44						

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84002 SEAM - H

SAMPLE ID - 4

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION	SIZE(MM)	0.15 X	0.00	RELATIVE WEIGHT % - 3.79			ASH % - 37.42	
S.G.TME	ELEMENTAL	WT%	ASH%	CUM. FLOATS	CUM. SINKS	C.V.	CUM.	
		WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.	
240.00	100.00	37.42		100.00	37.42			

===== GULF CANADA RESOURCES INC. =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNHCDDH84003

DATE - 01/24/85

- HISTORY -

START DATE - 04/20/84

END DATE - 04/20/84

CONTRACTOR - J.T.THOMAS

GEOLOGIST - G.SEVE

OPERATOR - GCRI

SURVEYOR -

REMARKS - HOLE IS LOGGED THROUGH DRILL RODS ONLY

- LOCATION -

PROVINCE - BC

ELEVATION - 1347.00

LICENCE/LEASE NUMBER -

0

ZONE - 9

NORTHING - 6343228.00

EASTING - 514895.00

LATITUDE - 571402

LONGITUDE - 1284512

- ORIENTATION -

LENGTH - 53.95

CORE SIZE - 63.5

CEMENT - N

PLUG - N

PIEZ -

INCLINATION - 90.0

AZIMUTH - 0.0

CASING DEPTH (M) - 4.57

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

=====

GULF CANADA RESOURCES INC. - COAL DIVISION
 21/MAR/85 SIMPLE SAMPLE SUMMARY PAGE 1
 APPARENT THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK
DDH84003										
	I	2214	18.99	20.18	68.90	0.82	0.00	0.37	0.00	1.19- 0.00
	I	2215	20.18	20.93	70.66	0.04	0.49	0.18	0.04	0.22- 0.53
	I	2216	20.93	23.37	90.98	2.18	0.04	0.22	0.00	2.40- 0.04
	I	2301	24.32	25.01	100.00	0.00	0.69	0.00	0.00	0.00- 0.69
	I	2302	36.89	38.35	100.00	0.00	1.46	0.00	0.00	0.00- 1.46
	I	2303	44.91	45.47	100.00	0.00	0.56	0.00	0.00	0.00- 0.56
	H	2217	48.38	49.41	68.93	0.58	0.13	0.11	0.21	0.69- 0.34

GULF CANADA RESOURCES INC. - COAL DIVISION
 06/MAR/85 COMPOSITE SAMPLE SUMMARY PAGE 1
 APPARENT THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	COMP ID	SAMPLE FROM	SAMPLE TO	DEPTH FRDM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL-ROCK
DDHB4003												
	I	5	2214	2214	18.99	20.18	68.90	0.82	0.00	0.37	0.00	1.19- 0.00
	I	6	2215	2215	20.18	20.93	70.66	0.04	0.49	0.18	0.04	0.22- 0.53
	I	7	2216	2216	20.93	23.37	90.98	2.18	0.04	0.22	0.00	2.40- 0.04
	H	8	2217	2217	48.38	49.41	68.93	0.58	0.13	0.11	0.21	0.69- 0.34

GULF CANADA RESOURCES INC.

COAL DIVISION
MOUNT KLAPPAN PROJECT

SEAM DETAIL

TRUE THICKNESS

DATA SOURCE: KPN HC 0DH84003 SEAM : 1 INTERVAL(M) : 18.99 - 23.37 ELEVATION(M) : 1347.0
 GEOLOGIST : G.SEVE SCALE: DATE : JAN 29/85 DRAWING NO.:

SEAM COMP.	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		% REC.	SAMPLE ID		COAL/ROCK TOTAL		COAL QUALITY A.D.B.						
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	CAL VAL M4/KG	
	18.99			0.78	89.1	2214	5	1.10 / 0.00 1.10		1.51	14.98	8.52	74.98	0.34	28.77	
	20.18			(0.34)												
	20.93			0.20												
				(0.17)	70.4	2216	6	0.21 / 0.30 0.71		1.97	59.80	11.36	26.87	0.20	10.31	
				0.30												
				0.28												
				0.49												
				1.40	91.1	2218	7	2.31 / 0.04 2.35		1.44	15.05	9.78	73.72	0.45	28.58	
	23.37															

PLOT 2 17.28.12 TUES 29 JAN, 1985 JOB-T5TCE60 GULF CANADA LMT D155PLR 9.2

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH84003
 =====
 SAMPLE ID 5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 24/06/84
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

 TOP SIZE (MM) 50.00
 SURFACE MOISTURE % ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE % 1.51
 ASH % 14.99
 VOLATILE MATTER % 8.52
 FIXED CARBON % 74.98

 TOTAL SULPHUR % 0.34
 PHOSPHOROUS % ---
 CHLORINE (PPM) ---
 SPECIFIC GRAVITY 1.54
 FSI ---
 HGI ---
 CO2 % ---

 GROSS CALORIFIC VALUE (MJ/KG) 28.77
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH84003
 =====
 SAMPLE ID 5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ2 DATE ANALYSED 15/05/84
 FRACTION SIZE WT% ASH% FSI CAL RM VM TS
 FROM (MM) TO (MM) (MJ/KG)
 50.00 25.00 1.19 ---
 25.00 12.00 6.03 ---
 12.00 6.00 11.96 ---
 6.00 1.00 44.61 ---
 1.00 0.50 13.46 ---
 0.50 0.15 12.58 ---
 0.15 0.00 10.17 ---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH84003
 =====
 SAMPLE ID 5
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 24/06/84

 ANALYSIS BASIS TYPE (DAF,DB,AD) AD

 WATER % 1.51
 CARBON % 77.24
 HYDROGEN % 2.72
 SULPHUR % 0.35
 NITROGEN % 0.87
 ASH % 15.22
 OXYGEN % 2.09

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84003 SEAM - 1

SAMPLE ID - 5

WASHABILITY ID - WA1

----- ANALYSIS TYPE - FLOAT -----

FRACTION	SIZE(MM)	50.00 X		6.00		RELATIVE WEIGHT % - 19.18 ASH % -		CUM. C.V.
		ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	
S.G.TME								
1.38	0.23	2.72	0.23	2.72	99.77	25.38		
1.40	0.52	4.29	0.75	3.81	99.25	25.49		
1.45	15.83	7.39	16.58	7.23	83.42	28.93		
1.50	30.01	12.27	46.59	10.48	53.41	38.29		
1.60	27.35	20.97	73.94	14.36	26.06	56.47		
1.70	6.47	26.89	80.41	15.37	19.59	66.24		
1.80	1.16	29.80	81.57	15.57	18.43	68.53		
1.90	0.32	33.09	81.89	15.64	18.11	69.16		
2.00	0.03	37.35	81.92	15.65	18.08	69.21		
2.60	18.08	69.21	100.00	25.33				

----- ANALYSIS TYPE - FLOAT -----

FRACTION	SIZE(MM)	6.00 X		1.00		RELATIVE WEIGHT % - 44.61 ASH % -		CUM. C.V.
		ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	
S.G.TME								
1.38	0.12	1.37	0.12	1.37	99.88	12.82		
1.40	5.53	1.42	5.65	1.42	94.35	13.49		
1.45	19.13	4.79	24.78	4.02	75.22	15.70		
1.50	32.42	9.34	57.20	7.04	42.80	20.52		
1.60	30.30	15.03	87.50	9.80	12.50	33.84		
1.70	6.97	22.71	94.47	10.76	5.53	47.88		
1.80	1.54	28.68	96.01	11.04	3.99	55.28		
1.90	0.89	34.85	96.90	11.26	3.10	61.15		
2.00	0.44	40.13	97.34	11.39	2.66	64.63		
2.60	2.66	64.63	100.00	12.81				

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84003 SEAM - 1

SAMPLE ID - 5

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	1.00 X		0.50		RELATIVE WEIGHT % - 13.46 ASH % -		C.V. CUM. (MJ KG) C.V.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	
S.G.TME							
1.38	0.86	1.20	0.86	1.20	99.14	10.89	
1.40	10.66	1.53	11.52	1.51	88.48	12.02	
1.45	23.34	3.76	34.86	3.01	65.14	14.98	
1.50	25.20	7.78	60.06	5.01	39.94	19.52	
1.60	25.29	12.79	85.35	7.32	14.65	31.14	
1.70	7.80	19.30	93.15	8.32	6.85	44.62	
1.80	2.27	27.07	95.42	8.77	4.58	53.32	
1.90	0.89	35.67	96.31	9.02	3.69	57.58	
2.00	0.57	41.70	96.88	9.21	3.12	60.48	
2.60	3.12	60.48	100.00	10.81			

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	0.50 X		0.15		RELATIVE WEIGHT % - 12.58 ASH % -		C.V. CUM. (MJ KG) C.V.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	
S.G.TME							
1.38	8.29	1.95	8.29	1.95	91.71	10.76	
1.40	15.84	3.30	24.13	2.84	75.87	12.32	
1.45	13.16	3.87	37.29	3.20	62.71	14.09	
1.50	25.78	6.28	63.07	4.46	36.93	19.54	
1.60	21.30	11.18	84.37	6.16	15.63	30.93	
1.70	7.92	17.18	92.29	7.10	7.71	45.06	
1.80	2.50	24.92	94.79	7.57	5.21	54.73	
1.90	1.12	33.56	95.91	7.88	4.09	60.52	
2.00	0.61	41.27	96.52	8.09	3.48	63.90	
2.60	3.48	63.90	100.00	10.03			

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84003 SEAM - 1

SAMPLE ID - 5

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % - 10.17		ASH % - 13.97	
	ELEMENTAL		CUM. FLDATS		CUM. SINKS		C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
240.00	100.00	13.97	100.00	13.97				

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH84003
 =====

SAMPLE ID 6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 24/06/84
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 50.00
 SURFACE MOISTURE % ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE % 1.97
 ASH % 59.80
 VOLATILE MATTER % 11.36
 FIXED CARBON % 26.87
 TOTAL SULPHUR % 0.20
 PHOSPHOROUS % ---
 CHLORINE (PPM) ---
 SPECIFIC GRAVITY 2.09
 FSI ---
 HGI ---
 CO2 % ---
 GROSS CALORIFIC VALUE (MJ/KG) 10.31
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH84003
 =====

SAMPLE ID 6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 28/05/84

FRACTION SIZE	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
FROM (MM) TO (MM)							
50.00 25.00	41.02	---	---	---	---	---	---
25.00 12.00	24.65	---	---	---	---	---	---
12.00 6.00	11.81	---	---	---	---	---	---
6.00 1.00	13.03	---	---	---	---	---	---
1.00 0.50	3.08	---	---	---	---	---	---
0.50 0.15	3.76	---	---	---	---	---	---
0.15 0.00	2.65	---	---	---	---	---	---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH84003
 =====

SAMPLE ID 6
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 24/06/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER % 1.97
 CARBON % 30.83
 HYDROGEN % 1.06
 SULPHUR % 0.20
 NITROGEN % 0.47
 ASH % 61.00
 OXYGEN % 4.47

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84003 SEAM - I

SAMPLE ID - 6

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	50.00 X 6.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 77.48 ASH % -			
		ELEMENTAL		WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.		
1.40		0.61	4.16	0.61	4.16	99.39	61.77				
1.45		0.04	4.19	0.65	4.16	99.35	61.79				
1.50		0.42	9.12	1.07	6.11	98.93	62.01				
1.60		1.09	20.54	2.16	13.39	97.84	62.48				
1.70		10.84	28.63	13.00	26.10	87.00	66.69				
1.80		12.63	33.80	25.63	29.89	74.37	72.28				
1.90		8.55	41.09	34.18	32.69	65.82	76.33				
2.00		9.36	49.56	43.54	36.32	56.46	80.77				
2.60		56.46	80.77	100.00	61.42						

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	6.00 X 1.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 13.03 ASH % -			
		ELEMENTAL		WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.		
1.38		0.82	1.61	0.82	1.61	99.18	61.12				
1.40		0.05	1.87	0.87	1.62	99.13	61.15				
1.45		0.17	6.98	1.04	2.50	98.96	61.25				
1.50		3.15	10.46	4.19	8.48	95.81	62.92				
1.60		10.69	17.62	14.88	15.05	85.12	68.61				
1.70		9.38	25.96	24.26	19.27	75.74	73.89				
1.80		5.57	32.33	29.83	21.71	70.17	77.19				
1.90		4.92	38.12	34.75	24.03	65.25	80.13				
2.00		4.34	45.77	39.09	26.44	60.91	82.58				
2.60		60.91	82.58	100.00	60.64						

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84003 SEAM - I

SAMPLE ID - 6

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	1.00 X		0.50		RELATIVE WEIGHT % -		3.08 ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.38	1.19	1.49	1.19	1.49	98.81	46.91		
1.40	7.91	1.71	9.10	1.68	90.90	50.85		
1.45	11.47	4.80	20.57	3.42	79.43	57.50		
1.50	5.14	10.59	25.71	4.85	74.29	60.74		
1.60	10.48	16.33	36.19	8.18	63.81	68.04		
1.70	7.12	23.74	43.31	10.74	56.69	73.60		
1.80	5.74	31.66	49.05	13.18	50.95	78.32		
1.90	2.18	39.08	51.23	14.29	48.77	80.08		
2.00	3.07	46.56	54.30	16.11	45.70	82.33		
2.60	45.70	82.33	100.00	46.37				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	0.50 X		0.15		RELATIVE WEIGHT % -		3.76 ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.38	2.60	1.33	2.60	1.33	97.40	46.14		
1.40	2.68	2.15	5.28	1.75	94.72	47.38		
1.45	18.54	3.68	23.82	3.25	76.18	58.02		
1.50	3.94	7.63	27.76	3.87	72.24	60.77		
1.60	9.14	13.50	36.90	6.26	63.10	67.61		
1.70	5.96	20.55	42.86	8.24	57.14	72.52		
1.80	6.63	29.38	49.49	11.08	50.51	78.18		
1.90	2.85	41.82	52.34	12.75	47.66	80.36		
2.00	2.10	48.85	54.44	14.14	45.56	81.81		
2.60	45.56	81.81	100.00	44.97				

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84003 SEAM - I

SAMPLE ID - 6

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X	0.00	RELATIVE WEIGHT % - 2.65 ASH % - 50.61			
S.G.TME	ELEMENTAL	CUM. FLOATS	CUM. SINKS	C.V.	CUM.	
	WT% ASH%	WT% ASH%	WT% ASH%	(MJ)KG	C.V.	
240.00	100.00 50.61	100.00 50.61				

```

GORI COAL DIVISION  HEAD  PROJ  KPN  BLK  HC  DS  DDH84003
=====
SAMPLE ID              7      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID      HD1     DATE ANALYSED 24/06/84
                        ANALYSIS BASIS TYPE (AD,DB,AR,EM)  AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)  ASTM

TOP SIZE (MM)                50.00
SURFACE MOISTURE %           ---
TOTAL MOISTURE %             ---
EQUILIBRIUM MOISTURE %      ---
RESIDUAL MOISTURE %          1.44
ASH %                        15.05
VOLATILE MATTER %            9.79
FIXED CARBON %               73.72

TOTAL SULPHUR %              0.45
PHOSPHOROUS %                ---
CHLORINE (PPM)               ---
SPECIFIC GRAVITY             1.54
FSI                            ---
HGI                            ---
CO2 %                          ---

GROSS CALORIFIC VALUE (MJ/KG) 28.56
NET CALORIFIC VALUE (MJ/KG)  ---

```

```

GORI COAL DIVISION  SIZE  PROJ  KPN  BLK  HC  DS  DDH84003
=====
SAMPLE ID              7      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID      SZ1     DATE ANALYSED 15/05/84
  FRACTION SIZE      WT%   ASH%   FSI   CAL   RM   VM   TS
FROM (MM) TO (MM)   (MJ/KG)
50.00  25.00    8.82  ---  ---  ---  ---  ---
25.00  12.00   16.14  ---  ---  ---  ---  ---
12.00   6.00   17.00  ---  ---  ---  ---  ---
 6.00   1.00   36.12  ---  ---  ---  ---  ---
 1.00   0.50   8.26   ---  ---  ---  ---  ---
 0.50   0.15   7.70   ---  ---  ---  ---  ---
 0.15   0.00   5.96   ---  ---  ---  ---  ---

```

```

GORI COAL DIVISION  ULTIMATE  PROJ  KPN  BLK  HC  DS  DDH84003
=====
SAMPLE ID              7
SAMPLE PRODUCT ID     SP1     DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID      UL1     DATE ANALYSED 24/06/84

ANALYSIS BASIS TYPE (DAF,DB,AD)  AD

WATER %                1.44
CARBON %               75.95
HYDROGEN %             2.21
SULPHUR %              0.46
NITROGEN %             0.91
ASH %                  15.27
OXYGEN %               3.76

```

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84003 SEAM - 1

SAMPLE ID - 7

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 50.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 41.96 ASH % -	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.38	0.66	0.99	0.66	0.99	99.34	17.90				
1.40	3.02	2.03	3.68	1.84	96.32	18.40				
1.45	24.48	6.07	28.16	5.52	71.84	22.60				
1.50	22.74	10.70	50.90	7.83	49.10	28.12				
1.60	27.72	16.12	78.62	10.75	21.38	43.67				
1.70	6.47	26.57	85.09	11.96	14.91	51.09				
1.80	1.91	31.56	87.00	12.39	13.00	53.96				
1.90	1.38	36.98	88.38	12.77	11.62	55.97				
2.00	2.21	41.60	90.59	13.47	9.41	59.35				
2.60	9.41	59.35	100.00	17.79						

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 6.00 X 1.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 36.12 ASH % -	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.38	1.68	1.02	1.68	1.02	98.32	12.55				
1.40	8.65	1.24	10.33	1.20	89.67	13.64				
1.45	27.43	3.94	37.76	3.19	62.24	17.92				
1.50	18.32	7.86	56.08	4.72	43.92	22.12				
1.60	23.88	12.47	79.96	7.03	20.04	33.62				
1.70	8.53	18.37	88.49	8.13	11.51	44.91				
1.80	4.43	26.37	92.92	8.99	7.08	56.52				
1.90	1.13	36.56	94.05	9.33	5.95	60.31				
2.00	0.76	43.15	94.81	9.60	5.19	62.82				
2.60	5.19	62.82	100.00	12.36						

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84003 SEAM - I

SAMPLE ID - 7

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM) 1.00 X		0.50		RELATIVE WEIGHT % -		8.26 ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.38	1.98	1.39	1.98	1.39	98.02	11.90		
1.40	10.29	1.99	12.27	1.89	87.73	13.06		
1.45	33.36	4.17	45.63	3.56	54.37	18.52		
1.50	15.08	7.62	60.71	4.57	39.29	22.70		
1.60	21.38	12.02	82.09	6.51	17.91	35.45		
1.70	7.58	19.10	89.67	7.57	10.33	47.44		
1.80	3.14	26.33	92.81	8.21	7.19	56.66		
1.90	1.21	35.62	94.02	8.56	5.98	60.92		
2.00	0.75	41.93	94.77	8.82	5.23	63.64		
2.60	5.23	63.64	100.00	11.69				

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM) 0.50 X		0.15		RELATIVE WEIGHT % -		7.70 ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.38	4.33	2.25	4.33	2.25	95.67	12.11		
1.40	14.41	2.77	18.74	2.65	81.26	13.76		
1.45	28.38	4.11	47.12	3.53	52.88	18.94		
1.50	16.37	7.09	63.49	4.45	36.51	24.26		
1.60	15.72	10.97	79.21	5.74	20.79	34.30		
1.70	9.99	16.54	89.20	6.95	10.80	50.74		
1.80	3.30	26.01	92.50	7.63	7.50	61.62		
1.90	0.86	35.33	93.36	7.89	6.64	65.02		
2.00	0.60	42.89	93.96	8.11	6.04	67.22		
2.60	6.04	67.22	100.00	11.68				

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84003 SEAM - I

SAMPLE ID - 7

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % -		5.96 ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
30.00	80.66	8.89	80.66	8.89	19.34	38.64		
45.00	5.71	16.37	86.37	9.38	13.63	47.97		
60.00	2.60	25.12	88.97	9.84	11.03	53.36		
90.00	1.42	32.65	90.39	10.20	9.61	56.42		
120.00	0.48	32.70	90.87	10.32	9.13	57.67		
240.00	9.13	57.67	100.00	14.64				


```

GCRI COAL DIVISION HEAD      PROJ KPN      BLK HC      DS      DDH84003
=====
SAMPLE ID                    8          DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID             HD1        DATE ANALYSED 24/06/84
                                ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)                50.00
SURFACE MOISTURE %           ---
TOTAL MOISTURE %             ---
EQUILIBRIUM MOISTURE %      ---
RESIDUAL MOISTURE %          1.94
ASH %                        35.34
VOLATILE MATTER %            9.31
FIXED CARBON %               53.41

TOTAL SULPHUR %              1.25
PHOSPHOROUS %                ---
CHLORINE (PPM)               ---
SPECIFIC GRAVITY             1.75
FSI                           ---
HGI                           ---
CO2 %                         ---

GROSS CALORIFIC VALUE (MJ/KG) 21.05
NET CALORIFIC VALUE (MJ/KG)  ---

```

```

GCRI COAL DIVISION SIZE      PROJ KPN      BLK HC      DS      DDH84003
=====
SAMPLE ID                    8          DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID             SZ1        DATE ANALYSED 15/05/84
  FRACTION SIZE             WT%      ASH%      FSI      CAL      RM.      VM      TS
FROM (MM) TO (MM)          (MJ/KG)
50.00 25.00 19.36  ---  ---  ---  ---  ---
25.00 12.00 16.26  ---  ---  ---  ---  ---
12.00  6.00 14.04  ---  ---  ---  ---  ---
 6.00  1.00 29.58  ---  ---  ---  ---  ---
 1.00  0.50  7.05  ---  ---  ---  ---  ---
 0.50  0.15  6.94  ---  ---  ---  ---  ---
 0.15  0.00  6.77  ---  ---  ---  ---  ---

```

```

GCRI COAL DIVISION ULTIMATE   PROJ KPN      BLK HC      DS      DDH84003
=====
SAMPLE ID                    8          DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID           SP1        DATE ANALYSED 24/06/84
SPLIT SAMPLE ID             UL1
ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER %                      1.94
CARBON %                     56.42
HYDROGEN %                   1.82
SULPHUR %                    1.27
NITROGEN %                   0.58
ASH %                        36.04
OXYGEN %                     1.93

```

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84003 SEAM - H

SAMPLE ID - 8

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 50.00 X 6.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 49.66 ASH % -	
	ELEMENTAL		WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.40	0.11	4.20	0.11	4.20	99.89	36.89		
1.45	1.12	9.10	1.23	8.66	98.77	37.21		
1.50	5.57	12.40	6.80	11.72	93.20	38.69		
1.60	27.70	19.71	34.50	18.14	65.50	46.72		
1.70	15.88	29.33	50.38	21.66	49.62	52.29		
1.80	9.47	34.40	59.85	23.68	40.15	56.50		
1.90	11.46	41.79	71.31	26.59	28.69	62.38		
2.00	5.91	49.09	77.22	28.31	22.78	65.83		
2.60	22.78	65.83	100.00	36.86				

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 6.00 X 1.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 29.58 ASH % -	
	ELEMENTAL		WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.38	0.41	3.24	0.41	3.24	99.59	37.01		
1.40	1.55	4.60	1.96	4.32	98.04	37.53		
1.45	3.07	6.36	5.03	5.56	94.97	38.53		
1.50	3.11	11.85	8.14	7.97	91.86	39.44		
1.60	11.78	17.64	19.92	13.69	80.08	42.64		
1.70	21.41	23.88	41.33	18.97	58.67	49.49		
1.80	19.36	28.48	60.69	22.00	39.31	59.84		
1.90	10.60	37.76	71.29	24.34	28.71	67.99		
2.00	5.95	45.75	77.24	25.99	22.76	73.80		
2.60	22.76	73.80	100.00	36.87				

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDHB4003 SEAM - H

SAMPLE ID - 8

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM)	1.00 X		0.50		RELATIVE WEIGHT % -		7.05 ASH % -	
		ELEMENTAL WT%	ASH%	CUM. FLDATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.40		5.19	1.87	5.19	1.87	94.81	32.09		
1.45		5.47	3.81	10.66	2.87	89.34	33.82		
1.50		2.49	6.75	13.15	3.60	86.85	34.60		
1.60		7.18	10.48	20.33	6.03	79.67	36.77		
1.70		11.66	17.91	31.99	10.36	68.01	40.01		
1.80		37.60	25.24	69.59	18.40	30.41	58.27		
1.90		7.39	37.46	76.98	20.23	23.02	64.95		
2.00		4.12	45.32	81.10	21.50	18.90	69.23		
2.60		18.90	69.23	100.00	30.52				

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM)	0.50 X		0.15		RELATIVE WEIGHT % -		6.94 ASH % -	
		ELEMENTAL WT%	ASH%	CUM. FLDATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
1.38		5.02	4.68	5.02	4.68	94.98	27.59		
1.40		24.76	5.13	29.78	5.05	70.22	35.51		
1.45		0.99	9.07	30.77	5.18	69.23	35.89		
1.50		1.18	10.74	31.95	5.39	68.05	36.32		
1.60		5.45	11.21	37.40	6.24	62.60	38.51		
1.70		15.58	15.97	52.98	9.10	47.02	45.98		
1.80		24.57	27.15	77.55	14.82	22.45	66.58		
1.90		3.65	38.71	81.20	15.89	18.80	71.99		
2.00		2.79	46.47	83.99	16.91	16.01	76.44		
2.60		16.01	76.44	100.00	26.44				

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84003 SEAM - H

SAMPLE ID - 8

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X	0.00	RELATIVE WEIGHT % - 6.77 ASH % - 24.70			
S.G.TME	ELEMENTAL WT% ASH%	CUM. FLOATS WT% ASH%	CUM. SINKS WT% ASH%	C.V. (MJ KG)	CUM. C.V.	
240.00	100.00 24.70	100.00 24.70				

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNHCDDH84004

DATE - 01/24/85

- HISTORY -

START DATE - 04/23/84
 END DATE - 04/23/84

CONTRACTOR - J.T. THOMAS
 GEOLOGIST - E.LEGRESLEY

OPERATOR - GCRI
 SURVEYOR -

REMARKS - GEOPHYSICAL LOG MEASURED FROM GROUND LEVEL PLUS 0.75 METRES; THIS IS EQUIVALENT TO THE DRILLERS ZERO LEVEL, OR DRILL FLOOR. DEPTH TO SEAMS FROM GROUND LEVEL WILL BE 0.75M LESS THAN THE GEOPHYSICAL OR WRITTEN log. hole was drilled in two phases.

- LOCATION -

PROVINCE - BC
 ELEVATION - 1295.00

ZONE - 9
 NORTHING - 6342717.00
 EASTING - 515230.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 571345
 LONGITUDE - 1284452

- ORIENTATION -

LENGTH - 311.93

INCLINATION - 90.0
 AZIMUTH - 0.0

CORE SIZE - 95.8

CEMENT - N
 PLUG - N
 PIEZ - Y

CASING DEPTH (M) - 6.10
 AQUIFER DEPTHS (M) - 0.00
 0.00
 LOST CIRC. DEPTHS (M) - 0.00
 0.00

*** NOTE *** 0 INDICATES NO VALUE

=====

GULF CANADA RESOURCES INC. - COAL DIVISION
 21/MAR/85 SIMPLE SAMPLE SUMMARY PAGE 1
 APPARENT THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK

DDH84004		2304	10.33	11.53	100.00	0.00	1.20	0.00	0.00	0.00- 1.20
		2305	24.63	26.29	100.00	0.00	1.66	0.00	0.00	0.00- 1.66
	H	2306	47.05	49.22	100.00	0.00	2.17	0.00	0.00	0.00- 2.17
	F	1757	79.75	80.80	81.90	0.72	0.14	0.19	0.00	0.91- 0.14
	D	1759	143.81	151.17	100.00	5.95	1.41	0.00	0.00	5.95- 1.41
	D	1760	151.17	152.59	100.00	0.22	1.20	0.00	0.00	0.22- 1.20
	D	1761	152.59	159.74	100.00	4.10	3.05	0.00	0.00	4.10- 3.05
	D	1469	228.00	228.40	45.00	0.18	0.00	0.22	0.00	0.40- 0.00
	D	1470	251.22	255.09	69.25	2.60	0.08	0.97	0.22	3.57- 0.30
	D	1476	282.19	283.32	100.00	0.00	1.13	0.00	0.00	0.00- 1.13
	D	1471	301.17	306.97	93.96	5.13	0.32	0.08	0.27	5.21- 0.59

GULF CANADA RESOURCES INC. - COAL DIVISION
 06/MAR/85 COMPOSITE SAMPLE SUMMARY PAGE 1
 APPARENT THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	COMP ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK

DDH84004												
	H	9	2218	2218	33.16	34.57	93.61	0.42	0.90	0.08	0.01	0.50- 0.91
	G	10	2219	2219	58.06	60.00	89.69	1.47	0.27	0.17	0.03	1.64- 0.30
	F	11	1757	1757	79.75	80.80	81.90	0.72	0.14	0.19	0.00	0.91- 0.14
	D	12	1759	1761	143.81	159.74	100.00	10.27	5.66	0.00	0.00	10.27- 5.66
	D	13	1470	1470	251.22	255.09	69.25	2.60	0.08	0.97	0.22	3.57- 0.30
	D	14	1471	1471	301.17	306.97	93.96	5.13	0.32	0.08	0.27	5.21- 0.59

06/MAR/85

GULF CANADA RESOURCES INC. - COAL DIVISION
SIMPLE SAMPLE SUMMARY
APPARENT THICKNESS
KLAPPAN PROJECT

PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK
DDH84004										
	F	1757	79.75	80.80	81.90	0.72	0.14	0.19	0.00	0.91- 0.14
	D	1759	143.81	151.17	100.00	5.95	1.41	0.00	0.00	5.95- 1.41
	D	1760	151.17	152.59	100.00	0.22	1.20	0.00	0.00	0.22- 1.20
	D	1761	152.59	159.74	100.00	4.10	3.05	0.00	0.00	4.10- 3.05
	D	1470	251.22	255.09	69.25	2.60	0.08	0.97	0.22	3.57- 0.30
	D	1476	282.19	283.32	100.00	0.00	1.13	0.00	0.00	0.00- 1.13
	D	1471	301.17	306.97	93.96	5.13	0.32	0.08	0.27	5.21- 0.59

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN HC DDH84004 SEAM : H INTERVAL(M) : 32.86 - 34.27 ELEVATION(M) : 1295.0
 GEOLOGIST : E.LEGRESLEY SCALE: DATE : MAR 20/85 DRAWING NO. :

SEAM COMP.	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		% REC.	SAMPLE ID		COAL/ROCK TOTAL		COAL QUALITY A.D.B.							
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	CAL VAL MJ/KG		
	32.86	↑		0.84													
		↓		0.19	93.8	2218	9	1.25 / 0.18		1.69	41.56	9.03	47.72	0.62	18.49		
	34.27	↓		0.34													

PLOT 1 18.11.20 WED 20 MAR, 1985 JOB-TST0280 GULF CANADA LMT DISSPLA 9.2

```

GCRI COAL DIVISION  HEAD      PROJ  KPN      BLK  HC      DS  DDH84004
=====
SAMPLE ID              9      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID      HD1     DATE ANALYSED  24/06/84
                        ANALYSIS BASIS TYPE (AD,DB,AR,EM)  AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)  ASTM

TOP SIZE (MM)                50.00
SURFACE MOISTURE %           ---.---
TOTAL MOISTURE %             ---.---
EQUILIBRIUM MOISTURE %      ---.---
RESIDUAL MOISTURE %          1.69
ASH %                        41.56
VOLATILE MATTER %           9.03
FIXED CARBON %              47.72

TOTAL SULPHUR %              0.62
PHOSPHOROUS %               ---.---
CHLORINE (PPM)              ---.---
SPECIFIC GRAVITY            1.80
FSI                           ---.---
HGI                           ---.---
CO2 %                         ---.---

GROSS CALORIFIC VALUE (MJ/KG) 18.49
NET CALORIFIC VALUE (MJ/KG)  ---.---

```

```

GCRI COAL DIVISION  SIZE      PROJ  KPN      BLK  HC      DS  DDH84004
=====
SAMPLE ID              9      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID      SZ1     DATE ANALYSED  28/05/84
  FRACTION SIZE      WT%    ASH%    FSI    CAL    RM    VM    TS
FROM (MM) TO (MM)  (MJ/KG)
50.00  25.00  50.51  ---.---  ---.---  ---.---  ---.---  ---.---
25.00  12.00  22.50  ---.---  ---.---  ---.---  ---.---  ---.---
12.00   6.00   8.81  ---.---  ---.---  ---.---  ---.---  ---.---
 6.00   1.00  11.31  ---.---  ---.---  ---.---  ---.---  ---.---
 1.00   0.50   2.44  ---.---  ---.---  ---.---  ---.---  ---.---
 0.50   0.15   2.46  ---.---  ---.---  ---.---  ---.---  ---.---
 0.15   0.00   1.97  ---.---  ---.---  ---.---  ---.---  ---.---

```

```

GCRI COAL DIVISION  ULTIMATE  PROJ  KPN      BLK  HC      DS  DDH84004
=====
SAMPLE ID              9      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SAMPLE PRODUCT ID     SP1     DATE ANALYSED  24/06/84
SPLIT SAMPLE ID      UL1
ANALYSIS BASIS TYPE (DAF,DB,AD)  AD

WATER      %      1.69
CARBON     %      51.34
HYDROGEN   %      1.79
SULPHUR    %      0.63
NITROGEN   %      0.55
ASH        %      42.27
OXYGEN     %      1.73

```

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH84004
=====

SAMPLE ID 9
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 24/06/84

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1290.0
SOFTENING TEMP.(C) 1330.0
HEMISPHERICAL TEMP.(C) 1345.0
FLUID TEMP.(C) 1390.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1240.0
SOFTENING TEMP.(C) 1270.0
HEMISPHERICAL TEMP.(C) 1315.0
FLUID TEMP.(C) 1380.0

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH84004
=====

SAMPLE ID 9
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 24/06/84

SILICON DIOXIDE %	(SI02)	60.52
ALUMINIUM OXIDE %	(AL2O3)	19.90
FERRIC OXIDE %	(FE2O3)	4.60
TITANIUM DIOXIDE %	(TI02)	1.01
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.35
CALCIUM OXIDE %	(CAO)	3.36
MAGNESIUM OXIDE %	(MGO)	3.16
SULPHUR TRIOXIDE %	(SO3)	2.31
SODIUM OXIDE %	(NA2O)	1.78
POTASSIUM OXIDE %	(K2O)	0.87

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDHB4004 SEAM - H

SAMPLE ID - 9

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 50.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 81.82 ASH % -	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ KG)	CUM. C.V.
1.40	0.02	7.73	0.02	7.73	99.98	40.86				
1.45	0.84	8.68	0.86	8.66	99.14	41.14				
1.50	1.83	14.12	2.69	12.37	97.31	41.65				
1.60	16.95	22.19	19.64	20.85	80.36	45.75				
1.70	30.02	30.65	49.66	26.77	50.34	54.75				
1.80	17.99	37.53	67.65	29.63	32.35	64.33				
1.90	8.20	40.47	75.85	30.80	24.15	72.43				
2.00	6.53	43.22	82.38	31.79	17.62	83.26				
2.60	17.62	83.26	100.00	40.86						

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 6.00 X 1.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 11.31 ASH % -	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ KG)	CUM. C.V.
1.38	1.35	1.34	1.35	1.34	98.65	44.05				
1.40	5.52	2.42	6.87	2.21	93.13	46.51				
1.45	10.11	6.28	16.98	4.63	83.02	51.41				
1.50	7.11	12.38	24.09	6.92	75.91	55.07				
1.60	15.70	19.26	39.79	11.79	60.21	64.41				
1.70	9.42	26.74	49.21	14.65	50.79	71.39				
1.80	7.00	32.61	56.21	16.89	43.79	77.59				
1.90	4.29	37.33	60.50	18.34	39.50	81.97				
2.00	2.19	50.39	62.69	19.46	37.31	83.82				
2.60	37.31	83.82	100.00	43.47						

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - H

SAMPLE ID - 9

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM)	1.00 X		0.50		RELATIVE WEIGHT % -		2.44 ASH % -	
		ELEMENTAL WT% ASH%	CUM. FLOATS WT% ASH%	CUM. SINKS WT% ASH%	C.V. (MJ KG)	CUM. C.V.			
1.38	3.61	0.96	3.61	0.96	96.39	43.53			
1.40	8.02	1.42	11.63	1.28	88.37	47.35			
1.45	13.98	4.25	25.61	2.90	74.39	55.45			
1.50	5.10	9.23	30.71	3.95	69.29	58.86			
1.60	9.46	12.94	40.17	6.07	59.83	66.12			
1.70	6.53	22.42	46.70	8.35	53.30	71.47			
1.80	8.65	29.60	55.35	11.67	44.65	79.58			
1.90	3.09	37.40	58.44	13.03	41.56	82.72			
2.00	2.18	46.54	60.62	14.24	39.38	84.72			
2.60	39.38	84.72	100.00	41.99					

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM)	0.50 X		0.15		RELATIVE WEIGHT % -		2.46 ASH % -	
		ELEMENTAL WT% ASH%	CUM. FLOATS WT% ASH%	CUM. SINKS WT% ASH%	C.V. (MJ KG)	CUM. C.V.			
1.38	1.79	1.52	1.79	1.52	98.21	43.20			
1.40	5.83	1.60	7.62	1.58	92.38	45.83			
1.45	16.34	3.45	23.96	2.86	76.04	54.93			
1.50	5.14	5.59	29.10	3.34	70.90	58.51			
1.60	8.43	11.82	37.53	5.24	62.47	64.81			
1.70	7.04	19.98	44.57	7.57	55.43	70.50			
1.80	7.85	27.16	52.42	10.50	47.58	77.65			
1.90	3.81	33.74	56.23	12.08	43.77	81.48			
2.00	2.48	45.27	58.71	13.48	41.29	83.65			
2.60	41.29	83.65	100.00	42.45					

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - H

SAMPLE ID - 9

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION	SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % -		1.97 ASH % - 47.06	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
240.00		100.00	47.06	100.00	47.06				

GULF CANADA RESOURCES INC.

COAL DIVISION
MOUNT KLAPPAN PROJECT

SEAM DETAIL

TRUE THICKNESS

DATA SOURCE: KPN HC DDH84004 SEAM : G INTERVAL(M) : 57.68 - 59.71 ELEVATION(M) : 1295.0
 GEOLOGIST : E.LEGRESLEY SCALE: DATE : MAR 20/85 DRAWING NO. :

SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		% REC.	SAMPLE ID		COAL/ROCK TOTAL		COAL QUALITY A.D.B.							
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	CAL VAL MJ/KG		
	57.68	↑		0.67													
		C = 11.5 C = 11.5 C = 11.5 C = 11.5		0.15													
		C = 11.5 C = 11.5 C = 11.5 C = 11.5		0.18	88.7	2219	10	1.73 / 0.30		1.40	32.85	10.09	55.66	1.55	21.56		
		C = 11.5 C = 11.5 C = 11.5 C = 11.5		0.30				2.03									
		C = 11.5 C = 11.5 C = 11.5 C = 11.5		0.18													
	59.71	↓		0.12													

0155PLR 9.2

JOB-TSTCEGO GULF CANADA LMT

18.12.04 WED 20 MAR, 1985

PLOT 1

GORI COAL DIVISION	HEAD	PROJ	KPN	BLK	HC	DS	DDH84004		
=====									
SAMPLE ID	10	DATA TYPE (REAL,BORO,AVER,CALC)					REAL		
SPLIT SAMPLE ID	HD1	DATE ANALYSED 24/06/84							
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)						ASTM			
=====									
TOP SIZE (MM)	50.00								
SURFACE MOISTURE %	----			TOTAL SULPHUR %	1.55				
TOTAL MOISTURE %	----			PHOSPHOROUS %	----				
EQUILIBRIUM MOISTURE %	----			CHLORINE (PPM)	-----				
				SPECIFIC GRAVITY	1.73				
RESIDUAL MOISTURE %	1.40			FSI	----				
ASH %	32.85			HGI	-----				
VOLATILE MATTER %	10.09			CO2 %	-----				
FIXED CARBON %	55.66								
=====									
GROSS CALORIFIC VALUE (MJ/KG)	21.56								
NET CALORIFIC VALUE (MJ/KG)	-----								

GORI COAL DIVISION	SIZE	PROJ	KPN	BLK	HC	DS	DDH84004		
=====									
SAMPLE ID	10	DATA TYPE (REAL,BORO,AVER,CALC)					REAL		
SPLIT SAMPLE ID	SZ1	DATE ANALYSED 15/05/84							
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS		
FROM (MM) TO (MM)									
50.00	25.00	45.71	----	----	----	----	----	----	
25.00	12.00	24.59	----	----	----	----	----	----	
12.00	6.00	10.14	----	----	----	----	----	----	
6.00	1.00	14.26	----	----	----	----	----	----	
1.00	0.50	2.22	----	----	----	----	----	----	
0.50	0.15	1.82	----	----	----	----	----	----	
0.15	0.00	1.26	----	----	----	----	----	----	

GORI COAL DIVISION	ULTIMATE	PROJ	KPN	BLK	HC	DS	DDH84004		
=====									
SAMPLE ID	10	DATA TYPE (REAL,BORO,AVER,CALC)					REAL		
SAMPLE PRODUCT ID	SP1	DATE ANALYSED 24/06/84							
SPLIT SAMPLE ID	UL1								
ANALYSIS BASIS TYPE (DAF,DB,AD)		AD							
WATER	%	1.40							
CARBON	%	60.12							
HYDROGEN	%	1.84							
SULPHUR	%	1.57							
NITROGEN	%	0.66							
ASH	%	33.32							
OXYGEN	%	1.09							

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH84004
=====

SAMPLE ID 10
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 24/06/84

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1300.0
SOFTENING TEMP.(C) 1325.0
HEMISPHERICAL TEMP.(C) 1340.0
FLUID TEMP.(C) 1375.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1220.0
SOFTENING TEMP.(C) 1255.0
HEMISPHERICAL TEMP.(C) 1280.0
FLUID TEMP.(C) 1325.0

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH84004
=====

SAMPLE ID 10
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 24/06/84

SILICON DIOXIDE %	(SI02)	49.98
ALUMINIUM OXIDE %	(AL2O3)	18.58
FERRIC OXIDE %	(FE2O3)	5.14
TITANIUM DIOXIDE %	(TI02)	1.38
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.23
CALCIUM OXIDE %	(CAO)	8.49
MAGNESIUM OXIDE %	(MGO)	4.68
SULPHUR TRIOXIDE %	(SO3)	5.04
SODIUM OXIDE %	(NA2O)	2.02
POTASSIUM OXIDE %	(K2O)	0.96

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - G

SAMPLE ID - 10

WASHABILITY ID - WAI

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM) 50.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 80.44 ASH % -	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
S.G.TME										
1.40	0.07	3.06	0.07	3.06	99.93	33.28				
1.45	1.33	5.74	1.40	5.61	98.60	33.65				
1.50	25.38	10.49	26.78	10.23	73.22	41.68				
1.60	20.76	15.26	47.54	12.43	52.46	52.13				
1.70	8.69	27.13	56.23	14.70	43.77	57.10				
1.80	8.03	36.71	64.26	17.45	35.74	61.68				
1.90	2.25	38.42	66.51	18.16	33.49	63.24				
2.00	2.69	49.77	69.20	19.39	30.80	64.42				
2.60	30.80	64.42	100.00	33.26						

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM) 6.00 X 1.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 14.26 ASH % -	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ/KG)	CUM. C.V.
S.G.TME										
1.40	6.76	2.99	6.76	2.99	93.24	28.43				
1.45	17.08	5.12	23.84	4.52	76.16	33.66				
1.50	19.21	9.37	43.05	6.68	56.95	41.85				
1.60	19.04	16.06	62.09	9.56	37.91	54.81				
1.70	8.08	24.30	70.17	11.26	29.83	63.07				
1.80	4.38	31.77	74.55	12.46	25.45	68.46				
1.90	3.57	38.00	78.12	13.63	21.88	73.43				
2.00	2.08	45.36	80.20	14.45	19.80	76.38				
2.60	19.80	76.38	100.00	26.71						

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - G

SAMPLE ID - 10

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	1.00 X		0.50		RELATIVE WEIGHT % -		2.22 ASH % -
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG) C.V.
1.40	8.72	1.70	8.72	1.70	91.28	28.63	
1.45	16.50	5.98	25.22	4.50	74.78	33.63	
1.50	14.60	7.72	39.82	5.68	60.18	39.92	
1.60	17.76	12.56	57.58	7.80	42.42	51.37	
1.70	8.91	20.95	66.49	9.56	33.51	59.46	
1.80	7.52	29.10	74.01	11.55	25.99	68.25	
1.90	3.03	39.00	77.04	12.63	22.96	72.11	
2.00	2.40	45.95	79.44	13.64	20.56	75.16	
2.60	20.56	75.16	100.00	26.29			

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	0.50 X		0.15		RELATIVE WEIGHT % -		1.82 ASH % -
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG) C.V.
1.38	2.96	2.60	2.96	2.60	97.04	32.06	
1.40	9.63	3.09	12.59	2.97	87.41	35.26	
1.45	11.52	4.46	24.11	3.68	75.89	39.93	
1.50	12.02	7.27	36.13	4.88	63.87	46.08	
1.60	13.83	14.01	49.96	7.41	50.04	54.94	
1.70	8.07	18.55	58.03	8.96	41.97	61.94	
1.80	7.57	27.62	65.60	11.11	34.40	69.49	
1.90	3.70	36.42	69.30	12.46	30.70	73.47	
2.00	3.46	48.14	72.76	14.16	27.24	76.69	
2.60	27.24	76.69	100.00	31.19			

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDH84004 SEAM - G

SAMPLE ID - 10

WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION	SIZE(MM)	O.15 X		O.00		RELATIVE WEIGHT %		1.26	ASH %		43.69
S.G.TME	ELEMENTAL	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	WT%	ASH%	C.V.	CUM. C.V.
										(MJ KG)	
240.00	100.00	43.69		100.00	43.69						

GORI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH84004
 =====
 SAMPLE ID 11 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 22/10/84
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

 TOP SIZE (MM) 50.00
 SURFACE MOISTURE % ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE % 1.64
 ASH % 59.49
 VOLATILE MATTER % 9.06
 FIXED CARBON % 29.81

 TOTAL SULPHUR % 0.22
 PHOSPHOROUS % ---
 CHLORINE (PPM) 00472
 SPECIFIC GRAVITY 1.86
 FSI ---
 HGI 56.0
 CO2 % 5.46

 GROSS CALORIFIC VALUE (MJ/KG) 11.77
 NET CALORIFIC VALUE (MJ/KG) ---

GORI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH84004
 =====
 SAMPLE ID 11 DATA TYPE (REAL,BORO,AVER,CALC) CALC
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 18/09/84
 FRACTION SIZE WTX% ASH% FSI CAL RM VM TS
 FROM (MM) TO (MM) (MJ/KG)
 50.80 25.40 64.29 --- --- --- --- --- ---
 25.40 12.70 9.74 --- --- --- --- --- ---
 12.70 6.35 7.42 --- --- --- --- --- ---
 6.35 1.00 12.80 --- --- --- --- --- ---
 1.00 0.50 2.27 --- --- --- --- --- ---
 0.50 0.15 2.16 --- --- --- --- --- ---
 0.15 0.00 1.32 --- --- --- --- --- ---

GORI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH84004
 =====
 SAMPLE ID 11
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 11/10/84

 ANALYSIS BASIS TYPE (DAF,DB,AD) AD

 WATER % 1.64
 CARBON % 33.14
 HYDROGEN % 1.63
 SULPHUR % 0.22
 NITROGEN % 0.34
 ASH % 59.49
 OXYGEN % 3.54

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH84004
 =====

SAMPLE ID 11
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 10/10/84

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
 SOFTENING TEMP.(C) 1285.0
 HEMISPHERICAL TEMP.(C) 1305.0
 FLUID TEMP.(C) 1450.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
 SOFTENING TEMP.(C) 1280.0
 HEMISPHERICAL TEMP.(C) 1305.0
 FLUID TEMP.(C) 1340.0

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH84004
 =====

SAMPLE ID 11
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 16/10/84

SILICON DIOXIDE %	(SI02)	63.95
ALUMINIUM OXIDE %	(AL2O3)	18.14
FERRIC OXIDE %	(FE2O3)	4.62
TITANIUM DIOXIDE %	(TI02)	0.45
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.41
CALCIUM OXIDE %	(CAO)	5.13
MAGNESIUM OXIDE %	(MGO)	2.39
SULPHUR TRIOXIDE %	(SO3)	0.90
SODIUM OXIDE %	(NA2O)	0.97
POTASSIUM OXIDE %	(K2O)	2.11

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH84004
 =====

SAMPLE ID 11
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 26/10/84

PYRITE	%	55.00
SULPHATE	%	4.00
ORGANIC	%	41.00

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - F

SAMPLE ID - 11

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM) 50.80 X		6.35		RELATIVE WEIGHT % - 81.45		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.45	1.11	6.21	1.11	6.21	98.89	57.96		
1.50	0.35	11.72	1.46	7.53	98.54	58.13		
1.60	0.44	23.23	1.90	11.17	98.10	58.29		
1.70	2.09	33.54	3.99	22.89	96.01	58.82		
1.80	13.98	36.11	17.97	33.17	82.03	62.70		
1.90	22.27	44.91	40.24	39.67	59.76	69.32		
2.00	9.01	46.81	49.25	40.98	50.75	73.32		
2.60	50.75	73.32	100.00	57.39				

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM) 6.35 X		0.50		RELATIVE WEIGHT % - 15.07		ASH % -	
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	5.45	2.52	5.45	2.52	94.55	61.09		
1.45	7.84	5.81	13.29	4.46	86.71	66.09		
1.50	5.32	11.50	18.61	6.47	81.39	69.66		
1.60	3.15	18.98	21.76	8.28	78.24	71.70		
1.70	3.00	27.36	24.76	10.59	75.24	73.47		
1.80	2.99	33.87	27.75	13.10	72.25	75.11		
1.90	5.03	42.66	32.78	17.64	67.22	77.54		
2.00	3.32	47.84	36.10	20.42	63.90	79.08		
2.60	63.90	79.08	100.00	57.90				

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - F

SAMPLE ID - 11

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	0.50 X		0.15		RELATIVE WEIGHT % -		2.16 ASH % -	
		WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ KG)	CUM. C.V.
S.G. TIME									
1.40		5.39	2.57	5.39	2.57	94.61	66.03		
1.45		7.90	6.37	13.29	4.83	86.71	71.46		
1.50		3.06	11.71	16.35	6.12	83.65	73.65		
1.60		5.56	19.77	21.91	9.58	78.09	77.48		
1.70		2.39	28.23	24.30	11.42	75.70	79.04		
1.80		2.25	34.16	26.55	13.34	73.45	80.41		
1.90		1.60	39.11	28.15	14.81	71.85	81.33		
2.00		2.71	43.94	30.86	17.37	69.14	82.80		
2.60		69.14	82.80	100.00	62.61				

ANALYSIS TYPE - FROTH

FRACTION	SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % -		1.32 ASH % -		70.74	
		WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ KG)	CUM. C.V.		
S.G. TIME											
240.00		100.00	70.74	100.00	70.74						

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - f

SAMPLE ID - 11

WASHABILITY ID - WA2

----- ANALYSIS TYPE - FLOAT -----

FRACTION	SIZE(MM)	10.00 X		0.60		RELATIVE WEIGHT % - 96.52		ASH % - 57.47	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40	0.85	2.52		0.85	2.52	99.15	57.94		
1.45	2.16	5.98		3.01	5.00	96.99	59.10		
1.50	1.13	11.56		4.14	6.79	95.86	59.66		
1.60	0.86	20.81		5.00	9.20	95.00	60.01		
1.70	2.23	32.24		7.23	16.31	92.77	60.68		
1.80	12.27	36.03		19.50	28.72	80.50	64.44		
1.90	19.58	44.82		39.08	36.79	60.92	70.74		
2.00	8.12	46.88		47.20	38.52	52.80	74.41		
2.60	52.80	74.41		100.00	57.47				

----- ANALYSIS TYPE - FLOAT -----

FRACTION	SIZE(MM)	0.60 X		0.15		RELATIVE WEIGHT % - 2.16		ASH % - 62.61	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40	5.39	2.57		5.39	2.57	94.61	66.03		
1.45	7.90	6.37		13.29	4.83	86.71	71.46		
1.50	3.06	11.71		16.35	6.12	83.65	73.65		
1.60	5.56	19.77		21.91	9.58	78.09	77.48		
1.70	2.39	28.23		24.30	11.42	75.70	79.04		
1.80	2.25	34.16		26.55	13.34	73.45	80.41		
1.90	1.60	39.11		28.15	14.81	71.85	81.33		
2.00	2.71	43.94		30.86	17.37	69.14	82.80		
2.60	69.14	82.80		100.00	62.61				

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - f

SAMPLE ID - 11

WASHABILITY ID - WA2

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X	0.00	RELATIVE WEIGHT % - 1.32 ASH % - 70.74					
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
240.00	100.00	70.74	100.00	70.74				

GULF CANADA RESOURCES INC.

COAL DIVISION
MOUNT KLAPPAN PROJECT

SEAM DETAIL

TRUE THICKNESS

DATA SOURCE: KPN HC 00H84004 SEAM : NEW INTERVAL(M) : 103.10 - 103.80 ELEVATION(M) : 1295.0
 GEOLOGIST : E.LEGRESLEY SCALE: 1:40 DATE : MAR 05/85 DRAWING NO. :

SEAM COMP.	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		% REC.	SAMPLE ID			COAL/ROCK TOTAL		COAL QUALITY A.D.B.							
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	CALVAL MJ/KG			
	103.10	↑																
	103.80	↓		0.70	100.0	1756	1758	0.70 / 0.00 0.70										
		↓																

PLOT 1 16:39:20 TUES 5 MAR, 1985 JOB-TST0060 GULF CANADA LHT DISPLA 9.2

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN HC DDH84004 SEAM : E INTERVAL(M) : //3.32 - //5.62 ELEVATION(M) : 1295.0
 GEOLOGIST : E.LEGRESLEY SCALE: DATE : MAR 20/85 DRAWING NO. :

SEAM COMP.	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		% REC.	SAMPLE ID			COAL/ROCK TOTAL		COAL QUALITY A.D.B.							
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	CAL.VAL MJ/KG			
	//3.32	↑																
	//5.62	↓																

DISPLR 9.2

JOB-TSTCEGO GULF CANADA LMT

18.11.35 HED 20 MAR, 1985

PLOT 1


```

GCRI COAL DIVISION  HEAD      PROJ  KPN      BLK  HC      DS  DDHS4004
=====
SAMPLE ID           1759      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID    HD1        DATE ANALYSED  17/09/84
ANALYSIS BASIS TYPE (AD,DB,AR,EM)  AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)  ASTM

TOP SIZE (MM)      50.80
SURFACE MOISTURE %  ---
TOTAL MOISTURE %   ---
EQUILIBRIUM MOISTURE % ---
RESIDUAL MOISTURE % 1.54
ASH %              47.25
VOLATILE MATTER %  11.00
FIXED CARBON %     40.21

TOTAL SULPHUR %    0.38
PHOSPHOROUS %     ---
CHLORINE (PPM)    00462
SPECIFIC GRAVITY  1.88
FSI                ---
HGI                64.0
CO2 %              6.58

GROSS CALORIFIC VALUE (MJ/KG) 15.57
NET CALORIFIC VALUE (MJ/KG)  ---

```

```

GCRI COAL DIVISION  SIZE      PROJ  KPN      BLK  HC      DS  DDHS4004
=====
SAMPLE ID           1759      DATA TYPE (REAL,BORO,AVER,CALC)  CALC
SPLIT SAMPLE ID    SZ1        DATE ANALYSED  18/09/84
FRACTION SIZE      WT%      ASH%      FSI      CAL      RM      VM      TS
FROM (MM) TO (MM) (MJ/KG)
50.80  25.40  27.61  ---  ---  ---  ---  ---
25.40  12.70  15.42  ---  ---  ---  ---  ---
12.70   6.35  14.10  ---  ---  ---  ---  ---
 6.35   1.00  25.00  ---  ---  ---  ---  ---
 1.00   0.50   6.39  ---  ---  ---  ---  ---
 0.50   0.15   6.84  ---  ---  ---  ---  ---
 0.15   0.00   4.64  ---  ---  ---  ---  ---

```

```

GCRI COAL DIVISION  ULTIMATE  PROJ  KPN      BLK  HC      DS  DDHS4004
=====
SAMPLE ID           1759
SAMPLE PRODUCT ID   SP1      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID    UL1      DATE ANALYSED  11/10/84

ANALYSIS BASIS TYPE (DAF,DB,AD)  AD

WATER      %      1.54
CARBON     %      44.19
HYDROGEN   %      1.98
SULPHUR    %      0.38
NITROGEN   %      0.55
ASH        %      47.25
OXYGEN     %      4.11

```

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDHS4004
=====

SAMPLE ID 1759
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORD,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 10/10/84

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1220.0
SOFTENING TEMP.(C) 1260.0
HEMISPHERICAL TEMP.(C) 1280.0
FLUID TEMP.(C) 1365.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1210.0
SOFTENING TEMP.(C) 1260.0
HEMISPHERICAL TEMP.(C) 1275.0
FLUID TEMP.(C) 1365.0

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDHS4004
=====

SAMPLE ID 1759
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORD,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 16/10/84

SILICON DIOXIDE %	(SI02)	51.48
ALUMINIUM OXIDE %	(AL2O3)	22.19
FERRIC OXIDE %	(FE2O3)	11.37
TITANIUM DIOXIDE %	(TI02)	0.72
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.97
CALCIUM OXIDE %	(CAO)	3.46
MAGNESIUM OXIDE %	(MGO)	4.97
SULPHUR TRIOXIDE %	(SO3)	1.55
SODIUM OXIDE %	(NA2O)	1.49
POTASSIUM OXIDE %	(K2O)	1.52

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDHB4004 SEAM - D

SAMPLE ID - 1759

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	50.80 X		6.35		RELATIVE WEIGHT % - 57.13 ASH % -			
S.G.TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
	WT% ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40	0.25	3.46	0.25	3.46	99.75	52.36			
1.45	0.63	6.79	0.88	5.84	99.12	52.65			
1.50	4.77	12.31	5.65	11.30	94.35	54.69			
1.60	10.00	19.56	15.65	16.58	84.35	58.86			
1.70	7.47	26.54	23.12	19.80	76.88	62.00			
1.80	8.23	35.25	31.35	23.85	68.65	65.20			
1.90	10.40	43.57	41.75	28.77	58.25	69.07			
2.00	3.45	50.27	45.20	30.41	54.80	70.25			
2.60	54.80	70.25	100.00	52.24					

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	6.35 X		0.50		RELATIVE WEIGHT % - 31.39 ASH % -			
S.G.TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
	WT% ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40	4.10	2.42	4.10	2.42	95.90	39.51			
1.45	8.46	5.98	12.56	4.82	87.44	42.75			
1.50	11.15	9.96	23.71	7.24	76.29	47.54			
1.60	12.74	15.71	36.45	10.20	63.55	53.93			
1.70	12.84	23.26	49.29	13.60	50.71	61.69			
1.80	6.07	33.29	55.36	15.76	44.64	65.55			
1.90	4.39	41.08	59.75	17.62	40.25	68.22			
2.00	4.23	45.26	63.98	19.45	36.02	70.92			
2.60	36.02	70.92	100.00	37.99					

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - D

SAMPLE ID - 1759

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	0.50 X		0.15		RELATIVE WEIGHT % - 6.84 ASH % -		CUM. C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
S.G.TME								
1.40	4.43	2.66	4.43	2.66	95.57	31.46		
1.45	17.39	4.67	21.82	4.26	78.18	37.42		
1.50	16.03	9.56	37.85	6.51	62.15	44.61		
1.60	10.72	17.78	48.57	8.99	51.43	50.20		
1.70	5.71	22.83	54.28	10.45	45.72	53.62		
1.80	3.98	30.25	58.26	11.80	41.74	55.85		
1.90	18.84	37.02	77.10	17.96	22.90	71.33		
2.00	0.91	43.17	78.01	18.26	21.99	72.50		
2.60	21.99	72.50	100.00	30.19				

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % - 4.64 ASH % - 30.78		CUM. C.V. (MJ/KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
S.G.TME								
240.00	100.00	30.78	100.00	30.78				

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - D

SAMPLE ID - 1759

WASHABILITY ID - WA2

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM) 10.00 X		0.60		RELATIVE WEIGHT % - 88.52 ASH % - 47.19		C.V. (MJ KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
S.G.TME								
1.40	1.62	2.52	1.62	2.52	98.38	47.92		
1.45	3.41	6.08	5.03	4.93	94.97	49.43		
1.50	7.03	10.99	12.06	8.46	87.94	52.50		
1.60	10.97	17.98	23.03	13.00	76.97	57.42		
1.70	9.37	24.95	32.40	16.45	67.60	61.92		
1.80	7.46	34.69	39.86	19.87	60.14	65.30		
1.90	8.27	43.10	48.13	23.86	51.87	68.83		
2.00	3.73	48.25	51.86	25.61	48.14	70.43		
2.60	48.14	70.43	100.00	47.19				

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM) 0.60 X		0.15		RELATIVE WEIGHT % - 6.84 ASH % - 30.19		C.V. (MJ KG)	CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%		
S.G.TME								
1.40	4.43	2.66	4.43	2.66	95.57	31.46		
1.45	17.39	4.67	21.82	4.26	78.18	37.42		
1.50	16.03	9.56	37.85	6.51	62.15	44.61		
1.60	10.72	17.78	48.57	8.99	51.43	50.20		
1.70	5.71	22.83	54.28	10.45	45.72	53.62		
1.80	3.98	30.25	58.26	11.80	41.74	55.85		
1.90	18.84	37.02	77.10	17.96	22.90	71.33		
2.00	0.91	43.17	78.01	18.26	21.99	72.50		
2.60	21.99	72.50	100.00	30.19				

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - D

SAMPLE ID - 1759

WASHABILITY ID - WA2

----- ANALYSIS TYPE - FROTH -----
FRACTION SIZE(MM) 0.15 X 0.00
RELATIVE WEIGHT % - 4.64 ASH % - 30.78
ELEMENTAL CUM. FLOATS CUM. SINKS C.V. CUM.
S.G. TIME WT% ASH% WT% ASH% WT% ASH% (MJ/KG) C.V.
240.00 100.00 30.78 100.00 30.78

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH84004
 =====
 SAMPLE ID 01760 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 17/09/84
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 50.80
 SURFACE MOISTURE % ---- TOTAL SULPHUR % 0.17
 TOTAL MOISTURE % ---- PHOSPHOROUS % ----
 EQUILIBRIUM MOISTURE % ---- CHLORINE (PPM) 00789
 RESIDUAL MOISTURE % 0.89 FSI ----
 ASH % 74.84 HGI 54.0
 VOLATILE MATTER % 15.42 CO2 % 12.41
 FIXED CARBON % 8.85
 GROSS CALORIFIC VALUE (MJ/KG) 3.92
 NET CALORIFIC VALUE (MJ/KG) ----

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH84004
 =====
 SAMPLE ID 01760 DATA TYPE (REAL,BORO,AVER,CALC) CALC
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 18/09/84
 FRACTION SIZE WT% ASH% FSI CAL RM VM TS
 FROM (MM) TO (MM) (MJ/KG)
 50.80 25.40 46.30 ----
 25.40 12.70 15.02 ----
 12.70 6.35 12.40 ----
 6.35 1.00 16.90 ----
 1.00 0.50 3.45 ----
 0.50 0.15 3.71 ----
 0.15 0.00 2.22 ----

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH84004
 =====
 SAMPLE ID 01760
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 11/10/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER % 0.89
 CARBON % 15.26
 HYDROGEN % 0.96
 SULPHUR % 0.17
 NITROGEN % 0.29
 ASH % 74.84
 OXYGEN % 7.59

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDHS4004
=====

SAMPLE ID 01760
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 10/10/84

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
SOFTENING TEMP.(C) 1310.0
HEMISPHERICAL TEMP.(C) 1345.0
FLUID TEMP.(C) 1380.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
SOFTENING TEMP.(C) 1270.0
HEMISPHERICAL TEMP.(C) 1280.0
FLUID TEMP.(C) 1375.0

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDHS4004
=====

SAMPLE ID 01760
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 16/10/84

SILICON DIOXIDE %	(SI02)	57.89
ALUMINIUM OXIDE %	(AL2O3)	15.29
FERRIC OXIDE %	(FE2O3)	15.39
TITANIUM DIOXIDE %	(TI02)	0.67
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.56
CALCIUM OXIDE %	(CAO)	1.52
MAGNESIUM OXIDE %	(MGO)	5.36
SULPHUR TRIOXIDE %	(SO3)	0.72
SODIUM OXIDE %	(NA2O)	1.30
POTASSIUM OXIDE %	(K2O)	1.13

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - D

SAMPLE ID - 1760

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	50.80 X		6.35		RELATIVE WEIGHT % - 73.72 ASH % -			
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.50	0.08	10.58	0.08	10.58	99.92	76.56		
1.60	0.41	16.01	0.49	15.12	99.51	76.81		
1.70	2.80	29.70	3.29	27.53	96.71	78.17		
1.80	4.78	39.08	8.07	34.37	91.93	80.21		
1.90	4.47	45.91	12.54	38.48	87.46	81.96		
2.00	0.71	47.81	13.25	38.98	86.75	82.24		
2.60	86.75	82.24	100.00	76.51				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	6.35 X		0.50		RELATIVE WEIGHT % - 20.35 ASH % -			
	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40	0.42	3.60	0.42	3.60	99.58	70.17		
1.45	0.93	4.82	1.35	4.44	98.65	70.79		
1.50	1.60	13.44	2.95	9.32	97.05	71.73		
1.60	3.45	18.34	6.40	14.18	93.60	73.70		
1.70	5.91	25.11	12.31	19.43	87.69	76.98		
1.80	4.97	31.64	17.28	22.94	82.72	79.70		
1.90	2.70	39.41	19.98	25.17	80.02	81.06		
2.00	2.47	44.34	22.45	27.28	77.55	82.23		
2.60	77.55	82.23	100.00	69.89				

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - D

SAMPLE ID - 1760

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	0.50 X		0.15		RELATIVE WEIGHT % - 3.71		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G. TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	1.00	2.74		1.00	2.74	99.00	49.89		
1.45	6.82	5.30		7.82	4.97	92.18	53.19		
1.50	6.68	9.05		14.50	6.85	85.50	56.64		
1.60	12.07	16.09		26.57	11.05	73.43	63.30		
1.70	9.52	22.63		36.09	14.10	63.91	69.36		
1.80	6.36	28.79		42.45	16.30	57.55	73.84		
1.90	6.28	35.44		48.73	18.77	51.27	78.55		
2.00	4.30	43.76		53.03	20.80	46.97	81.73		
2.60	46.97	81.73		100.00	49.42				

ANALYSIS TYPE - FROTH

FRACTION	SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % - 2.22		ASH % - 46.84	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G. TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
240.00	100.00	46.84		100.00	46.84				

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDQH84004 SEAM - D

SAMPLE ID - 1760

WASHABILITY ID - WA2

----- ANALYSIS TYPE - FLOAT -----

FRACTION	SIZE(MM)	10.00 X		0.60		RELATIVE WEIGHT % - 94.07		ASH % - 75.08	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40		0.09	3.60	0.09	3.60	99.91	75.14		
1.45		0.20	4.82	0.29	4.44	99.71	75.28		
1.50		0.41	13.00	0.70	9.45	99.30	75.54		
1.60		1.07	17.64	1.77	14.40	98.23	76.17		
1.70		3.47	28.01	5.24	23.41	94.76	77.94		
1.80		4.82	37.42	10.06	30.12	89.94	80.11		
1.90		4.09	44.98	14.15	34.42	85.85	81.78		
2.00		1.09	46.11	15.24	35.25	84.76	82.24		
2.60		84.76	82.24	100.00	75.08				

----- ANALYSIS TYPE - FLOAT -----

FRACTION	SIZE(MM)	0.60 X		0.15		RELATIVE WEIGHT % - 3.71		ASH % - 49.42	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40		1.00	2.74	1.00	2.74	99.00	49.89		
1.45		6.82	5.30	7.82	4.97	92.18	53.19		
1.50		6.68	9.05	14.50	6.85	85.50	56.64		
1.60		12.07	16.09	26.57	11.05	73.43	63.30		
1.70		9.52	22.63	36.09	14.10	63.91	69.36		
1.80		6.36	28.79	42.45	16.30	57.55	73.84		
1.90		6.28	35.44	48.73	18.77	51.27	78.56		
2.00		4.30	43.76	53.03	20.80	46.97	81.73		
2.60		46.97	81.73	100.00	49.42				

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDHS4004
=====

SAMPLE ID 12 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 22/10/84
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 50.00
SURFACE MOISTURE % ---
TOTAL MOISTURE % ---
EQUILIBRIUM MOISTURE % ---
RESIDUAL MOISTURE % 1.54
ASH % 47.25
VOLATILE MATTER % 11.00
FIXED CARBON % 40.21

TOTAL SULPHUR % 0.38
PHOSPHOROUS % ---
CHLORINE (PPM) 00462
SPECIFIC GRAVITY 1.88
FSI ---
HGI 64.0
CO2 % 6.58

GROSS CALORIFIC VALUE (MJ/KG) 15.57
NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS DDH84004
 =====

SAMPLE ID 01761 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 17/09/84
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	50.80		
SURFACE MOISTURE %	---	TOTAL SULPHUR %	0.30
TOTAL MOISTURE %	---	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	00807
		SPECIFIC GRAVITY	1.93
RESIDUAL MOISTURE %	1.21	FSI	0.0
ASH %	53.54	HGI	72.0
VOLATILE MATTER %	9.80	CO2 %	5.23
FIXED CARBON %	35.45		

GROSS CALORIFIC VALUE (MJ/KG) 13.80
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS DDH84004
 =====

SAMPLE ID		01761	DATA TYPE (REAL,BORO,AVER,CALC) CALC				
SPLIT SAMPLE ID		SZ1	DATE ANALYSED 18/09/84				
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS
FROM (MM) TO (MM)				(MJ/KG)			
50.80 25.40	33.34	---	---	---	---	---	---
25.40 12.70	14.26	---	---	---	---	---	---
12.70 6.35	12.55	---	---	---	---	---	---
6.35 1.00	22.71	---	---	---	---	---	---
1.00 0.50	6.00	---	---	---	---	---	---
0.50 0.15	6.57	---	---	---	---	---	---
0.15 0.00	4.57	---	---	---	---	---	---

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK HC DS DDH84004
 =====

SAMPLE ID 01761
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID UL1 DATE ANALYSED 11/10/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.21
CARBON	%	38.22
HYDROGEN	%	1.58
SULPHUR	%	0.30
NITROGEN	%	0.53
ASH	%	53.54
OXYGEN	%	4.62

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH84004
=====

SAMPLE ID 01761
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 10/10/84

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1230.0
SOFTENING TEMP.(C) 1290.0
HEMISPHERICAL TEMP.(C) 1345.0
FLUID TEMP.(C) 1400.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1180.0
SOFTENING TEMP.(C) 1250.0
HEMISPHERICAL TEMP.(C) 1275.0
FLUID TEMP.(C) 1360.0

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH84004
=====

SAMPLE ID 01761
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 16/10/84

SILICON DIOXIDE %	(SI02)	58.67
ALUMINIUM OXIDE %	(AL2O3)	18.84
FERRIC OXIDE %	(FE2O3)	8.21
TITANIUM DIOXIDE %	(TI02)	0.66
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.36
CALCIUM OXIDE %	(CAO)	2.06
MAGNESIUM OXIDE %	(MGO)	3.46
SULPHUR TRIOXIDE %	(SO3)	1.20
SODIUM OXIDE %	(NA2O)	1.42
POTASSIUM OXIDE %	(K2O)	1.43

GULF, CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - D

SAMPLE ID - 1761

WASHABILITY ID - WA1

FRACTION		ANALYSIS TYPE - FLOAT		SIZE(MM)		50.80 X 6.35		RELATIVE WEIGHT % - 60.15 ASH % -	
S.G.	TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V. (MJ KG)	CUM. C.V.
		WT%	ASH%	WT%	ASH%	WT%	ASH%		
1.40		0.14	5.24	0.14	5.24	99.86	61.39		
1.45		1.10	7.12	1.24	6.91	98.76	61.99		
1.50		4.77	12.15	6.01	11.07	93.99	64.52		
1.60		6.39	18.60	12.40	14.95	87.60	67.87		
1.70		5.15	25.54	17.55	18.06	82.45	70.52		
1.80		2.85	34.25	20.40	20.32	79.60	71.82		
1.90		8.72	46.34	29.12	28.11	70.88	74.95		
2.00		5.48	49.41	34.60	31.48	65.40	77.09		
2.60		65.40	77.09	100.00	61.31				

FRACTION		ANALYSIS TYPE - FLOAT		SIZE(MM)		6.35 X 0.50		RELATIVE WEIGHT % - 28.71 ASH % -	
S.G.	TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V. (MJ KG)	CUM. C.V.
		WT%	ASH%	WT%	ASH%	WT%	ASH%		
1.40		5.00	2.19	5.00	2.19	95.00	41.34		
1.45		8.08	5.69	13.08	4.35	86.92	44.66		
1.50		5.17	10.41	18.25	6.07	81.75	46.82		
1.60		17.85	15.33	36.10	10.65	63.90	55.62		
1.70		7.24	22.08	43.34	12.56	56.66	59.90		
1.80		7.08	28.15	50.42	14.75	49.58	64.44		
1.90		6.05	38.55	56.47	17.30	43.53	68.04		
2.00		9.23	43.27	65.70	20.95	34.30	74.70		
2.60		34.30	74.70	100.00	39.38				

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - D

SAMPLE ID - 1761

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G. TME	0.50 X		0.15		RELATIVE WEIGHT % -		6.57 ASH % -	
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ KG)	CUM. C.V.
1.40	9.19	2.60	9.19	2.60	90.81	35.01		
1.45	18.59	5.32	27.78	4.42	72.22	42.65		
1.50	10.22	9.06	38.00	5.67	62.00	48.18		
1.60	10.91	13.56	48.91	7.43	51.09	55.58		
1.70	7.62	19.58	56.53	9.07	43.47	61.89		
1.80	4.84	27.71	61.37	10.54	38.63	66.17		
1.90	4.53	36.02	65.90	12.29	34.10	70.17		
2.00	2.39	43.70	68.29	13.39	31.71	72.17		
2.60	31.71	72.17	100.00	32.03				

ANALYSIS TYPE - FROTH

FRACTION S.G. TME	0.15 X		0.00		RELATIVE WEIGHT % -		4.57 ASH % -	
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	C.V. (MJ KG)	CUM. C.V.
240.00	100.00	29.49	100.00	29.49				

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - D

SAMPLE ID - 1761

WASHABILITY ID - WA2

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	10.00 X		0.60		RELATIVE WEIGHT % - 60.15		ASH % - 54.22	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40		1.71	2.36	1.71	2.36	98.29	55.13		
1.45		3.36	6.01	5.07	4.78	94.93	56.86		
1.50		4.90	11.56	9.97	8.11	90.03	59.33		
1.60		10.09	16.73	20.06	12.45	79.94	64.71		
1.70		5.82	24.15	25.88	15.08	74.12	67.89		
1.80		4.22	30.94	30.10	17.30	69.90	70.12		
1.90		7.86	44.40	37.96	22.91	62.04	73.38		
2.00		6.69	46.67	44.65	26.47	55.35	76.61		
2.60		55.35	76.61	100.00	54.22				

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	0.60 X		0.15		RELATIVE WEIGHT % - 6.57		ASH % - 32.03	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40		9.19	2.60	9.19	2.60	90.81	35.01		
1.45		18.59	5.32	27.78	4.42	72.22	42.65		
1.50		10.22	9.06	38.00	5.67	62.00	48.18		
1.60		10.91	13.56	48.91	7.43	51.09	55.58		
1.70		7.62	19.58	56.53	9.07	43.47	61.89		
1.80		4.84	27.71	61.37	10.54	38.63	66.17		
1.90		4.53	36.02	65.90	12.29	34.10	70.17		
2.00		2.39	43.70	68.29	13.39	31.71	72.17		
2.60		31.71	72.17	100.00	32.03				

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - D

SAMPLE ID - 1761

WASHABILITY ID - WA2

ANALYSIS TYPE - FROTH

FRACTION	SIZE(MM)	O.15 X. O.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -	4.57	ASH % -	29.49
S.G.TME		ELEMENTAL		WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V.	CUM.
		WT%	ASH%					(MJ/KG)		C.V.	
240.00		100.00	29.49	100.00	29.49						


```

GCRI COAL DIVISION  HEAD      PROJ  KPN      BLK  HC      DS  DDHS4004
=====
SAMPLE ID              13      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID      HD1      DATE ANALYSED   22/10/84
                                ANALYSIS BASIS TYPE (AD,DB,AR,EM)  AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)  ASTM

TOP SIZE (MM)                50.00
SURFACE MOISTURE %           -----
TOTAL MOISTURE %             -----
EQUILIBRIUM MOISTURE %      -----
RESIDUAL MOISTURE %          1.08
ASH %                        28.92
VOLATILE MATTER %           7.46
FIXED CARBON %              62.54

TOTAL SULPHUR %              0.37
PHOSPHOROUS %               -----
CHLORINE (PPM)              00767
SPECIFIC GRAVITY            1.63
FSI                          -----
HGI                          56.0
CO2 %                        2.90

GROSS CALORIFIC VALUE (MJ/KG) 23.93
NET CALORIFIC VALUE (MJ/KG)  -----

```

```

GCRI COAL DIVISION  SIZE      PROJ  KPN      BLK  HC      DS  DDHS4004
=====
SAMPLE ID              13      DATA TYPE (REAL,BORO,AVER,CALC)  CALC
SPLIT SAMPLE ID      SZ1      DATE ANALYSED   18/09/84
  FRACTION SIZE      WT%      ASH%      FSI      CAL      RM      VM      TS
FROM (MM) TO (MM)
50.80  25.40  19.06  -----  -----  -----  -----  -----
25.40  12.70  12.00  -----  -----  -----  -----  -----
12.70   6.35  13.09  -----  -----  -----  -----  -----
  6.35   1.00  28.76  -----  -----  -----  -----  -----
   1.00   0.50   8.60  -----  -----  -----  -----  -----
   0.50   0.15  10.48  -----  -----  -----  -----  -----
   0.15   0.00   8.01  -----  -----  -----  -----  -----

```

```

GCRI COAL DIVISION  ULTIMATE  PROJ  KPN      BLK  HC      DS  DDHS4004
=====
SAMPLE ID              13
SAMPLE PRODUCT ID     SP1      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID      UL1      DATE ANALYSED   11/10/84

```

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

```

WATER      %      1.08
CARBON     %      64.14
HYDROGEN  %      2.71
SULPHUR   %      0.37
NITROGEN  %      0.69
ASH        %      28.92
OXYGEN    %      2.09

```

GCR1 COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH84004
 =====

SAMPLE ID 13
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 10/10/84

OXIDIZING ATMOSPHERE

REDUCING ATMOSPHERE

INITIAL TEMP.(C)	1200.0	INITIAL TEMP.(C)	1190.0
SOFTENING TEMP.(C)	1270.0	SOFTENING TEMP.(C)	1240.0
HEMISPHERICAL TEMP.(C)	1330.0	HEMISPHERICAL TEMP.(C)	1270.0
FLUID TEMP.(C)	1400.0	FLUID TEMP.(C)	1350.0

GCR1 COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH84004
 =====

SAMPLE ID 13
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 16/10/84

SILICON DIOXIDE %	(SI02)	60.95
ALUMINIUM OXIDE %	(AL2O3)	14.66
FERRIC OXIDE %	(FE2O3)	7.46
TITANIUM DIOXIDE %	(TI02)	0.44
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.52
CALCIUM OXIDE %	(CAO)	2.48
MAGNESIUM OXIDE %	(MGO)	3.78
SULPHUR TRIOXIDE %	(SO3)	3.12
SODIUM OXIDE %	(NA2O)	0.94
POTASSIUM OXIDE %	(K2O)	0.82

GCR1 COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH84004
 =====

SAMPLE ID 13
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 26/10/84

PYRITE	%	11.00
SULPHATE	%	3.00
ORGANIC	%	86.00

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - d

SAMPLE ID - 13

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	50.80 X 6.53		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 44.15 ASH % -	
	ELEMENTAL		WT%	ASH%	WT%	ASH%	C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40	2.45	2.96	2.45	2.96	97.55	37.55		
1.45	6.30	5.84	8.75	5.03	91.25	39.74		
1.50	7.90	11.79	16.65	8.24	83.35	42.39		
1.60	19.50	17.11	36.15	13.02	63.85	50.11		
1.70	22.01	24.57	58.16	17.39	41.84	63.54		
1.80	7.97	33.25	66.13	19.30	33.87	70.67		
1.90	4.85	37.44	70.98	20.54	29.02	76.23		
2.00	0.98	39.81	71.96	20.81	28.04	77.50		
2.60	28.04	77.50	100.00	36.70				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	6.35 X 0.50		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 37.36 ASH % -	
	ELEMENTAL		WT%	ASH%	WT%	ASH%	C.V.	CUM.
S.G.TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40	12.79	1.47	12.79	1.47	87.21	25.08		
1.45	16.38	4.94	29.17	3.42	70.83	29.74		
1.50	10.76	8.89	39.93	4.89	60.07	33.47		
1.60	22.37	15.09	62.30	8.55	37.70	44.38		
1.70	16.21	22.86	78.51	11.51	21.49	60.62		
1.80	3.75	32.31	82.26	12.46	17.74	66.60		
1.90	3.06	39.43	85.32	13.42	14.68	72.27		
2.00	1.32	45.63	86.64	13.91	13.36	74.90		
2.60	13.36	74.90	100.00	22.06				

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - d

SAMPLE ID - 13

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	0.50 X		0.15		RELATIVE WEIGHT % - 10.48 ASH % -		CUM. SINKS C.V. (MJ/KG)	CUM. C.V.
	WT%	ASH%	WT%	ASH%	WT%	ASH%		
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS			
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40	20.38	2.25	20.38	2.25	79.62	17.20		
1.45	18.15	3.49	38.53	2.83	61.47	21.25		
1.50	16.22	6.64	54.75	3.96	45.25	26.48		
1.60	22.40	11.85	77.15	6.25	22.85	40.83		
1.70	8.75	20.56	85.90	7.71	14.10	53.41		
1.80	3.09	29.17	88.99	8.45	11.01	60.21		
1.90	2.65	36.17	91.64	9.26	8.36	67.83		
2.00	1.05	44.04	92.69	9.65	7.31	71.25		
2.60	7.31	71.25	100.00	14.15				

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % - 8.01 ASH % - 12.96		CUM. SINKS C.V. (MJ/KG)	CUM. C.V.
	WT%	ASH%	WT%	ASH%	WT%	ASH%		
S.G.TME	ELEMENTAL		CUM. FLOATS		CUM. SINKS			
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
240.00	100.00	12.96	100.00	12.96				

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - d

SAMPLE ID - 13

WASHABILITY ID - WA2

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	10.00 X		0.60		RELATIVE WEIGHT % - 81.51		ASH % - 29.99	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40		7.19	1.75	7.19	1.75	92.81	32.18		
1.45		10.92	5.22	18.11	3.84	81.89	35.78		
1.50		9.21	10.24	27.32	6.00	72.68	39.01		
1.60		20.81	16.12	48.13	10.38	51.87	48.20		
1.70		19.35	23.91	67.48	14.26	32.52	62.65		
1.80		6.04	32.98	73.52	15.79	26.48	69.42		
1.90		4.03	38.13	77.55	16.96	22.45	75.03		
2.00		1.14	42.91	78.69	17.33	21.31	76.75		
2.60		21.31	76.75	100.00	29.99				

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	0.60 X		0.15		RELATIVE WEIGHT % - 10.48		ASH % - 14.15	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V.	CUM.
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.
1.40		20.38	2.25	20.38	2.25	79.62	17.20		
1.45		18.15	3.49	38.53	2.83	61.47	21.25		
1.50		16.22	6.64	54.75	3.96	45.25	26.48		
1.60		22.40	11.85	77.15	6.25	22.85	40.83		
1.70		8.75	20.56	85.90	7.71	14.10	53.41		
1.80		3.09	29.17	88.99	8.45	11.01	60.21		
1.90		2.65	36.17	91.64	9.26	8.36	67.83		
2.00		1.05	44.04	92.69	9.65	7.31	71.25		
2.60		7.31	71.25	100.00	14.15				

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDHB4004 SEAM - d

SAMPLE ID - 13

WASHABILITY ID - WA2

ANALYSIS TYPE - FROTH

FRACTION	SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % -		8.01 ASH % - 12.96	
S.G.TME	ELEMENTAL	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	C.V.	CUM. C.V.
240.00		100.00	12.96	100.00	12.96				


```

GCRI COAL DIVISION  HEAD      PROJ  KPN      BLK  HC      DS  DDH84004
=====
SAMPLE ID              14      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID      HD1      DATE ANALYSED   22/10/84
                        ANALYSIS BASIS TYPE (AD,DB,AR,EM)  AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)  ASTM

TOP SIZE (MM)                50.00
SURFACE MOISTURE %           ---
TOTAL MOISTURE %             ---
EQUILIBRIUM MOISTURE %      ---
RESIDUAL MOISTURE %          1.31
ASH %                        29.66
VOLATILE MATTER %           6.98
FIXED CARBON %              62.05

TOTAL SULPHUR %              0.31
PHOSPHOROUS %               ---
CHLORINE (PPM)              00482
SPECIFIC GRAVITY            1.63
FSI                          ---
HGI                          56.0
CO2 %                        2.37

GROSS CALORIFIC VALUE (MJ/KG) 23.84
NET CALORIFIC VALUE (MJ/KG)  ---

```

```

GCRI COAL DIVISION  SIZE      PROJ  KPN      BLK  HC      DS  DDH84004
=====
SAMPLE ID              14      DATA TYPE (REAL,BORO,AVER,CALC)  CALC
SPLIT SAMPLE ID      SZ1      DATE ANALYSED   18/09/84
FRACTION SIZE        WT%      ASH%      FSI      CAL      RM      VM      TS
FROM (MM) TO (MM)   (MJ/KG)
50.80  25.40      33.56      ---      ---      ---      ---      ---
25.40  12.70      13.20      ---      ---      ---      ---      ---
12.70  6.35       12.01      ---      ---      ---      ---      ---
6.35   1.00       23.80      ---      ---      ---      ---      ---
1.00   0.50       5.87       ---      ---      ---      ---      ---
0.50   0.15       6.60       ---      ---      ---      ---      ---
0.15   0.00       4.96       ---      ---      ---      ---      ---

```

```

GCRI COAL DIVISION  ULTIMATE  PROJ  KPN      BLK  HC      DS  DDH84004
=====
SAMPLE ID              14
SAMPLE PRODUCT ID     SP1      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID      UL1      DATE ANALYSED   11/10/84

```

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

```

WATER      %      1.31
CARBON     %      63.05
HYDROGEN  %      2.35
SULPHUR   %      0.31
NITROGEN  %      0.81
ASH        %      29.66
OXYGEN    %      2.51

```

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK HC DS DDH84004
 =====

SAMPLE ID 14
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AF1 DATE ANALYSED 10/10/84

OXIDIZING ATMOSPHERE

INITIAL TEMP.(C) 1250.0
 SOFTENING TEMP.(C) 1310.0
 HEMISPHERICAL TEMP.(C) 1360.0
 FLUID TEMP.(C) 1410.0

REDUCING ATMOSPHERE

INITIAL TEMP.(C) 1220.0
 SOFTENING TEMP.(C) 1280.0
 HEMISPHERICAL TEMP.(C) 1310.0
 FLUID TEMP.(C) 1390.0

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK HC DS DDH84004
 =====

SAMPLE ID 14
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID AM1 DATE ANALYSED 16/10/84

SILICON DIOXIDE %	(SI02)	66.26
ALUMINIUM OXIDE %	(AL2O3)	16.02
FERRIC OXIDE %	(FE2O3)	5.49
TITANIUM DIOXIDE %	(TI02)	0.41
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.09
CALCIUM OXIDE %	(CAO)	2.20
MAGNESIUM OXIDE %	(MGO)	3.66
SULPHUR TRIOXIDE %	(SO3)	2.90
SODIUM OXIDE %	(NA2O)	1.46
POTASSIUM OXIDE %	(K2O)	0.93

GCRI COAL DIVISION SULPHUR PROJ KPN BLK HC DS DDH84004
 =====

SAMPLE ID 14
 SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID SU1 DATE ANALYSED 26/10/84

PYRITE	%	13.00
SULPHATE	%	3.00
ORGANIC	%	84.00

GULF CANADA RESOURCES INC. - COAL DIVISION

DEC 14/84

WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCDDH84004 SEAM - d

SAMPLE ID - 14

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	50.80 X		6.35		RELATIVE WEIGHT % - 58.77		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V. CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40		2.59	2.04	2.59	2.04	97.41	32.91		
1.45		2.05	6.01	4.64	3.79	95.36	33.48		
1.50		7.37	11.11	12.01	8.28	87.99	35.36		
1.60		33.13	17.84	45.14	15.30	54.86	45.94		
1.70		21.27	27.08	66.41	19.07	33.59	57.88		
1.80		8.15	40.94	74.56	21.46	25.44	63.30		
1.90		7.43	49.08	81.99	23.96	18.01	69.17		
2.00		4.45	53.84	86.44	25.50	13.56	74.20		
2.60		13.56	74.20	100.00	32.11				

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	6.35 X		0.50		RELATIVE WEIGHT % - 29.67		ASH % -	
		ELEMENTAL		CUM. FLOATS		CUM. SINKS		C.V. CUM.	
S.G.TME		WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ/KG)	C.V.
1.40		10.25	2.40	10.25	2.40	89.75	26.91		
1.45		17.44	7.22	27.69	5.44	72.31	31.66		
1.50		15.15	13.51	42.84	8.29	57.16	36.47		
1.60		17.58	16.68	60.42	10.73	39.58	45.26		
1.70		15.85	24.02	76.27	13.49	23.73	59.45		
1.80		5.00	33.66	81.27	14.73	18.73	66.33		
1.90		2.63	40.71	83.90	15.55	16.10	70.52		
2.00		1.90	47.33	85.80	16.25	14.20	73.62		
2.60		14.20	73.62	100.00	24.40				

GR-MT. KLAPPAN SHA
HOBBIT-BROATCH AREA

~~CONFIDENTIAL~~ COAL
ANALYSES FROM:

APPENDIX III
1981-1984 COAL
TRENCH DATA
(1)

695

~~CONFIDENTIAL~~

KPNOTC81075

03802

I	X(I)	X(I+1)
1	7.79000	7.79000
2	7.40000	7.40000
3	7.88000	7.88000
4	7.57000	7.57000
5	7.55000	7.55000
6	7.68000	7.68000
7	7.68000	7.68000
8	7.71000	7.71000
9	7.67000	7.67000
10	7.92000	7.92000
11	7.66000	7.66000
12	7.66000	7.66000
13	7.61000	7.61000
14	7.72000	7.72000
15	7.71000	7.71000
16	7.70000	7.70000
17	7.70000	7.70000
18	7.68000	7.68000
19	7.68000	7.68000
20	7.68000	7.68000
21	7.68000	7.68000
22	7.68000	7.68000
23	7.68000	7.68000
24	7.68000	7.68000
25	7.68000	7.68000
26	7.68000	7.68000
27	7.68000	7.68000
28	7.68000	7.68000
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31	7.68000	7.68000
32	7.68000	7.68000
33	7.68000	7.68000
34	7.68000	7.68000
35	7.68000	7.68000
36	7.68000	7.68000
37	7.68000	7.68000
38	7.68000	7.68000
39	7.68000	7.68000
40	7.68000	7.68000
41	7.68000	7.68000
42	7.68000	7.68000
43	7.68000	7.68000
44	7.68000	7.68000
45	7.68000	7.68000
46	7.68000	7.68000
47	7.68000	7.68000
48	7.68000	7.68000
49	7.68000	7.68000
50	7.68000	7.68000

BASIC STATISTICS

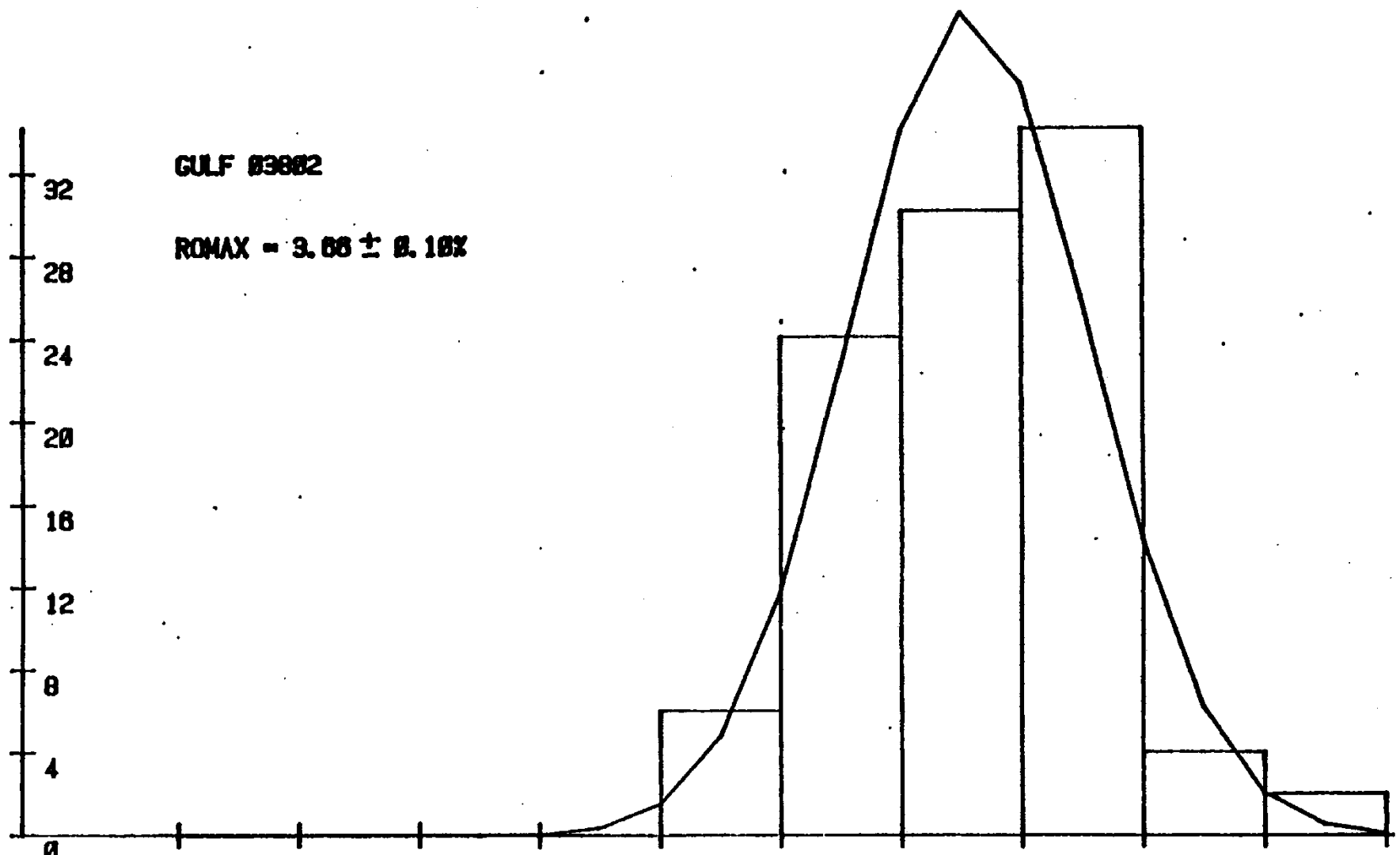
N = 50
STD ERROR OF THE MEAN = .01
MEAN = 3.6566
COEF OF VARIATION = 2.74%
VARIANCE = .0100
STANDARD DEVIATION = .1002
SKEWNESS = .0602
KURTOSIS = 2.6213

95.00% C.I. FOR MEAN:
(3.6281, 3.6851)
ONE-TAIL t(49, .025) =
2.01083450015

NO %
18 32
14 28
12 24
10 20
8 18
6 12
4 8
2 4
0 0

GULF 03802

ROMAX = 3.68 ± 0.18%



LIN

3 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 4

KPN0281074

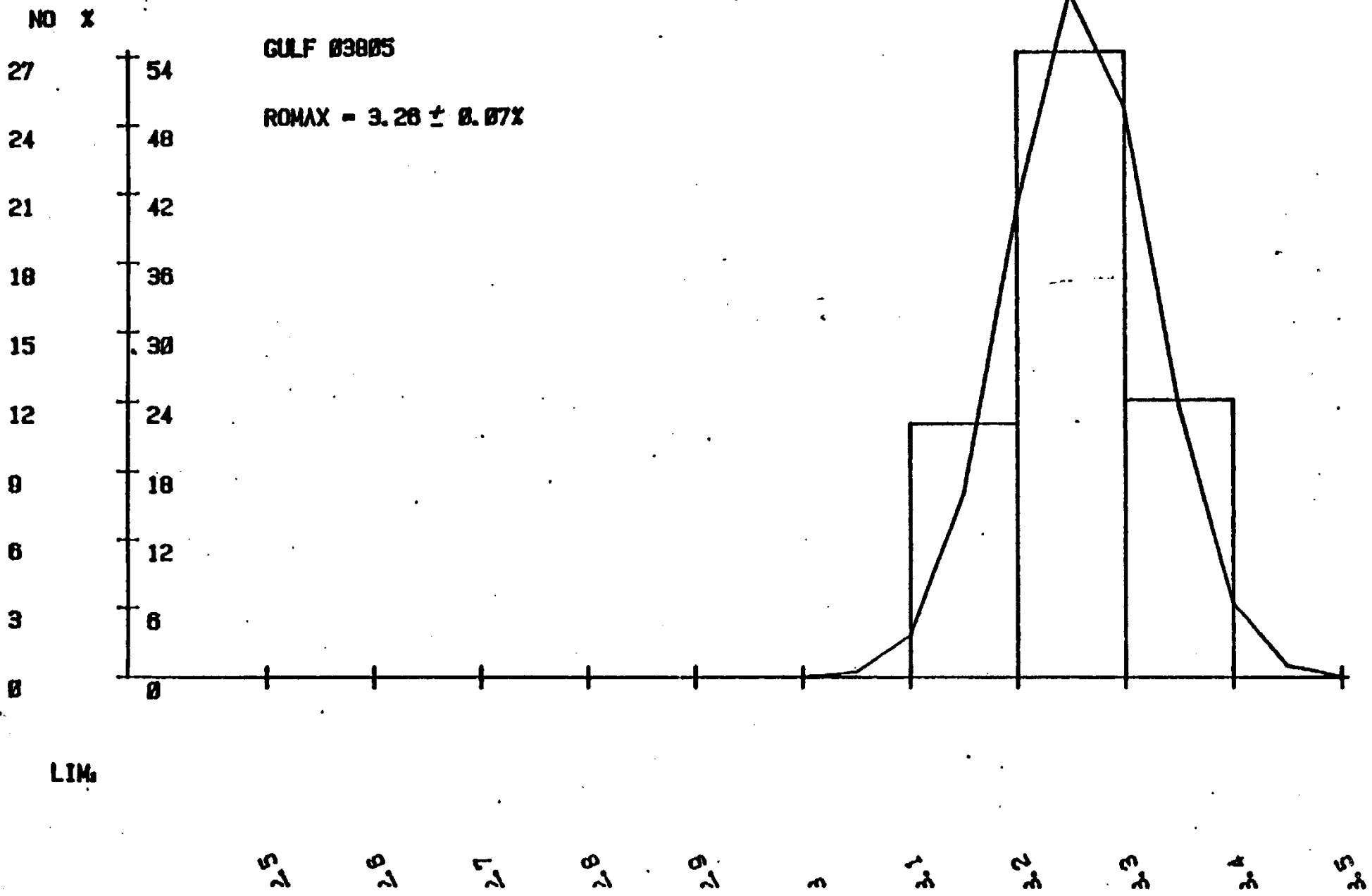
03805

I	X(I)	X(I+1)
1	1600	2400
2	3600	1800
3	2700	2700
4	2700	3800
5	2100	2800
6	2600	2200
7	3600	2400
8	2000	3600
9	2400	2900
10	2500	2600
11	1900	1200
12	1900	3500
13	2700	2200
14	3400	2400
15	3900	3700
16	3100	2500
17	2800	2300
18	1900	1900
19	2400	2300
20	2300	2600
21	1800	2200
22	3900	2100
23	2100	3500
24	2300	1900
25	1800	1900

BASIC STATISTICS

N = 50
STD ERROR OF THE MEAN = .01
MEAN = 3.2586
COEF OF VARIATION = 2.05%
VARIANCE = .0045
STANDARD DEVIATION = .0669
SKEWNESS = .4443
KURTOSIS = 2.2357

95.00% C. I. FOR MEAN:
(3.2396, 3.2776)
ONE-TAIL t(49, .025) =
2.01003450016



KPNOTC81073

03807

I	X(I)	X(I+1)
1	1000	0400
2	9900	1500
3	1800	1500
4	1200	0200
5	1100	1700
6	0900	1900
7	2600	1100
8	1100	0400
9	1900	0200
10	1500	0600
11	1600	0000
12	1700	0000
13	1500	0700
14	1100	1500
15	2800	1400
16	0700	2000
17	0800	0000
18	0200	0100
19	0300	1000
20	0400	1900
21	0800	0100
22	2200	0900
23	1300	0000
24	0700	1500
25	2300	0600

BASIC STATISTICS

N = 50

STD ERROR OF THE MEAN = .01

MEAN = 3.1196

COEF OF VARIATION = 2.35%

VARIANCE = .0054

STANDARD DEVIATION = .0733

SKENNESS = .3744

KURTOSIS = 2.6073

95.00% C. I. FOR MEAN:

(3.0988, 3.1404)

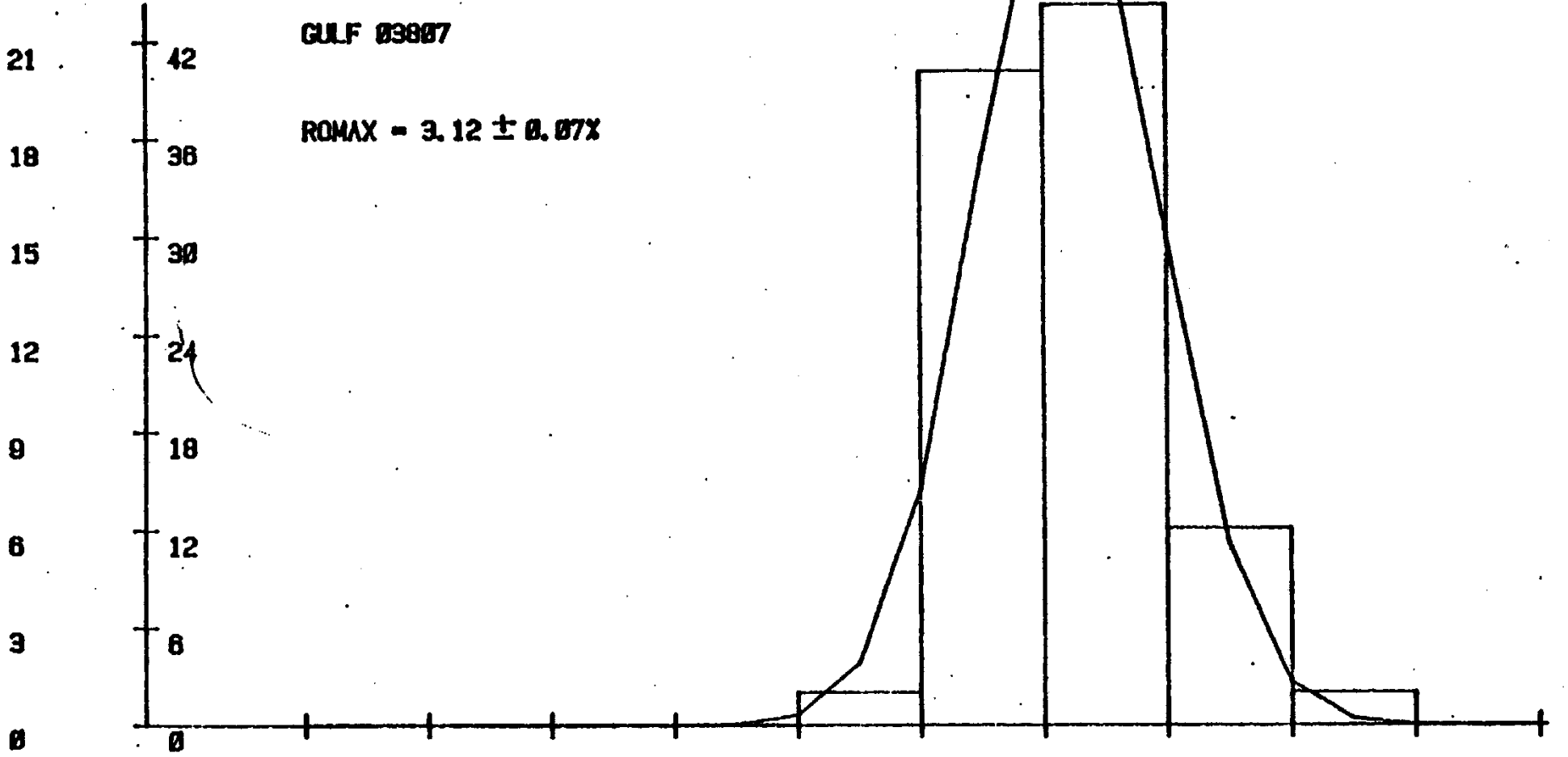
ONE-TAIL t(49 , .025) =

2.01003450016

NO %

GULF 03807

ROMAX = $3.12 \pm 0.07\%$



LIN.

2.5 2.6 2.7 2.8 2.9 3 3.1 3.2 3.3 3.4 3.5

KPN0TC8106Z

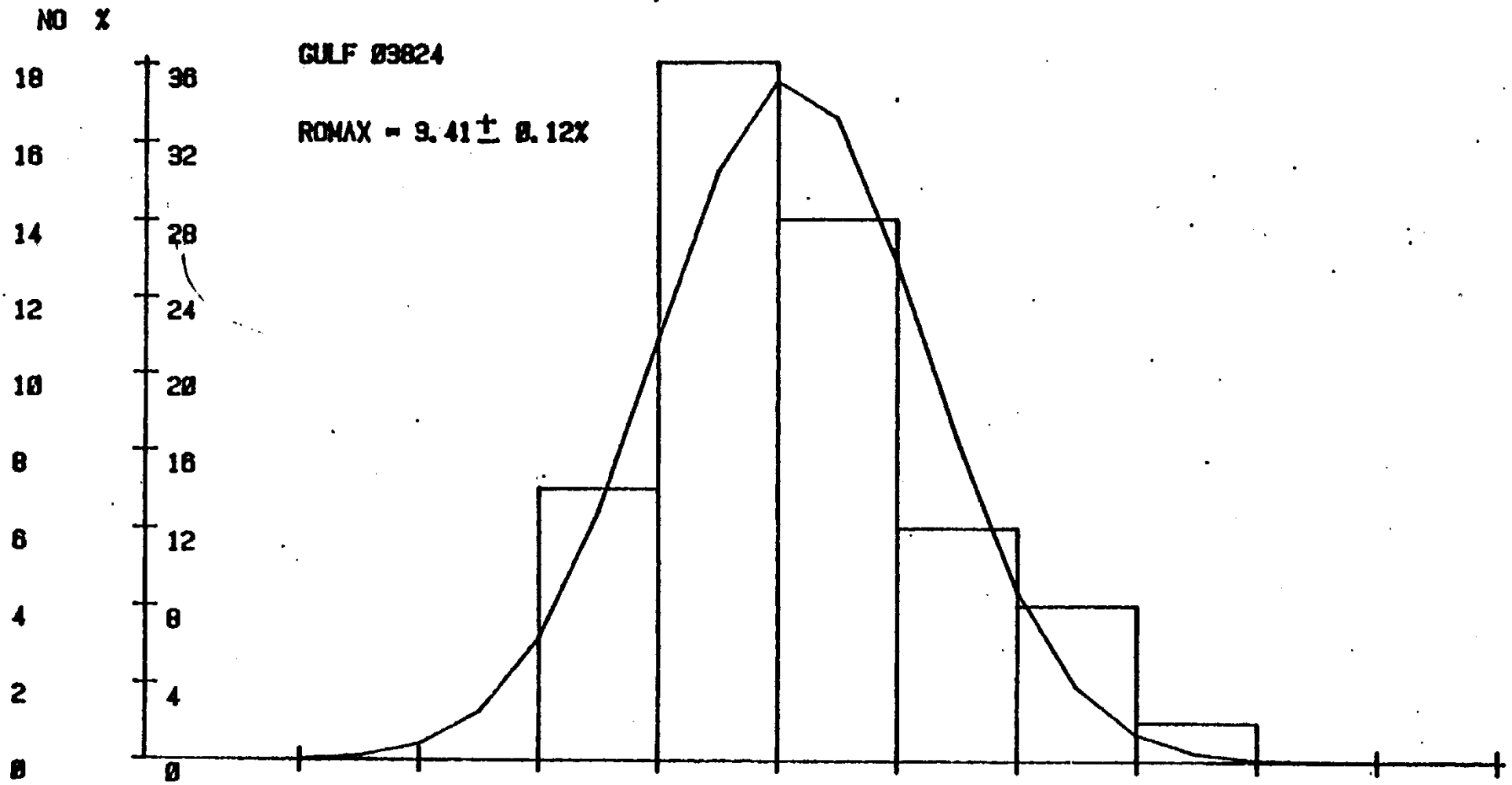
03824

	X(I)	X(I+1)
1	4000	4000
2	4000	4000
3	4100	4000
4	4300	4000
5	4200	4000
6	4000	4000
7	4000	4000
8	4000	4000
9	4000	4000
10	4000	4000
11	4000	4000
12	4000	4000
13	4000	4000
14	4000	4000
15	4000	4000
16	4000	4000
17	4000	4000
18	4000	4000
19	4000	4000
20	4000	4000
21	4000	4000
22	4000	4000
23	4000	4000
24	4000	4000
25	4000	4000
26	4000	4000
27	4000	4000
28	4000	4000
29	4000	4000
30	4000	4000
31	4000	4000
32	4000	4000
33	4000	4000
34	4000	4000
35	4000	4000
36	4000	4000
37	4000	4000
38	4000	4000
39	4000	4000
40	4000	4000
41	4000	4000
42	4000	4000
43	4000	4000
44	4000	4000
45	4000	4000
46	4000	4000
47	4000	4000
48	4000	4000
49	4000	4000
50	4000	4000

BASIC STATISTICS

N = 50
STD ERROR OF THE MEAN = .02
MEAN = 3.4110
COEF OF VARIATION = 3.32%
VARIANCE = .0129
STANDARD DEVIATION = .1134
SKEWNESS = .5211
KURTOSIS = 2.7255

95.00% C. I. FOR MEAN:
(3.3788, 3.4432)
ONE-TAIL t(49 , .025) =
2.01003450016



LIM

0 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 4

KPNOTC81061

03827

I	X(I)	X(I+1)
1	3.7400	3.7000
2	3.5500	3.5200
3	3.6100	3.5500
4	3.3700	3.6700
5	3.5000	3.5000
6	3.5000	3.5000
7	3.5000	3.5000
8	3.5000	3.5000
9	3.5000	3.5000
10	3.5000	3.5000
11	3.5000	3.5000
12	3.5000	3.5000
13	3.5000	3.5000
14	3.5000	3.5000
15	3.5000	3.5000
16	3.5000	3.5000
17	3.5000	3.5000
18	3.5000	3.5000
19	3.5000	3.5000
20	3.5000	3.5000
21	3.5000	3.5000
22	3.5000	3.5000
23	3.5000	3.5000
24	3.5000	3.5000
25	3.5000	3.5000
26	3.5000	3.5000
27	3.5000	3.5000
28	3.5000	3.5000
29	3.5000	3.5000
30	3.5000	3.5000

BASIC STATISTICS

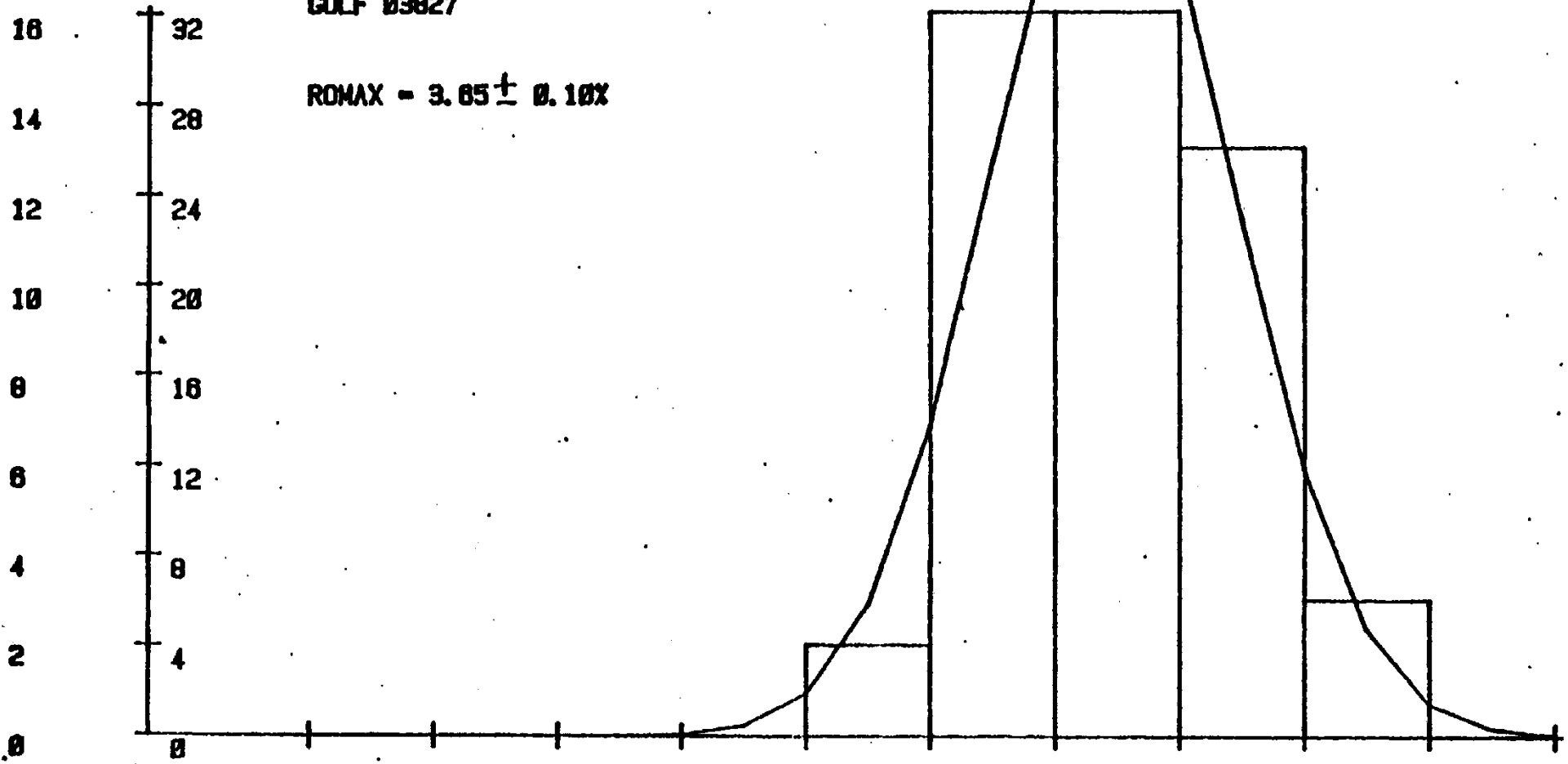
N = 30
STD ERROR OF THE MEAN = .01
MEAN = 3.6450
COEF OF VARIATION = 2.71%
VARIANCE = .0097
STANDARD DEVIATION = .0987
SKEWNESS = .1116
KURTOSIS = 2.2748

95.00% C.I. FOR MEAN:
(3.6169, 3.6731)
ONE-TAIL t(29 , .025) =
2.01003450016

NO %

GULF 03027

ROMAX = $3.65 \pm 0.10\%$



LIM

0 1 2 3 4 5 6 7 8 9

KPNOTC81060

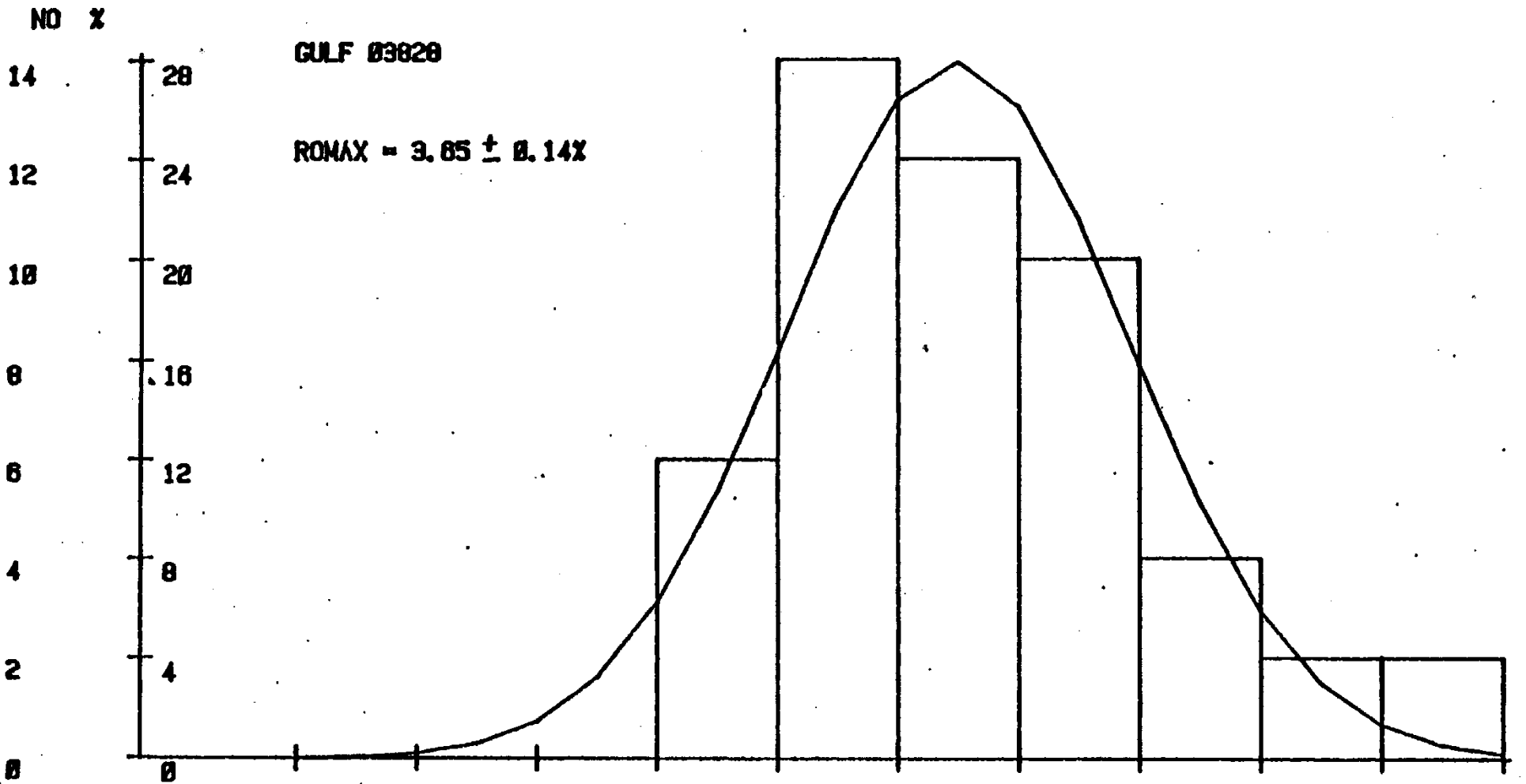
03828

I	X(I)	X(I+1)
1	7200	7000
2	6400	7000
3	9300	7000
4	6100	7000
5	5900	7000
6	9500	7000
7	8500	7000
8	5300	7000
9	6200	7000
10	5900	7000
11	5500	7000
12	6200	7000
13	6200	7000
14	6200	7000
15	6200	7000
16	4700	7000
17	6200	7000
18	5500	7000
19	7200	7000
20	6200	7000
21	7000	7000
22	5200	7000
23	5600	7000
24	4500	7000
25	0200	7000
26	5700	7000
27	7300	7000

BASIC STATISTICS

N = 50
STD ERROR OF THE MEAN = .02
MEAN = 3.6400
COEF OF VARIATION = 3.92%
VARIANCE = .0204
STANDARD DEVIATION = .1430
SKEWNESS = .8272
KURTOSIS = 3.3128

95.00% C.I. FOR MEAN:
(3.6074, 3.6886)
ONE-TAIL t(49 , .025) =
2.01003450016



LIM:

3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 4 4.1

KPNOTC 01059

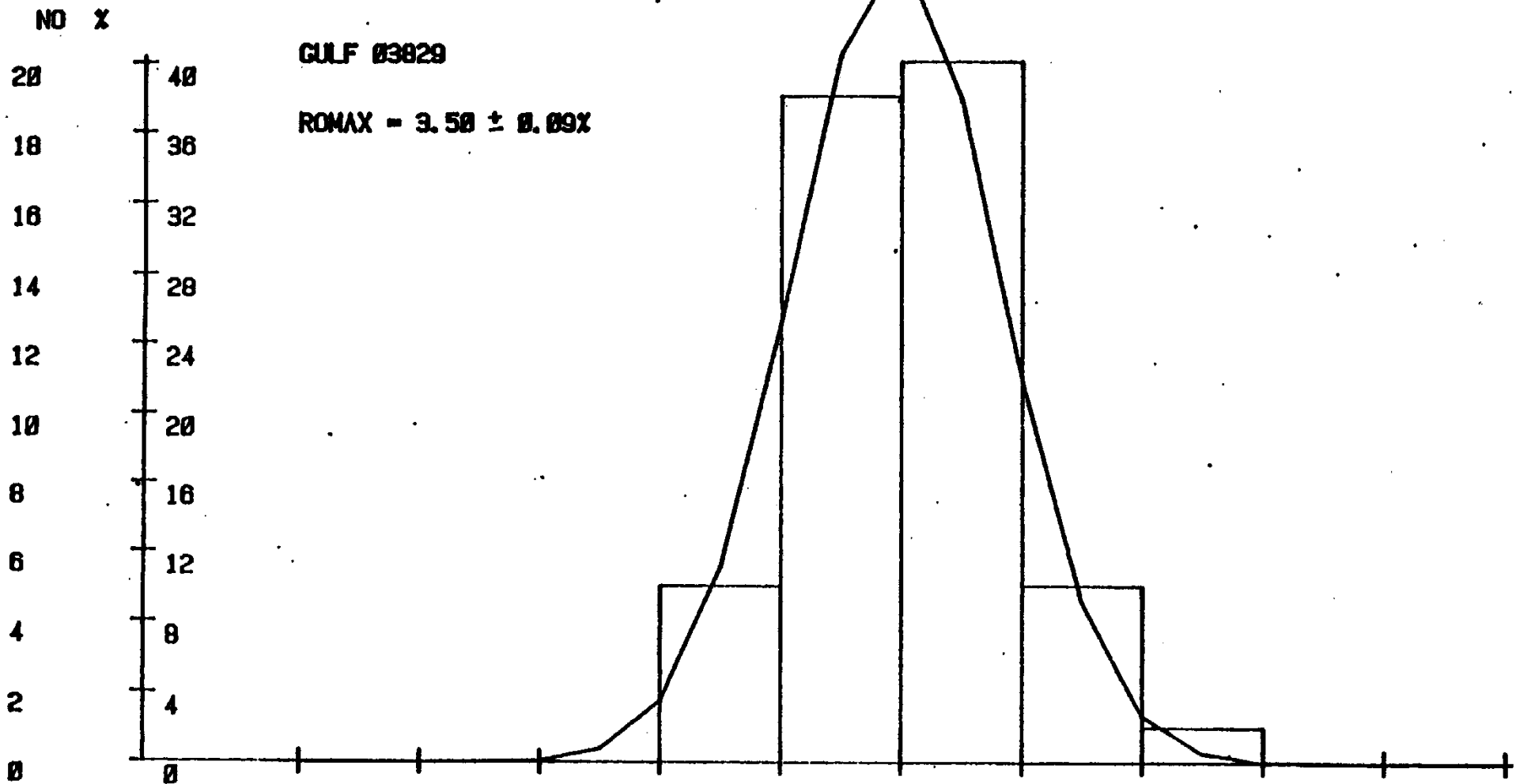
03829

I	X(I)	X(I+1)
1	5000	4200
2	5200	5100
3	5500	5500
4	4300	5000
5	4400	4400
6	5200	5600
7	3500	5100
8	5900	4800
9	3800	4300
10	5500	4500
11	5800	5200
12	5700	7000
13	4600	5100
14	5200	4100
15	4000	5900
16	4900	4700
17	4200	4500
18	5500	6000
19	5200	4200
20	5400	6400
21	5300	4200
22	4800	5100
23	5600	5100
24	4100	5000
25	4400	4900

BASIC STATISTICS

N = 50
STD ERROR OF THE MEAN = .01
MEAN = 3.4952
COEF OF VARIATION = 2.45%
VARIANCE = .0074
STANDARD DEVIATION = .0858
SKEWNESS = .4254
KURTOSIS = 2.8007

95.00% C. I. FOR MEAN:
(3.4708, 3.5196)
ONE-TAIL t(49, .025) =
2.01003450016



LIM_i

3 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9

KPNOTC81058

03830

I	X(I)	X(I+1)
1	3.1200	3.1900
2	3.2000	3.4500
3	3.3000	3.1400
4	3.3000	3.3000
5	3.3000	3.3000
6	3.3000	3.3000
7	3.3000	3.3000
8	3.3000	3.3000
9	3.3000	3.3000
10	3.3000	3.3000
11	3.3000	3.3000
12	3.3000	3.3000
13	3.3000	3.3000
14	3.3000	3.3000
15	3.3000	3.3000
16	3.3000	3.3000
17	3.3000	3.3000
18	3.3000	3.3000
19	3.3000	3.3000
20	3.3000	3.3000
21	3.3000	3.3000
22	3.3000	3.3000
23	3.3000	3.3000
24	3.3000	3.3000
25	3.3000	3.3000
26	3.3000	3.3000
27	3.3000	3.3000
28	3.3000	3.3000
29	3.3000	3.3000
30	3.3000	3.3000
31	3.3000	3.3000
32	3.3000	3.3000
33	3.3000	3.3000
34	3.3000	3.3000
35	3.3000	3.3000
36	3.3000	3.3000
37	3.3000	3.3000
38	3.3000	3.3000
39	3.3000	3.3000
40	3.3000	3.3000
41	3.3000	3.3000
42	3.3000	3.3000
43	3.3000	3.3000
44	3.3000	3.3000
45	3.3000	3.3000
46	3.3000	3.3000
47	3.3000	3.3000
48	3.3000	3.3000
49	3.3000	3.3000
50	3.3000	3.3000

BASIC STATISTICS

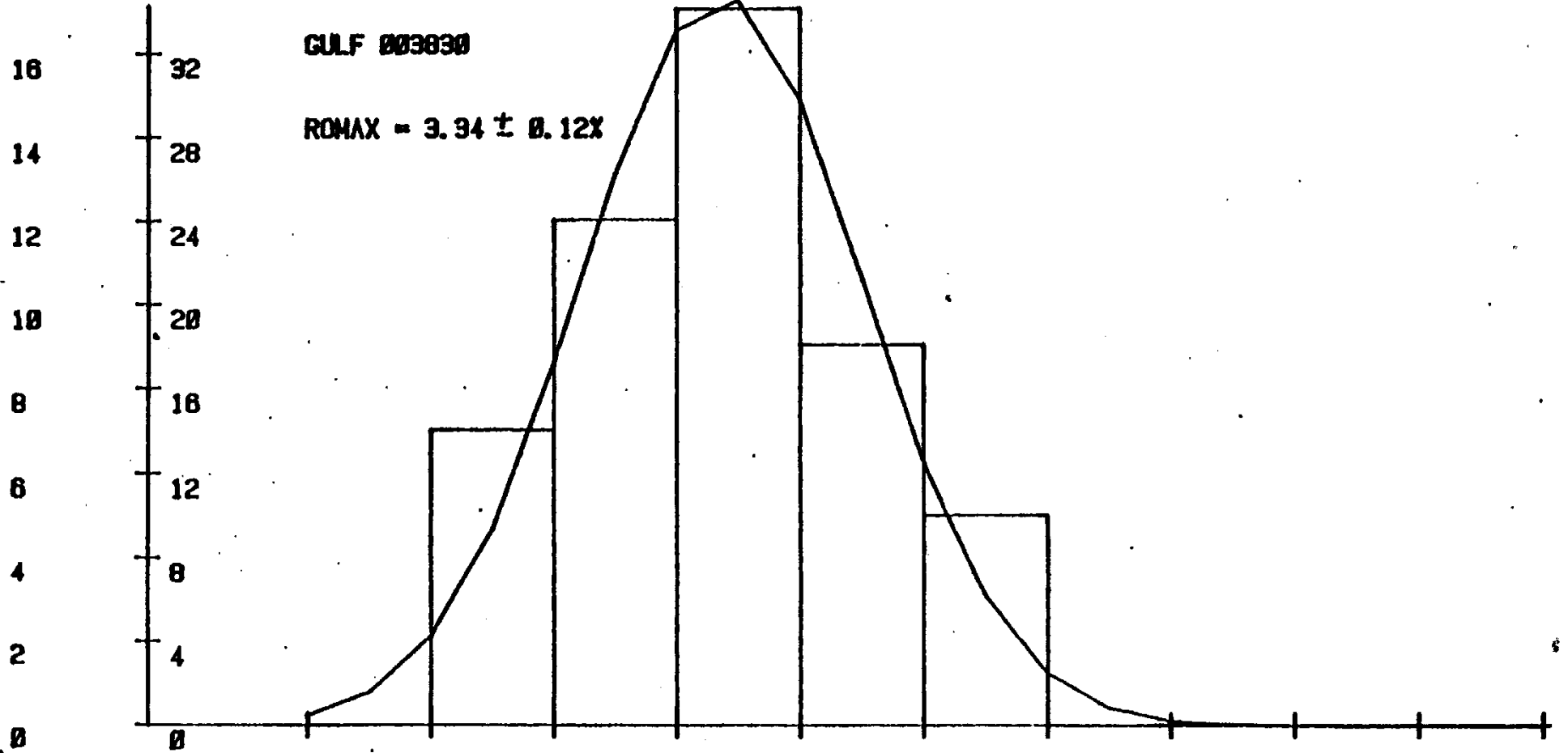
N = 50
STD ERROR OF THE MEAN = .02
MEAN = 3.3362
COEF OF VARIATION = 3.45%
VARIANCE = .0132
STANDARD DEVIATION = .1150
SKEWNESS = .1456
KURTOSIS = 2.3675

95.00% C. I. FOR MEAN
(3.3035, 3.3689)
ONE-TAIL t(49 , .025) =
2.01003450016

NO X

GULF 003830

ROMAX = 3.34 ± 0.12X



LIM

KPNOTC81057

03831

I	X(I)	X(I+1)
1	4.4500	4.4600
2	4.4300	4.4900
3	4.5000	4.4800
4	4.4200	4.4300
5	4.4800	4.4500
6	4.4000	4.4200
7	4.4600	4.4700
8	4.4100	4.4400
9	4.4900	4.4600
10	4.4400	4.4300
11	4.4700	4.4500
12	4.4000	4.4200
13	4.4600	4.4700
14	4.4100	4.4400
15	4.4900	4.4600
16	4.4400	4.4300
17	4.4700	4.4500
18	4.4000	4.4200
19	4.4600	4.4700
20	4.4100	4.4400
21	4.4900	4.4600
22	4.4400	4.4300
23	4.4700	4.4500
24	4.4000	4.4200
25	4.4600	4.4700
26	4.4100	4.4400
27	4.4900	4.4600
28	4.4400	4.4300
29	4.4700	4.4500
30	4.4000	4.4200
31	4.4600	4.4700
32	4.4100	4.4400
33	4.4900	4.4600
34	4.4400	4.4300
35	4.4700	4.4500
36	4.4000	4.4200
37	4.4600	4.4700
38	4.4100	4.4400
39	4.4900	4.4600
40	4.4400	4.4300
41	4.4700	4.4500
42	4.4000	4.4200
43	4.4600	4.4700
44	4.4100	4.4400
45	4.4900	4.4600
46	4.4400	4.4300
47	4.4700	4.4500
48	4.4000	4.4200
49	4.4600	4.4700
50	4.4100	4.4400

BASIC STATISTICS

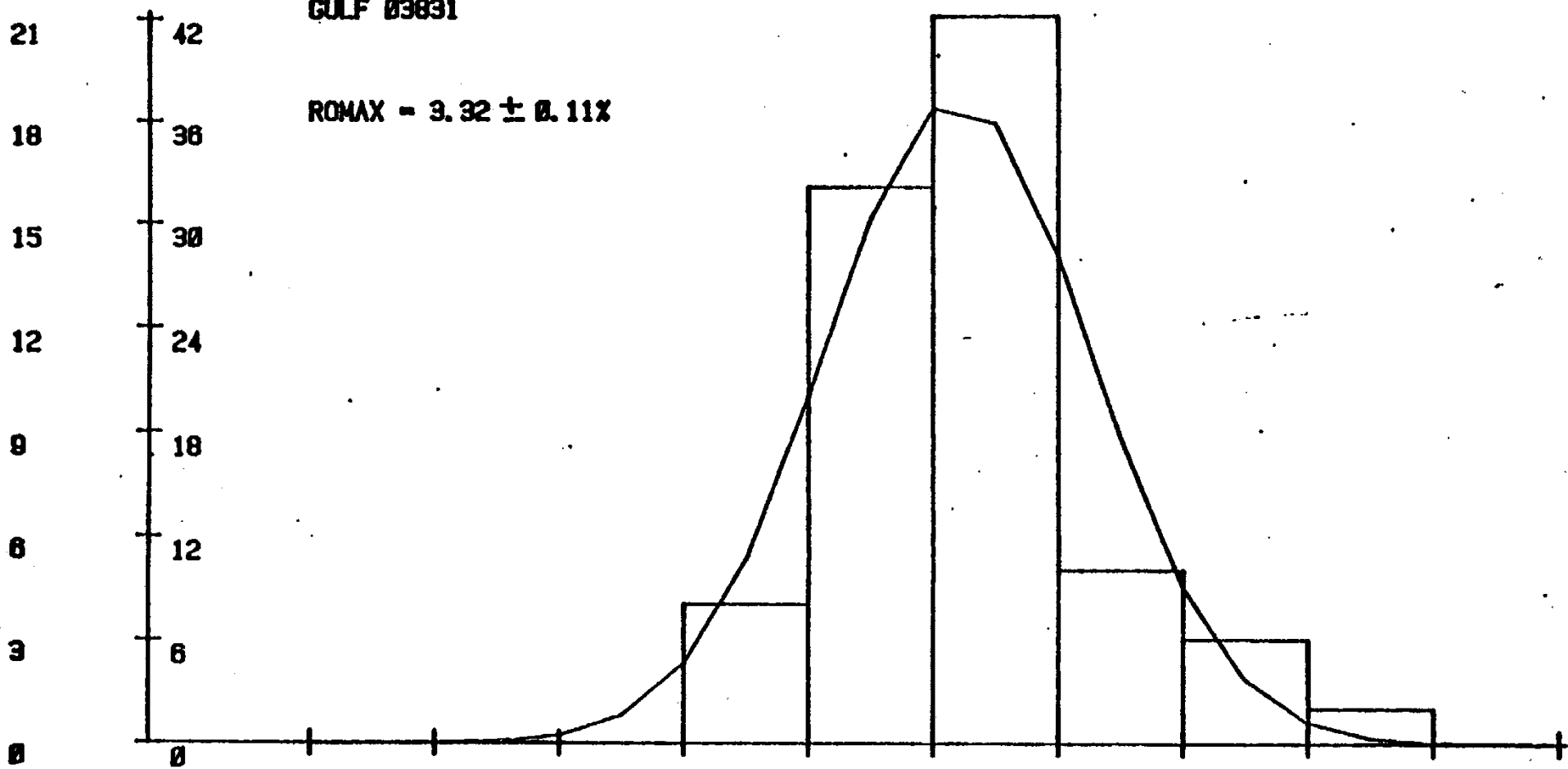
N = 50
STD ERROR OF THE MEAN = .02
MEAN = 3.3194
COEF OF VARIATION = 3.23%
VARIANCE = .0115
STANDARD DEVIATION = .1072
SKEWNESS = .6433
KURTOSIS = 3.3575

95.00% C.I. FOR MEAN:
(3.2889, 3.3499)
ONE-TAIL t(49, .025) =
2.01003450016

NO X

GULF 03831

ROMAX = 3.32 ± 0.11%



LIM

2.0 2.9 3 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8

KPNOTC81042

03951

I-	X(I)	X(I+1)
1	2.7000	2.7000
2	2.8000	2.7000
3	2.8100	2.8000
4	2.7800	2.8100
5	2.8500	2.7800
6	2.8100	2.8500
7	2.8700	2.8100
8	2.8600	2.8700
9	2.8600	2.8600
10	2.9100	2.8600
11	2.9300	2.9100
12	2.9000	2.9300
13	2.9000	2.9000
14	2.9400	2.9000
15	2.9400	2.9400
16	2.9000	2.9400
17	2.9000	2.9000
18	2.9000	2.9000
19	2.9000	2.9000
20	2.9000	2.9000
21	2.9000	2.9000
22	2.9000	2.9000
23	2.9000	2.9000
24	2.9000	2.9000
25	2.9000	2.9000
26	2.9000	2.9000
27	2.9000	2.9000
28	2.9000	2.9000
29	2.9000	2.9000
30	2.9000	2.9000
31	2.9000	2.9000
32	2.9000	2.9000
33	2.9000	2.9000
34	2.9000	2.9000
35	2.9000	2.9000
36	2.9000	2.9000
37	2.9000	2.9000
38	2.9000	2.9000
39	2.9000	2.9000
40	2.9000	2.9000

BASIC STATISTICS

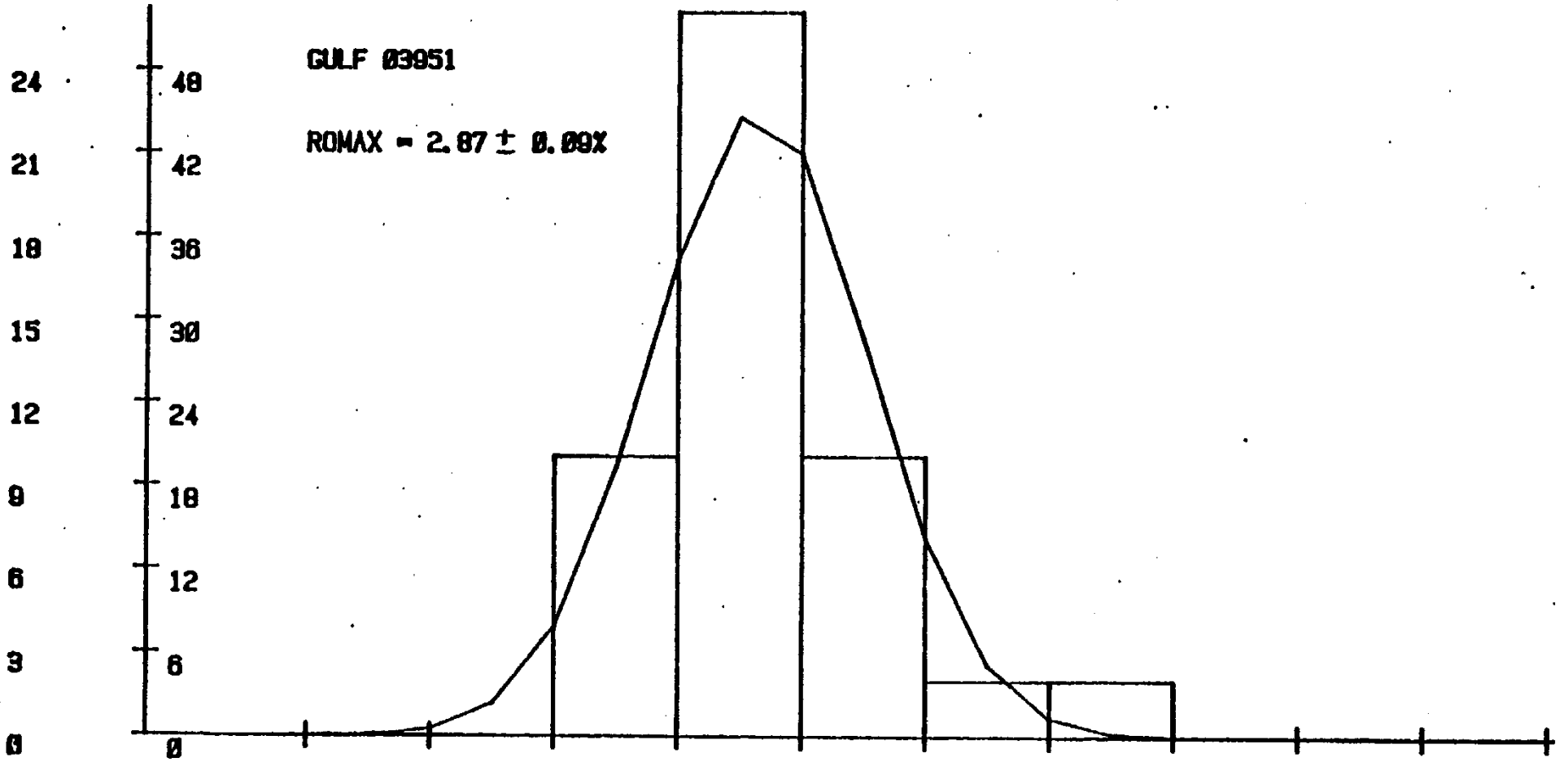
N = 50
STD ERROR OF THE MEAN = .01
MEAN = 2.8656
COEF OF VARIATION = 3.09%
VARIANCE = .0078
STANDARD DEVIATION = .0885
SKEWNESS = .9733
KURTOSIS = 4.1082

95.00% C.I. FOR MEAN
(2.8404 , 2.8908)
ONE-TAIL t(49 , .025) =
2.0100345016

NO X

GULF 03951

ROMAX = 2.87 ± 0.09X



LIM

2.5 3 3.5 4 4.5 5

KPNOTCB1043

03954

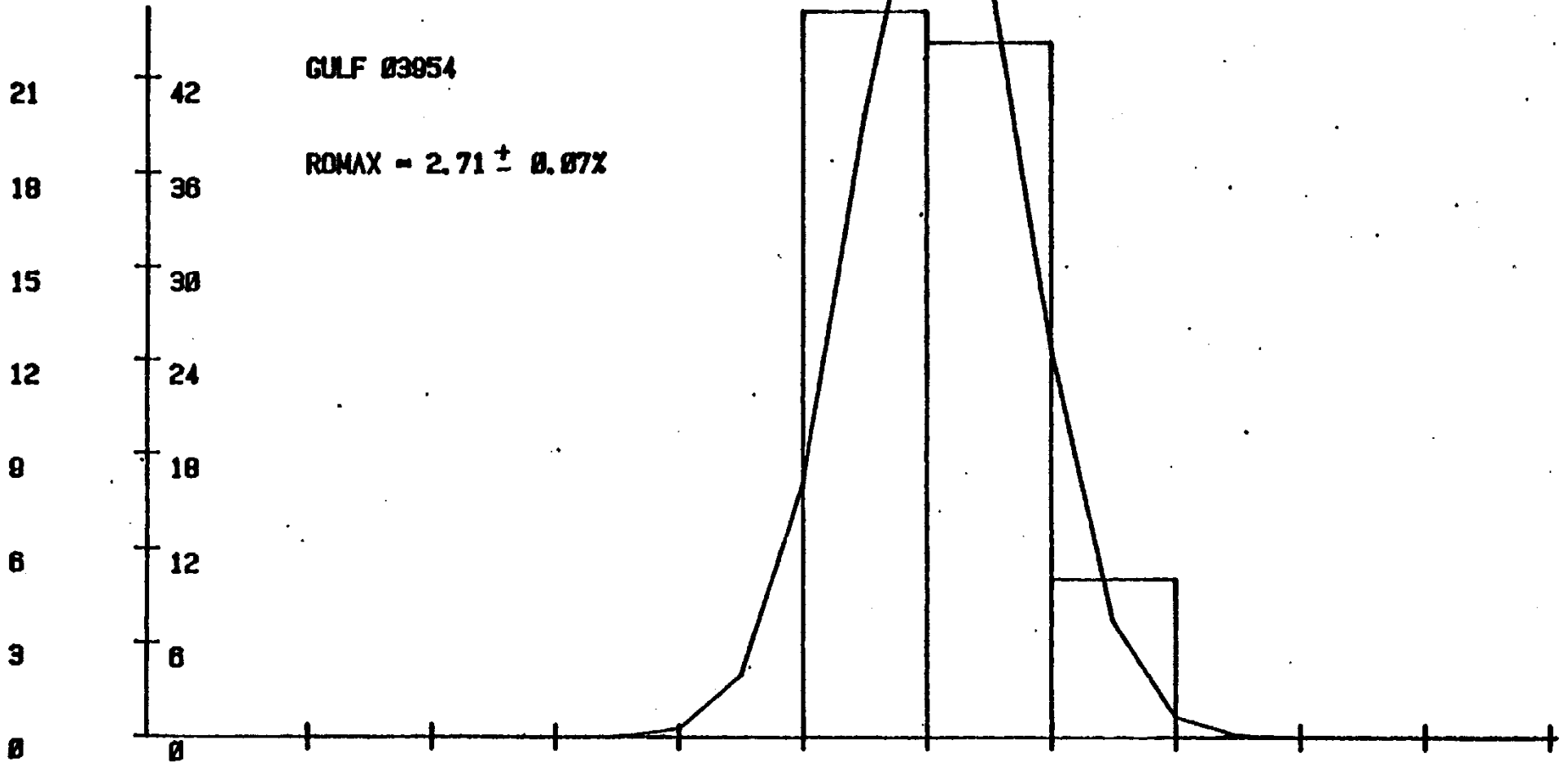
I	X(I)	X(I+1)
1	2.71000	2.77000
2	2.73000	2.75000
3	2.74000	2.71000
4	2.74000	2.70000
5	2.74000	2.79000
6	2.74000	2.75000
7	2.74000	2.75000
8	2.74000	2.75000
9	2.74000	2.75000
10	2.74000	2.75000
11	2.74000	2.75000
12	2.74000	2.75000
13	2.74000	2.75000
14	2.74000	2.75000
15	2.74000	2.75000
16	2.74000	2.75000
17	2.74000	2.75000
18	2.74000	2.75000
19	2.74000	2.75000
20	2.74000	2.75000
21	2.74000	2.75000
22	2.74000	2.75000
23	2.74000	2.75000
24	2.74000	2.75000
25	2.74000	2.75000
26	2.74000	2.75000
27	2.74000	2.75000
28	2.74000	2.75000
29	2.74000	2.75000
30	2.74000	2.75000
31	2.74000	2.75000
32	2.74000	2.75000
33	2.74000	2.75000
34	2.74000	2.75000
35	2.74000	2.75000
36	2.74000	2.75000
37	2.74000	2.75000
38	2.74000	2.75000
39	2.74000	2.75000
40	2.74000	2.75000
41	2.74000	2.75000
42	2.74000	2.75000
43	2.74000	2.75000
44	2.74000	2.75000
45	2.74000	2.75000
46	2.74000	2.75000
47	2.74000	2.75000
48	2.74000	2.75000
49	2.74000	2.75000
50	2.74000	2.75000

BASIC STATISTICS

N = 50
STD ERROR OF THE MEAN = .01
MEAN = 2.7182
COEF OF VARIATION = 2.54%
VARIANCE = .0047
STANDARD DEVIATION = .0689
SKEWNESS = .9266
KURTOSIS = 3.4803

95.00% C.I. FOR MEAN:
(2.6906, 2.7298)
ONE-TAIL T(49, .025) =
2.01003450016

NO x



LIN

2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3 3.1 3.2

KPNOTC8104A

03955

I	X(I)	X(I+1)
1	2.8500	2.7800
2	2.8900	2.7200
3	2.7100	2.8300
4	2.7600	2.7900
5	2.8400	2.8500
6	2.7600	2.8300
7	2.8900	2.8100
8	2.8200	2.9100
9	2.7300	2.7300
10	2.8100	2.8600
11	2.9100	2.7600
12	2.7500	2.8300
13	2.7000	2.8500
14	2.7800	2.7400
15	2.7300	2.8200
16	2.8600	2.7900
17	2.6900	2.7400
18	2.7400	2.8800
19	2.7000	2.8300
20	2.8100	2.7300
21	2.8800	2.7800
22	2.6700	2.7600
23	2.8400	2.7800
24	2.7700	2.8100

BASIC STATISTICS

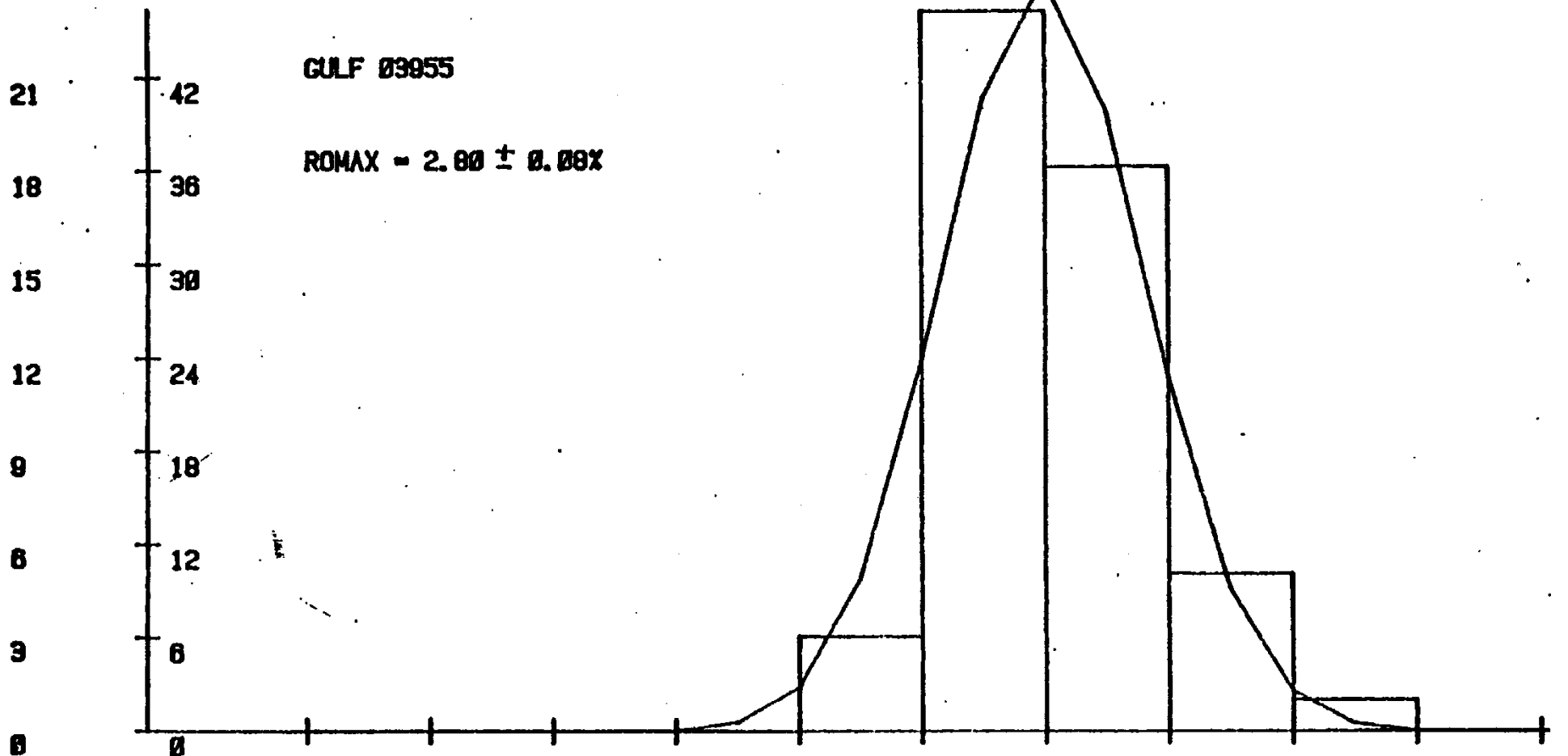
N = 50
STD ERROR OF THE MEAN = .01
MEAN = 2.7986
COEF OF VARIATION = 2.97%
VARIANCE = .0069
STANDARD DEVIATION = .0831
SKEWNESS = .6785
KURTOSIS = 2.8670

95.00% C.I. FOR MEAN:
(2.7750, 2.8222)
ONE-TAIL t(49 , .025) =
2.01003450016

NO %

GULF 03955

ROMAX = 2.80 ± 0.08%



LIN

2

3

4

5

6

7

8

9

3

2

2

KPNOTCB1045

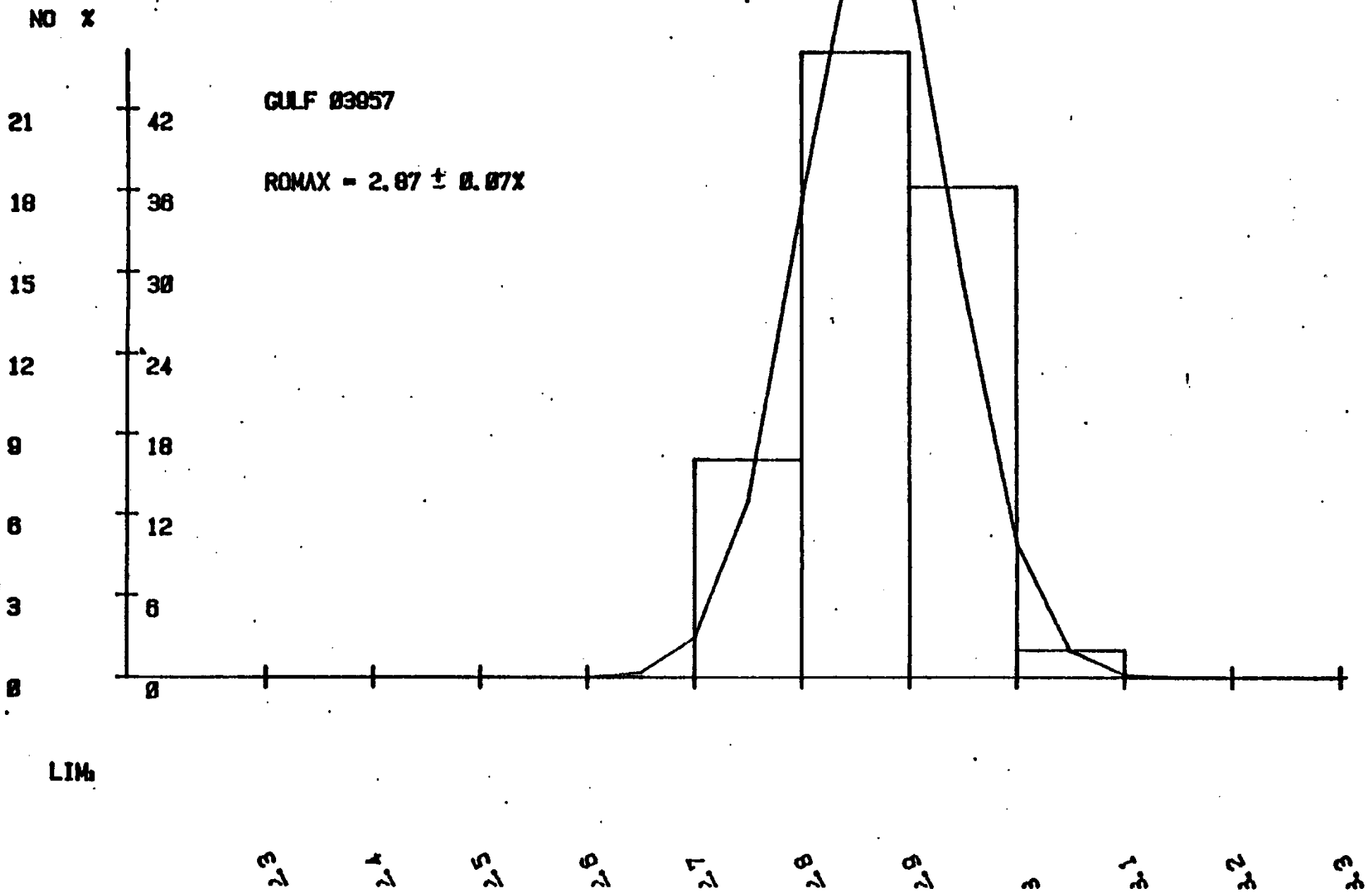
03957

I	X(I)	X(I+1)
1	03000	03000
2	03000	03000
3	03000	03000
4	03000	03000
5	03000	03000
6	03000	03000
7	03000	03000
8	03000	03000
9	03000	03000
10	03000	03000
11	03000	03000
12	03000	03000
13	03000	03000
14	03000	03000
15	03000	03000
16	03000	03000
17	03000	03000
18	03000	03000
19	03000	03000
20	03000	03000
21	03000	03000
22	03000	03000
23	03000	03000
24	03000	03000
25	03000	03000
26	03000	03000
27	03000	03000
28	03000	03000
29	03000	03000
30	03000	03000
31	03000	03000
32	03000	03000
33	03000	03000
34	03000	03000
35	03000	03000
36	03000	03000
37	03000	03000
38	03000	03000
39	03000	03000
40	03000	03000
41	03000	03000
42	03000	03000
43	03000	03000
44	03000	03000
45	03000	03000
46	03000	03000
47	03000	03000
48	03000	03000
49	03000	03000
50	03000	03000

BASIC STATISTICS

N = 50
STD ERROR OF THE MEAN = .01
MEAN = 2.8695
COEF OF VARIATION = 2.41%
VARIANCE = .0048
STANDARD DEVIATION = .0692
SKEWNESS = .2199
KURTOSIS = 2.0493

95.00% C.I. FOR MEAN:
(2.8499, 2.8893)
ONE-TAIL (49, .025) =
2.81003450016



KPNOTC 81053

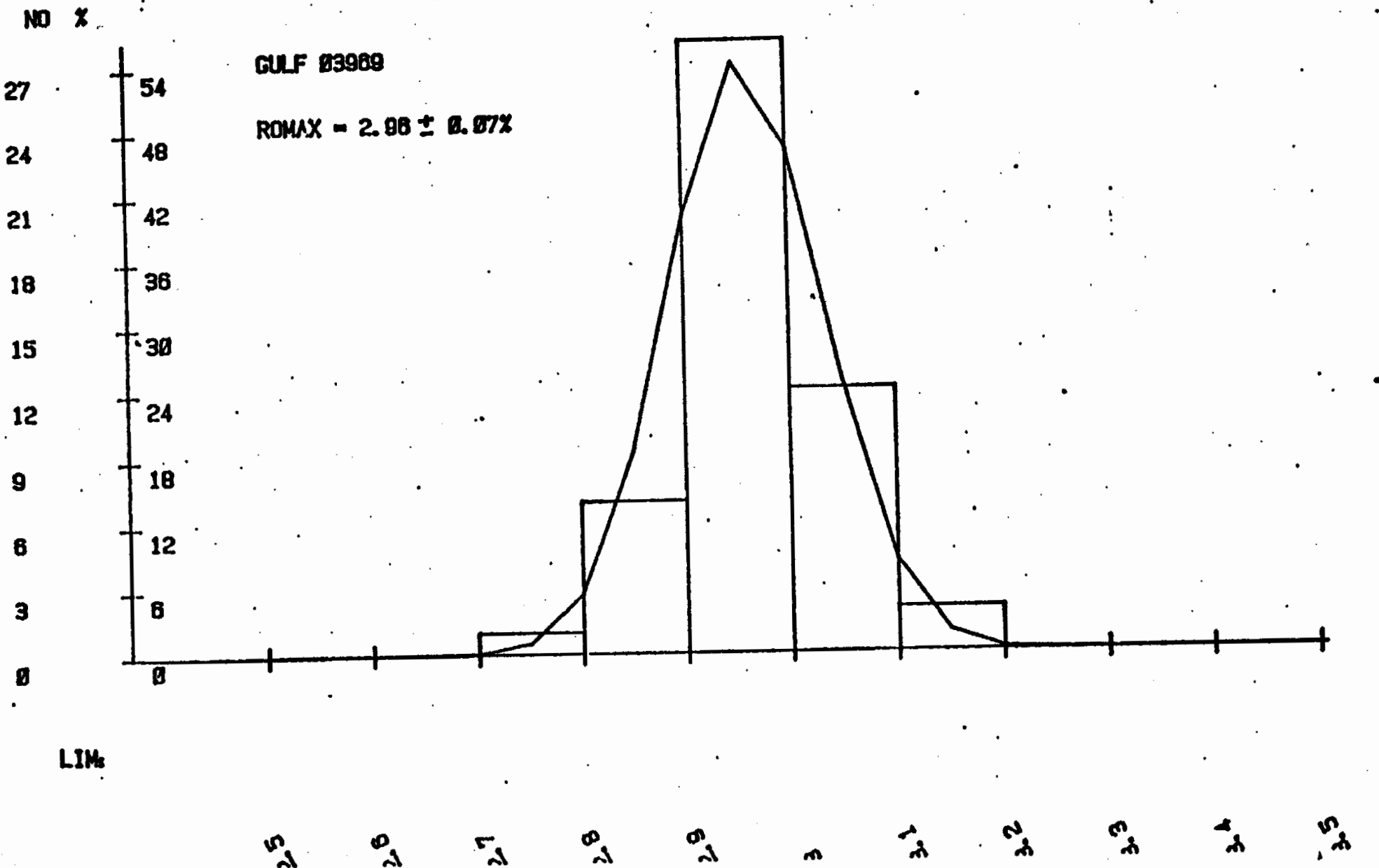
03969

I	X(I)	X(I+1)
1	2.7900	3.0500
2	2.9700	2.9000
3	2.9400	2.9200
4	2.9100	2.9300
5	2.9000	2.9000
6	2.9300	2.9300
7	2.9900	2.8700
8	2.9300	2.9400
9	2.8200	2.9300
10	2.8700	2.9900
11	2.9000	2.9500
12	2.9500	2.8400
13	3.0200	2.9700
14	2.9800	2.9900
15	3.0200	2.9000
16	3.0500	2.8800
17	2.9300	2.9400
18	2.9700	2.8700
19	3.0300	2.9300
20	2.8900	2.8200
21	2.9200	2.9300
22	2.9600	2.9500
23	3.0200	2.8700
24	2.9800	2.9900
25	3.0200	2.9000
26	2.9500	2.8800
27	2.9300	2.9400
28	2.9700	2.8700
29	3.0300	2.9300
30	2.8900	2.8200
31	2.9200	2.9300
32	2.9600	2.9500
33	3.0200	2.8700
34	2.9800	2.9900
35	3.0200	2.9000
36	2.9500	2.8800
37	2.9300	2.9400
38	2.9700	2.8700
39	3.0300	2.9300
40	2.8900	2.8200
41	2.9200	2.9300
42	2.9600	2.9500
43	3.0200	2.8700
44	2.9800	2.9900
45	3.0200	2.9000
46	2.9500	2.8800
47	2.9300	2.9400
48	2.9700	2.8700
49	3.0300	2.9300

BASIC STATISTICS

N = 50
STD ERROR OF THE MEAN = .01
MEAN = 2.9580
COEF OF VARIATION = 2.49%
VARIANCE = .0054
STANDARD DEVIATION = .0736
SKEWNESS = .1291
KURTOSIS = 2.8755

95.00% C. I. FOR MEAN:
(2.9371, 2.9789)
ONE-TAIL t(49, .025) =
2.01003450016



KPN0TC81054

03970

I	X(I)	X(I+1)
1	3.8500	3.7500
3	3.6500	3.6800
5	3.6400	3.5500
7	3.5600	3.5800
9	3.6000	3.5600
11	3.6900	3.7000
13	3.7200	3.6800
15	3.7600	3.6500
17	3.6600	3.6400
19	3.7100	3.7300
21	3.7100	3.7000
23	3.5200	3.6100
25	3.7900	3.6400
27	3.7600	3.8600
29	3.6200	3.6200
31	3.7700	3.7900
33	3.7800	3.6400
35	3.6900	3.7900
37	3.5600	3.6400
39	3.5500	3.5800
41	3.7100	3.7200
43	3.6200	3.6400
45	3.6100	3.7200
47	3.5300	3.6200
49	3.6200	3.7700

BASIC STATISTICS

N = 50

STD ERROR OF THE MEAN = .01

MEAN = 3.6748

COEF OF VARIATION = 2.38%

VARIANCE = .0076

STANDARD DEVIATION = .0874

SKEWNESS = .2746

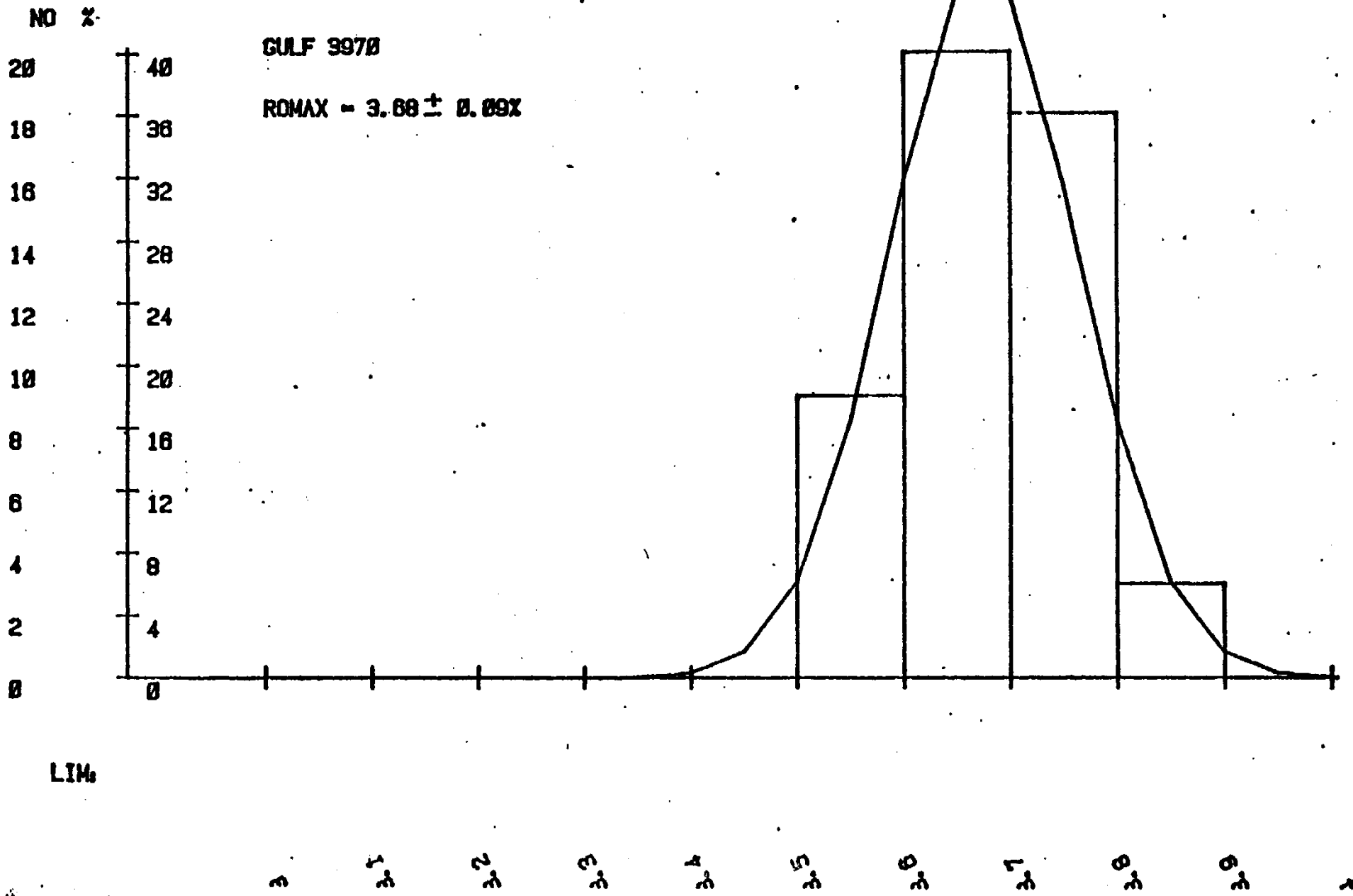
KURTOSIS = 2.3482

95.00% C.I. FOR MEAN:

(3.6500, 3.6996)

ONE-TAIL t(49, .025) =

2.01003450016



KPNOTC81055

03971

I	X(I)	X(I+1)
1	6600	6600
2	5400	5600
3	5200	5600
4	5300	8700
5	5400	5500
6	5200	5000
7	7100	5400
8	6500	6500
9	6000	6400
10	6600	6000
11	5100	6000
12	5100	6000
13	5300	6000
14	5300	5000
15	5500	7000
16	6000	6000
17	5000	6000
18	5300	5400
19	6300	5700
20	5900	5000
21	7000	7100
22	5300	5000
23	5400	5000
24	4900	5000
25	5500	6000

BASIC STATISTICS

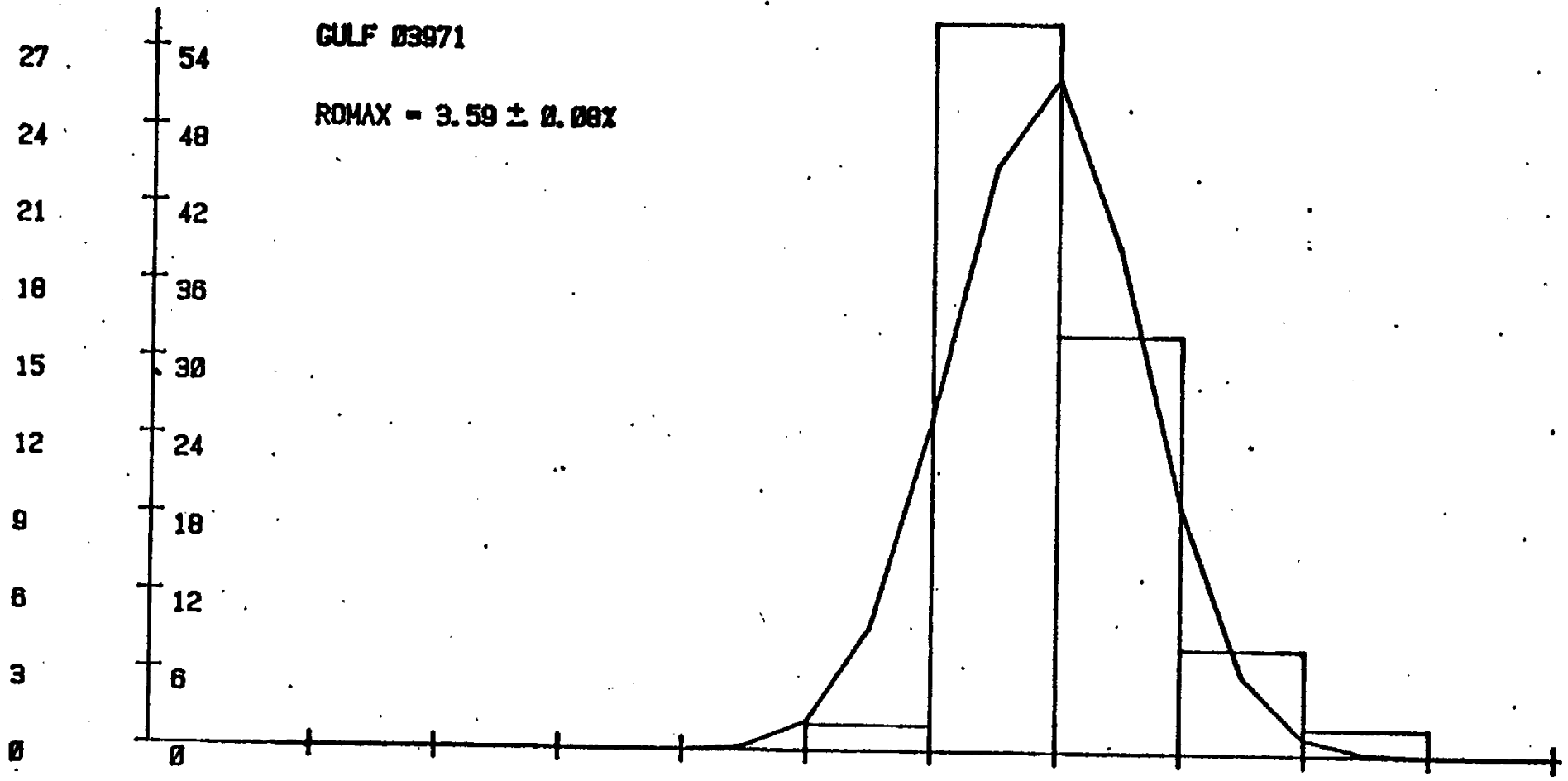
N = 50
STD ERROR OF THE MEAN = .01
MEAN = 3.5912
COEF OF VARIATION = 2.13%
VARIANCE = .0053
STANDARD DEVIATION = .0764
SKEWNESS = 1.3937
KURTOSIS = 5.3855

95.00% C. I. FOR MEAN:
(3.5695, 3.6129)
ONE-TAIL t(49, .025) =
2.01003450016

NO %

GULF 03971

ROMAX = $3.59 \pm 0.08\%$



LIM

3.0 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9

KPNOTCB1041

03977

I	X(I)	X(I+1)
1	5200	7540
2	5100	7500
3	4970	7400
4	5300	7000
5	5300	7000
6	5600	7000
7	4800	6500
8	7600	6200
9	5400	6000
10	4800	4900
11	4600	5700
12	5300	7400
13	5600	6900
14	4500	6000
15	5400	7100
16	5400	7100
17	4600	4900
18	4600	4900
19	5700	6000
20	4800	6000
21	7100	7300
22	3600	7200
23	6600	4800
24	7000	6900
25	8400	6900

BASIC STATISTICS

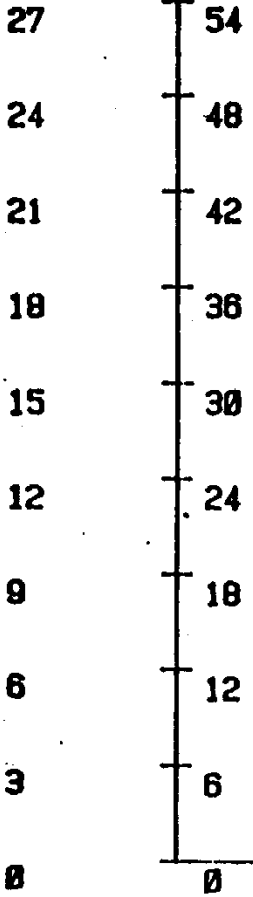
N = 50
STD ERROR OF THE MEAN = .02
MEAN = 3.5882
COEF OF VARIATION = 3.85%
VARIANCE = .0191
STANDARD DEVIATION = .1383
SKEWNESS = .7425
KURTOSIS = 3.5192

95.00% C.I. FOR MEAN:
(3.5489, 3.6275)
ONE-TAIL t(49 , .025) =
2.01003450016

NO %

GULF 03977

ROMAX = 9.50 ± 0.14%



LIM

2.4

2.6

2.8

3

3.2

3.4

3.6

3.8

4

4.2

4.4

KPNOTC81028

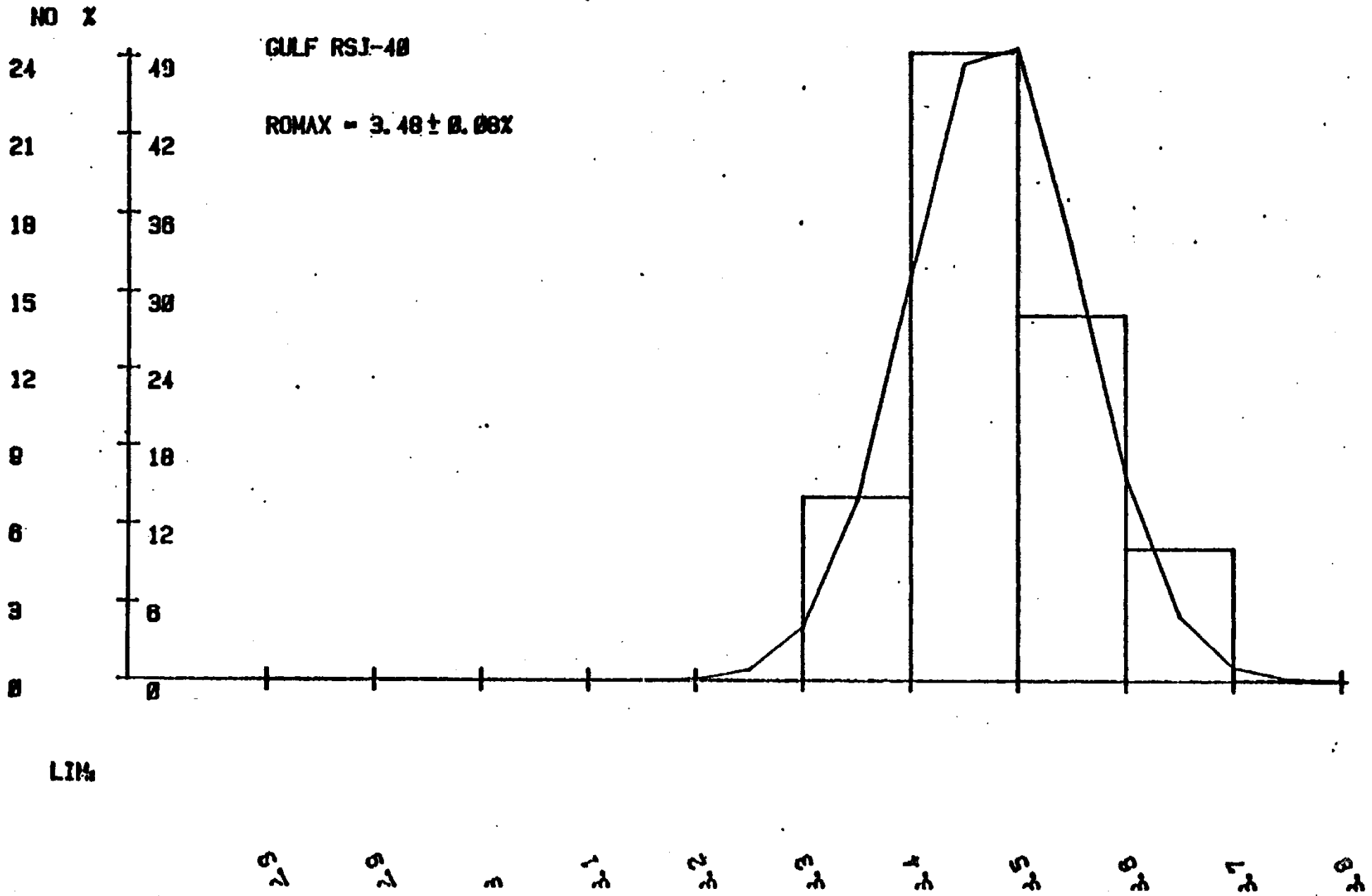
RST-40

I	X(I)	X(I+1)
1	5200	5500
2	6100	5600
3	5700	4800
4	5900	4900
5	4000	5100
6	3800	5700
7	4300	5300
8	3400	4300
9	4600	4600
10	4800	4700
11	4400	4800
12	4100	5100
13	5500	4600
14	5200	4400
15	4100	4500
16	5500	4400
17	5900	4700
18	5300	4600
19	4300	4500
20	4400	4500
21	4500	4500
22	4400	4200
23	5900	5000
24	5000	5000
25	5200	5000

BASIC STATISTICS

N = 50
STD ERROR OF THE MEAN = .01
MEAN = 3.4782
COEF OF VARIATION = 2.29%
VARIANCE = .0063
STANDARD DEVIATION = .0795
SKEWNESS = .4794
KURTOSIS = 2.4437

95.00% C.I. FOR MEAN:
(3.4556, 3.5008)
ONE-TAIL ((49, .025) =
2.01003450016



KPNOTC81035

RSJ-50

I	X(I)	X(I+1)
1	4.0000	3.9300
2	3.8300	3.9600
3	3.8300	3.7700
4	3.8800	3.7400
5	3.9400	3.7600
6	3.9400	3.9400
7	3.7400	3.7800
8	3.8000	3.9400
9	3.9000	3.8000
10	3.7500	3.9400
11	4.0600	3.8000
12	3.8200	3.9000
13	3.8600	3.7300
14	4.0000	3.9000
15	3.7500	3.1300
16	3.8300	3.8500
17	3.9200	3.8000
18	3.7700	3.7600
19	3.7600	3.9200
20	3.8800	3.7900
21	3.7600	3.7500
22	3.9200	3.1500
23	3.8600	3.7100
24	3.7500	3.8200
25	3.8600	3.8500

BASIC STATISTICS

N = 50

STD ERROR OF THE MEAN = .01

MEAN = 3.8546

COEF OF VARIATION = 2.63%

VARIANCE = .0103

STANDARD DEVIATION = .1015

SKEWNESS = .9563

KURTOSIS = 3.6418

95.00% C.I. FOR MEAN:

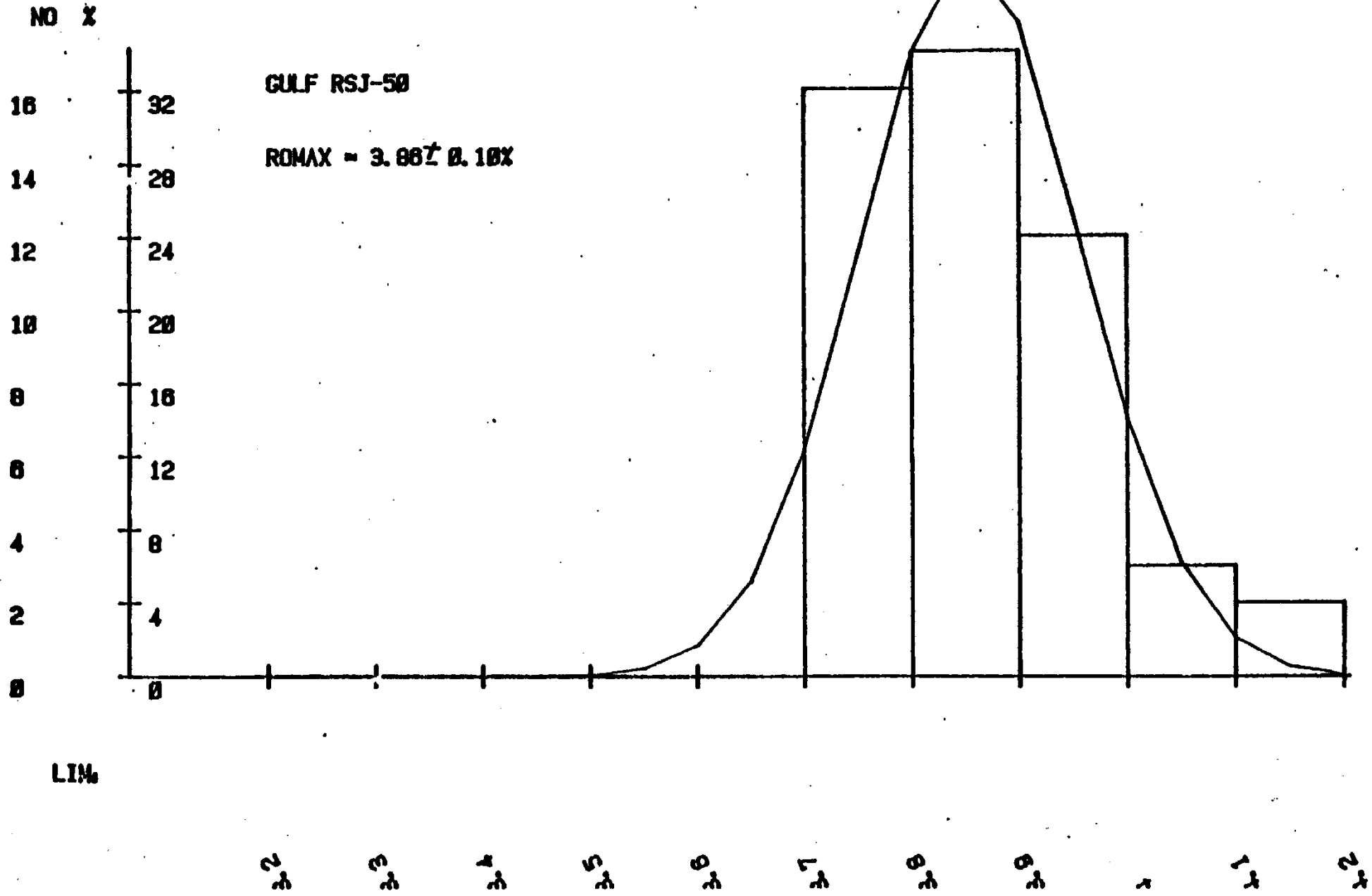
(3.8258, 3.8834)

ONE-TAIL t(49 , .025) =

2.01003450016

GULF RSJ-50

ROMAX = 3.86 ± 0.10%



KPNOTC 81036

RST-51

I	X(I)	X(I+1)
1	3.9200	3.7300
2	3.9300	3.7700
3	3.7100	3.8300
4	3.7600	3.7000
5	3.7700	3.8900
6	3.7600	3.8500
7	3.9200	3.8400
8	3.7600	3.8500
9	3.8200	3.7200
10	3.8100	3.8000
11	3.8500	3.6900
12	3.7900	3.9300
13	3.8400	3.9300
14	3.9800	3.9000
15	3.8600	3.9200
16	3.8400	3.8700
17	3.8700	3.8300
18	3.8200	3.9300
19	3.8400	3.7600
20	3.8500	3.8700
21	3.9500	3.8400
22	3.7400	3.8500
23	3.8300	3.7900
24	3.9700	3.8300
25	3.8200	3.9200

BASIC STATISTICS

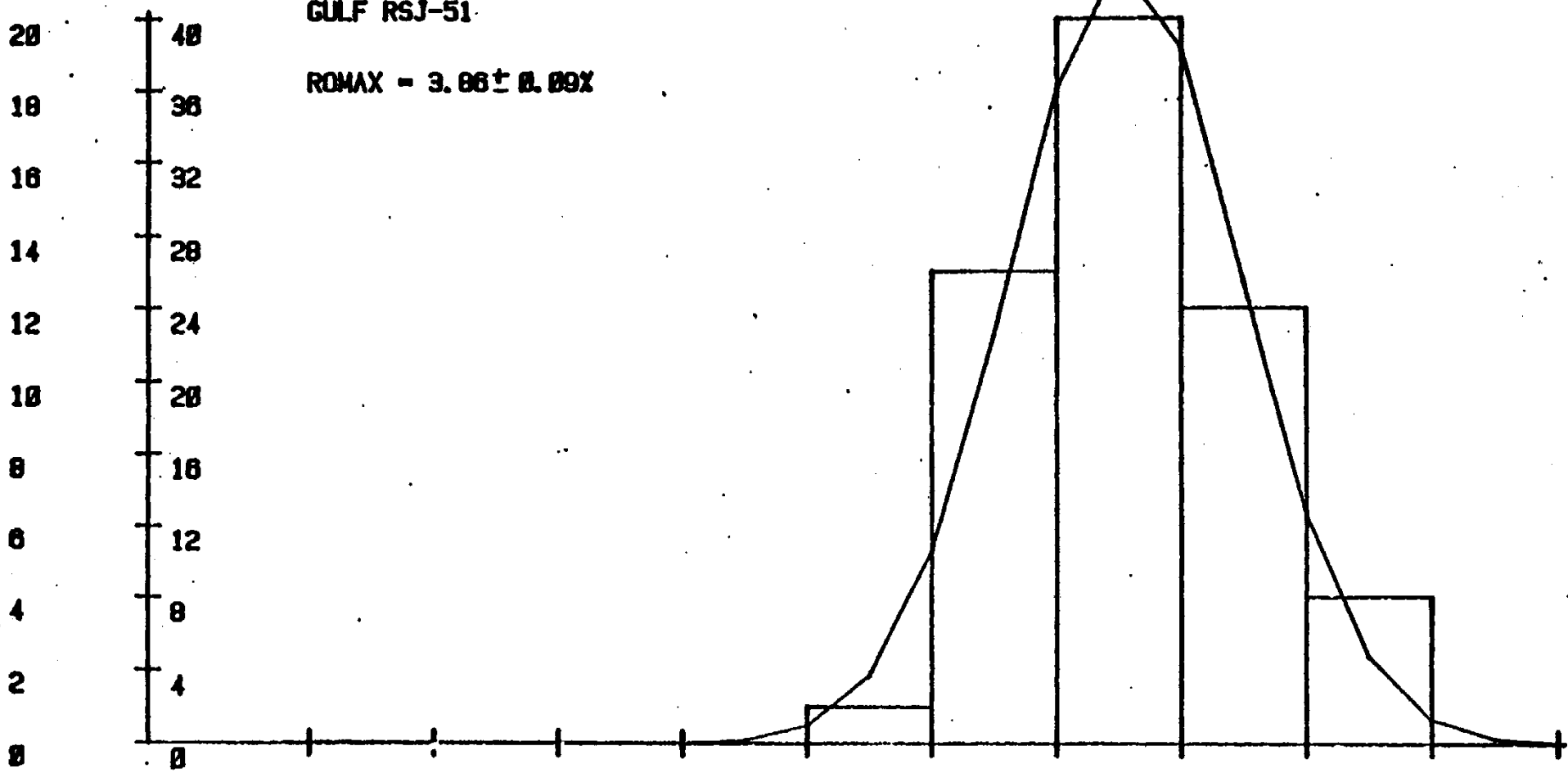
N = 50
STD ERROR OF THE MEAN = .01
MEAN = 3.8554
COEF OF VARIATION = 2.40%
VARIANCE = .0086
STANDARD DEVIATION = .0925
SKEWNESS = .4190
KURTOSIS = 2.8295

95.00% C. I. FOR MEAN:
(3.8291, 3.8817)
ONE-TAIL t(49, .025) =
2.01003450016

NO %

GULF RSJ-51

ROMAX = 3.86 ± 0.09%



LIM

0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

KPNOTC81037

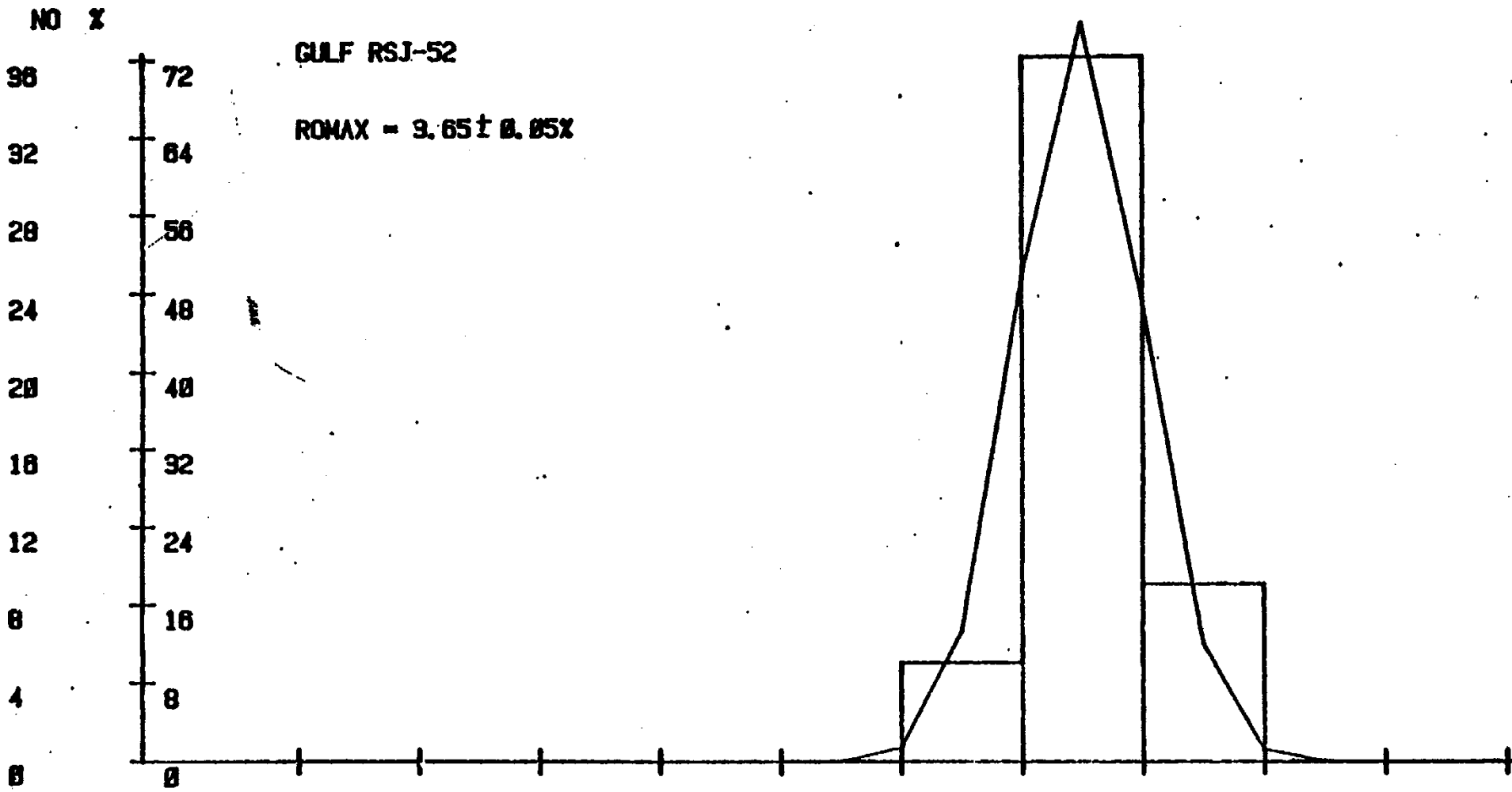
RSJ-52

I	X(I)	X(I+1)
1	6600	6100
2	6900	6300
3	6200	6400
4	6800	7200
5	6900	6700
11	6600	6300
12	6800	7400
13	6700	7800
17	6200	6100
19	7000	6600
21	7000	6600
22	7100	7200
23	6400	6600
27	6900	7800
29	7000	6600
31	7000	6600
33	6700	6600
35	6600	7700
37	6100	6100
39	6200	6300
41	6300	6200
43	6600	6100
45	6500	6700
47	7100	6100
49	6100	6200

BASIC STATISTICS

N = 50
STD ERROR OF THE MEAN = .01
MEAN = 3.6486
COEF OF VARIATION = 1.44%
VARIANCE = .0028
STANDARD DEVIATION = .0527
SKEWNESS = .6053
KURTOSIS = 3.2741

95.00% C.I. FOR MEAN:
(3.6336, 3.6636)
ONE-TAIL t(49, .025) =
2.01003450016



LI:6

3 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9

KPNOTCB1001

DP-73

I	X(I)	X(I+1)
1	3.2800	3.2000
2	3.2100	3.1200
3	3.2600	3.2200
4	3.1700	3.2500
5	3.2300	3.2500
6	3.2700	3.1900
7	3.3000	3.2800
8	3.2400	3.2200
9	3.3800	3.1800
10	3.2200	3.3500
11	3.2000	3.3300
12	3.2200	3.4000
13	3.3400	3.4400
14	3.2500	3.4400
15	3.1900	3.2100
16	3.2700	3.3000
17	3.2000	3.2100
18	3.3000	3.2700
19	3.2000	3.2300
20	3.2400	3.2700
21	3.2600	3.3500
22	3.3100	3.4000
23	3.4000	3.2000
24	3.3900	3.2400
25	3.2200	3.3200

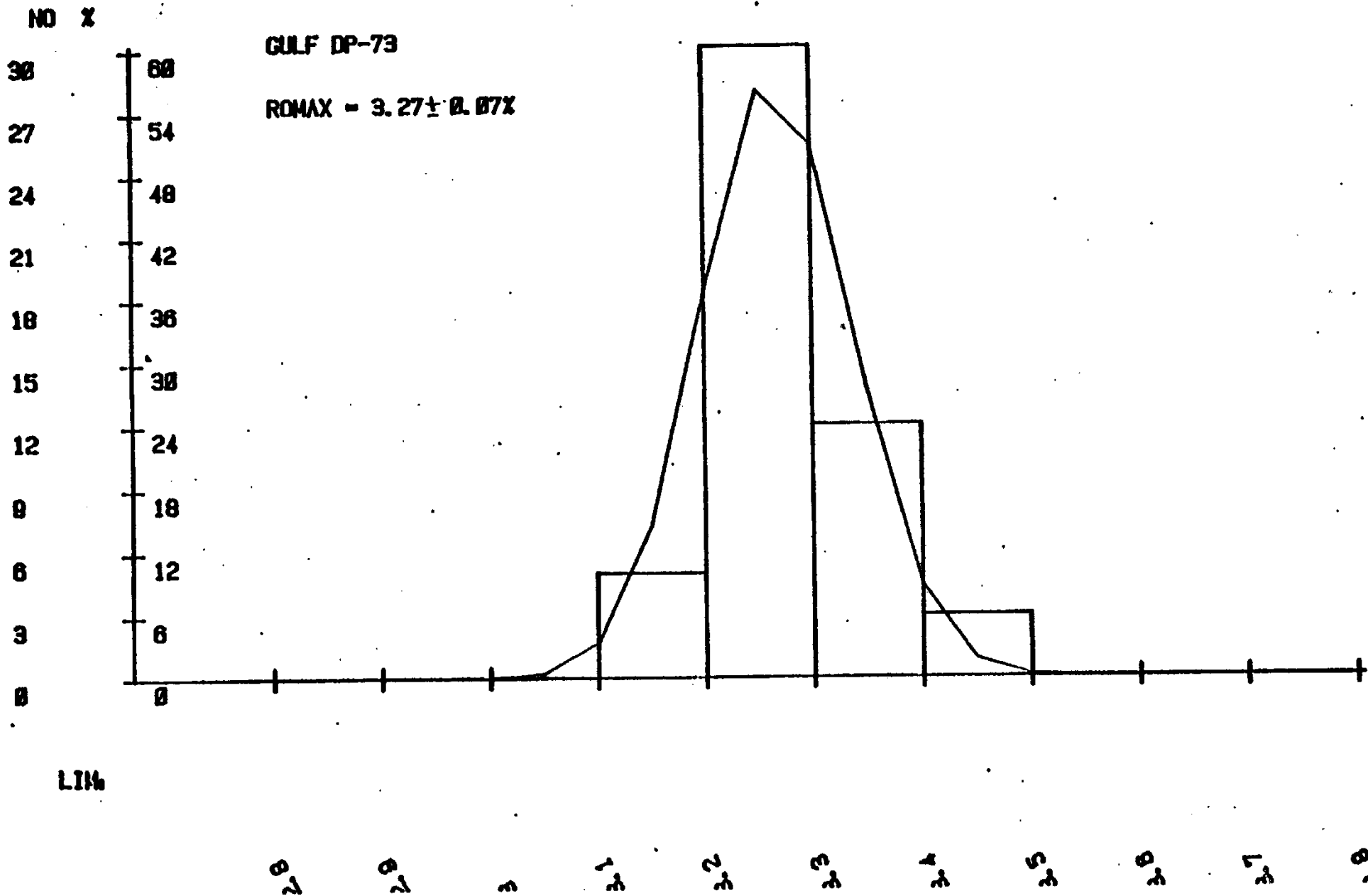
BASIC STATISTICS

N = 50
STD ERROR OF THE MEAN = .01
MEAN = 3.2656
COEF OF VARIATION = 2.13%
VARIANCE = .0049
STANDARD DEVIATION = .0697
SKEWNESS = .6937
KURTOSIS = 3.1465

95.00% C.I. FOR MEAN:
(3.2458, 3.2854)
ONE-TAIL t(49, .025) =
2.01003450016

GULF DP-73

ROMAX = $3.27 \pm 0.07\%$



LIN

KPNOTCB1002

DP-75

I	X(I)	X(I+1)
1	4400	57100
2	5600	5500
3	5300	4600
4	4400	4400
5	4300	5800
6	4300	5700
7	4400	5700
8	4200	5200
9	4200	6300
10	6700	6300
11	5900	5400
12	5100	5500
13	5400	6100
14	5400	4900
15	4400	4500
16	4000	5700
17	5400	4600
18	4400	5900
19	4300	4400
20	5800	4700
21	7000	4100
22	4500	6800
23	5400	5300
24	4200	6200
25	4800	6600
26	4600	4300

BASIC STATISTICS

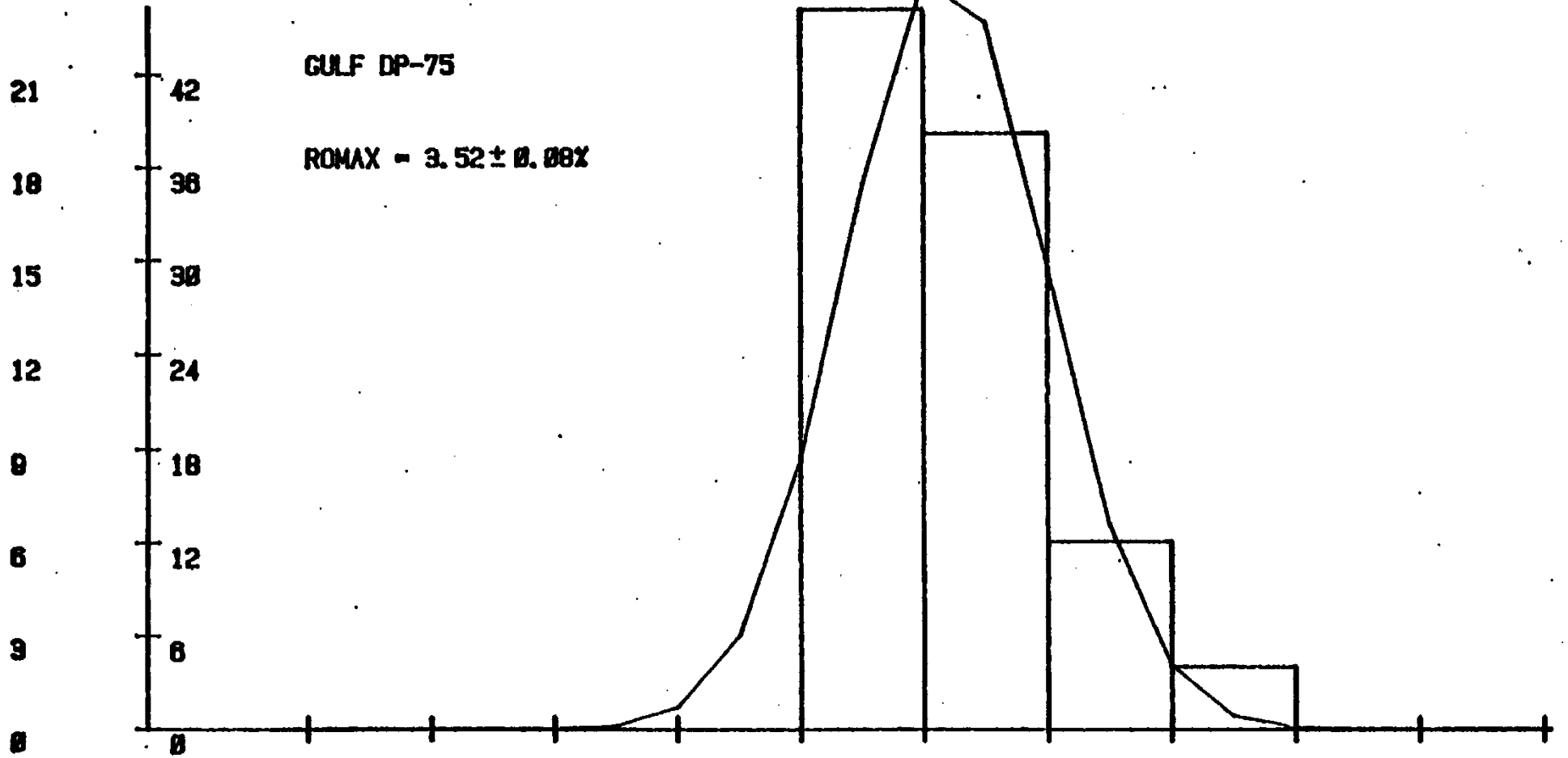
N = 50
STD ERROR OF THE MEAN = .01
MEAN = 3.5174
COEF OF VARIATION = 2.32%
VARIANCE = .0067
STANDARD DEVIATION = .0816
SKEWNESS = .5109
KURTOSIS = 2.3567

95.00% C. I. FOR MEAN:
(3.4942, 3.5406)
ONE-TAIL t (49 , .025) =
2.01003450016

NO X

GULF DP-75

ROMAX = $3.52 \pm 0.08\%$



LIN

0 1 2 3 4 5 6 7 8 9 10

KPNOTC81003

DP-79

I	X(I)	X(I+1)
1	3.3700	2.2000
2	2.4000	2.6000
3	2.8000	1.6000
4	2.2000	3.7000
5	2.3000	4.7000
6	2.9000	2.0000
7	3.3000	5.2000
8	3.2000	2.4000
9	3.6000	2.7000
10	2.0000	2.7000
11	2.1000	3.2000
12	2.4000	3.0000
13	3.2000	3.5000
14	3.3000	2.3000
15	2.3000	2.2000
16	2.5000	2.9000
17	2.3000	3.3000
18	1.3000	2.6000
19	2.0000	2.0000
20	3.1000	2.0000
21	2.2000	3.2000
22	2.1000	2.6000
23	2.3000	2.6000
24	2.0000	3.4000
25	4.0000	3.5000

BASIC STATISTICS

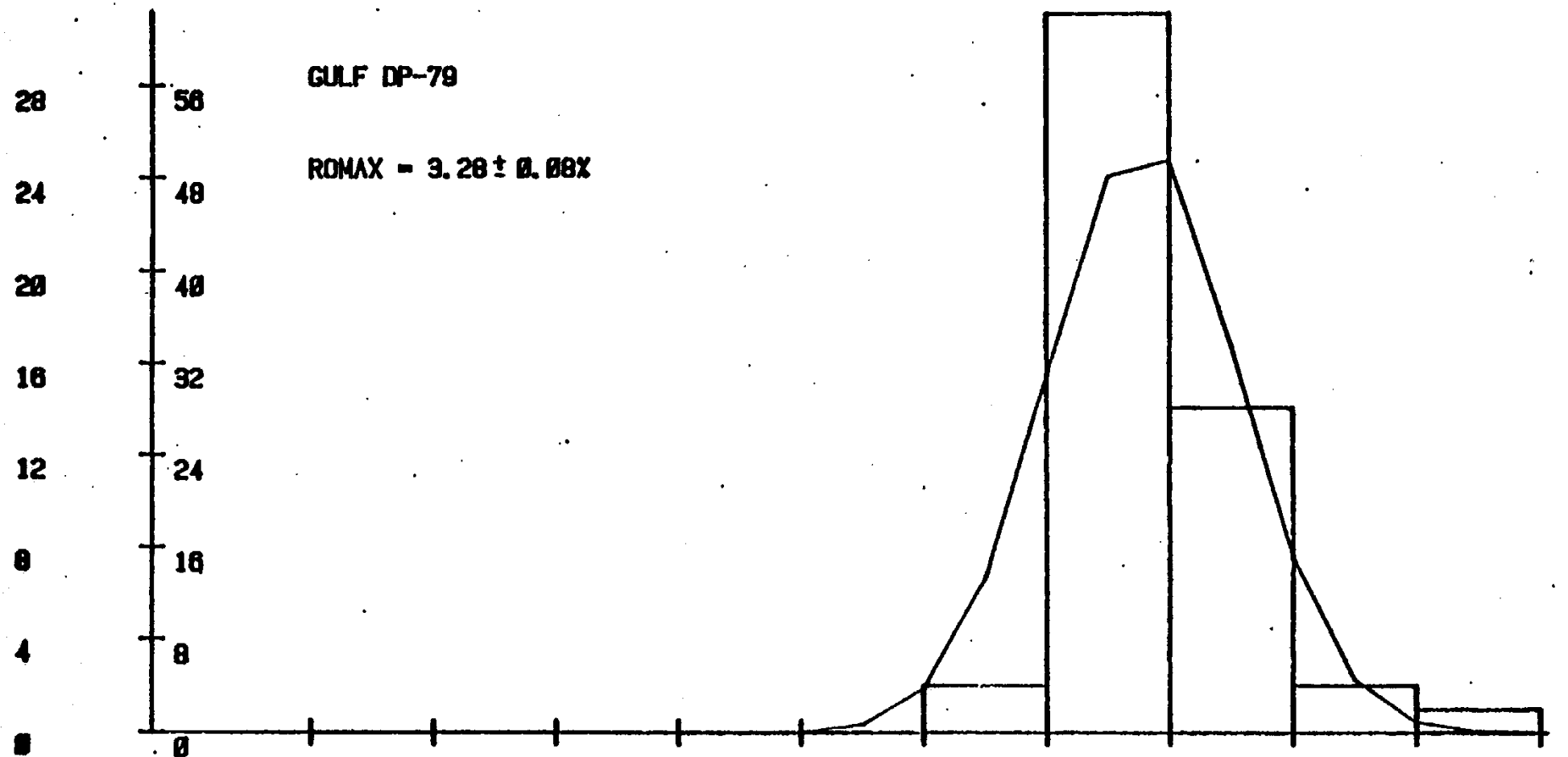
N = 50
STD ERROR OF THE MEAN = .01
MEAN = 3.2784
COEF OF VARIATION = 2.38%
VARIANCE = .0061
STANDARD DEVIATION = .0779
SKEWNESS = .9655
KURTOSIS = 4.1373

95.00% C.I. / FOR MEAN:
(3.2562, 3.3006)
ONE-TAIL (49, .025) =
2.01003450016

NO X

GULF DP-79

ROMAX = $3.28 \pm 0.08\%$



LIM

2.6

2.7

2.8

2.9

3

3.1

3.2

3.3

3.4

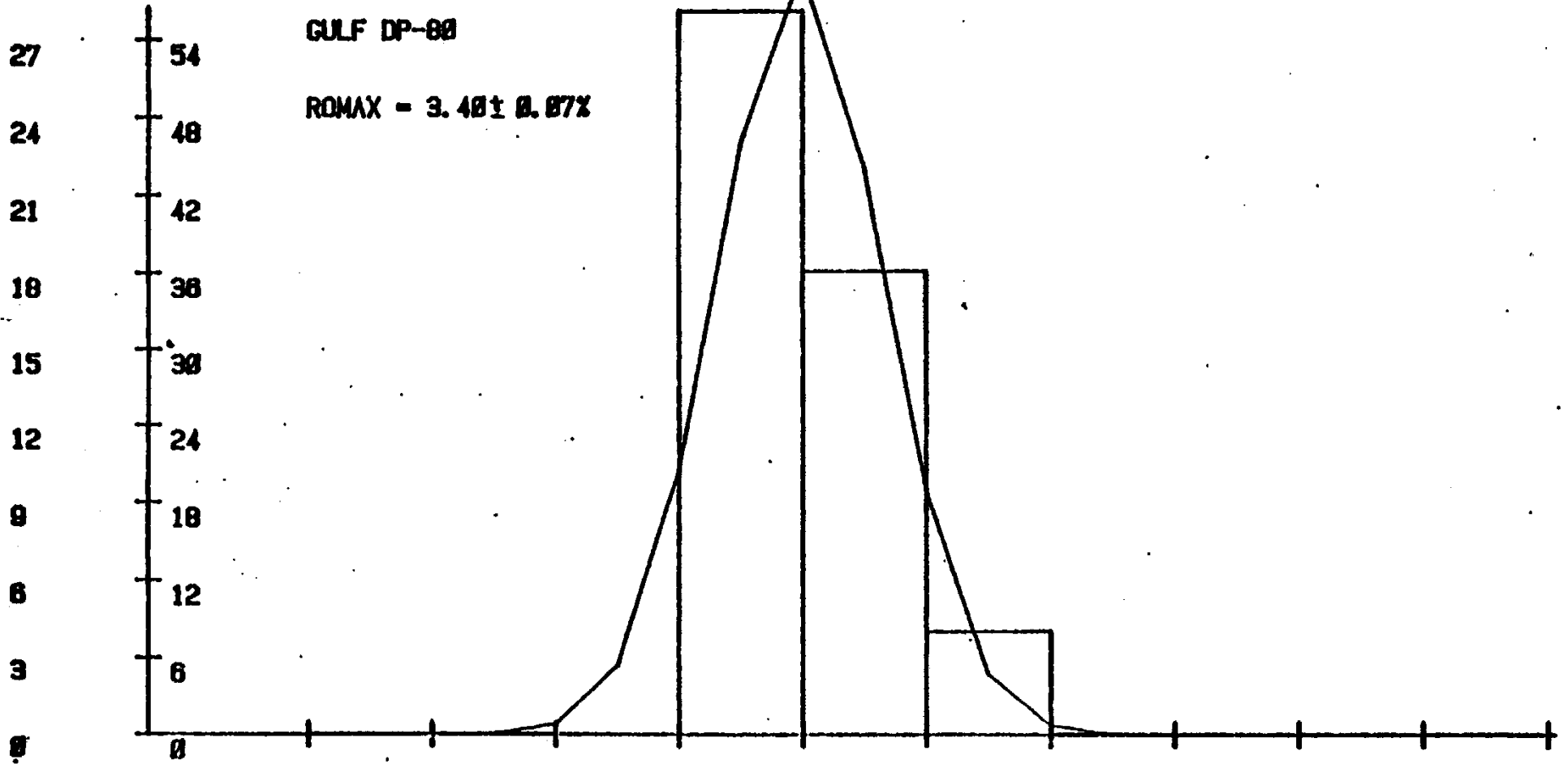
3.5

3.6

NO. %

GULF DP-88

ROMAX = 3.48 ± 0.87%



LIN.

KPNOTCB1005

KB-104

I	X(I)	X(I+1)
1	3700	3500
2	2600	3300
3	3300	2300
4	3400	3100
5	3300	4000
6	4500	4000
7	4500	3900
8	3300	2600
9	3200	3800
10	5000	5300
11	4900	4300
12	4300	4200
13	4900	4700
14	3300	2300
15	3500	3200
16	4700	4200
17	6000	3700
18	2000	3600
19	4000	3900
20	4200	2400
21	2000	5000
22	2900	4100
23	4000	3300
24	2800	3000

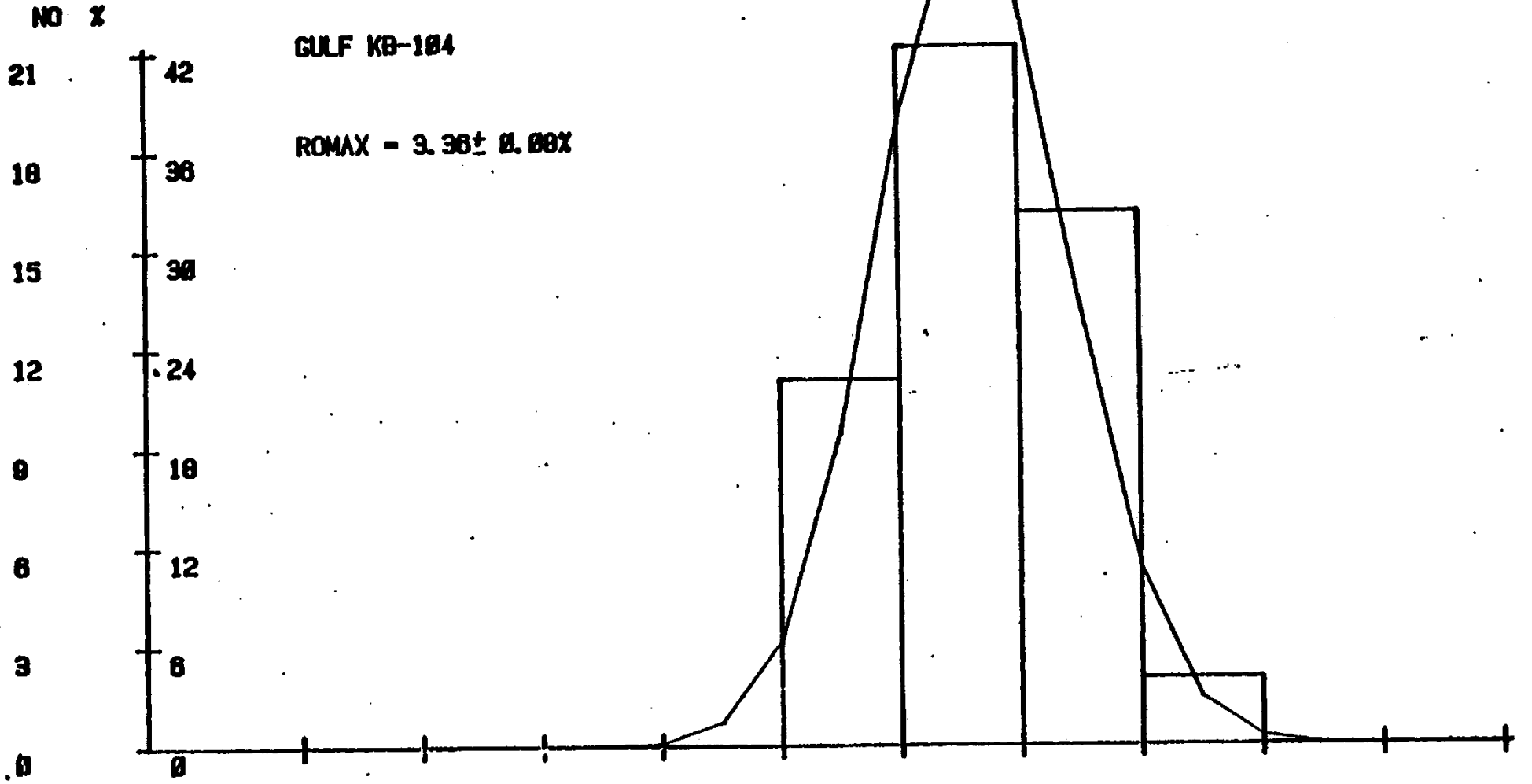
BASIC STATISTICS

N = 50
STD ERROR OF THE MEAN = .01
MEAN = 3.3610
COEF OF VARIATION = 2.34%
VARIANCE = .0062
STANDARD DEVIATION = .0787
SKEWNESS = .2285
KURTOSIS = 2.1157

95.00% C.I. FOR MEAN:
(3.3386, 3.3834)
ONE-TAIL T(49, .025) =
2.01003450016

GULF KB-104

ROMAX = $3.36 \pm 0.08\%$



LIN

0 1 2 3 4 5 6 7 8

KPNOTC81010

KB-17

I	X(I)	X(I+1)
1	4.0000	4.2000
2	4.0000	4.2000
3	4.0000	4.2000
4	4.0000	4.2000
5	4.0000	4.2000
6	4.0000	4.2000
7	4.0000	4.2000
8	4.0000	4.2000
9	4.0000	4.2000
10	4.0000	4.2000
11	4.0000	4.2000
12	4.0000	4.2000
13	4.0000	4.2000
14	4.0000	4.2000
15	4.0000	4.2000
16	4.0000	4.2000
17	4.0000	4.2000
18	4.0000	4.2000
19	4.0000	4.2000
20	4.0000	4.2000
21	4.0000	4.2000
22	4.0000	4.2000
23	4.0000	4.2000
24	4.0000	4.2000
25	4.0000	4.2000
26	4.0000	4.2000
27	4.0000	4.2000
28	4.0000	4.2000
29	4.0000	4.2000
30	4.0000	4.2000
31	4.0000	4.2000
32	4.0000	4.2000
33	4.0000	4.2000
34	4.0000	4.2000
35	4.0000	4.2000
36	4.0000	4.2000
37	4.0000	4.2000
38	4.0000	4.2000
39	4.0000	4.2000
40	4.0000	4.2000
41	4.0000	4.2000
42	4.0000	4.2000
43	4.0000	4.2000
44	4.0000	4.2000
45	4.0000	4.2000
46	4.0000	4.2000
47	4.0000	4.2000
48	4.0000	4.2000
49	4.0000	4.2000
50	4.0000	4.2000

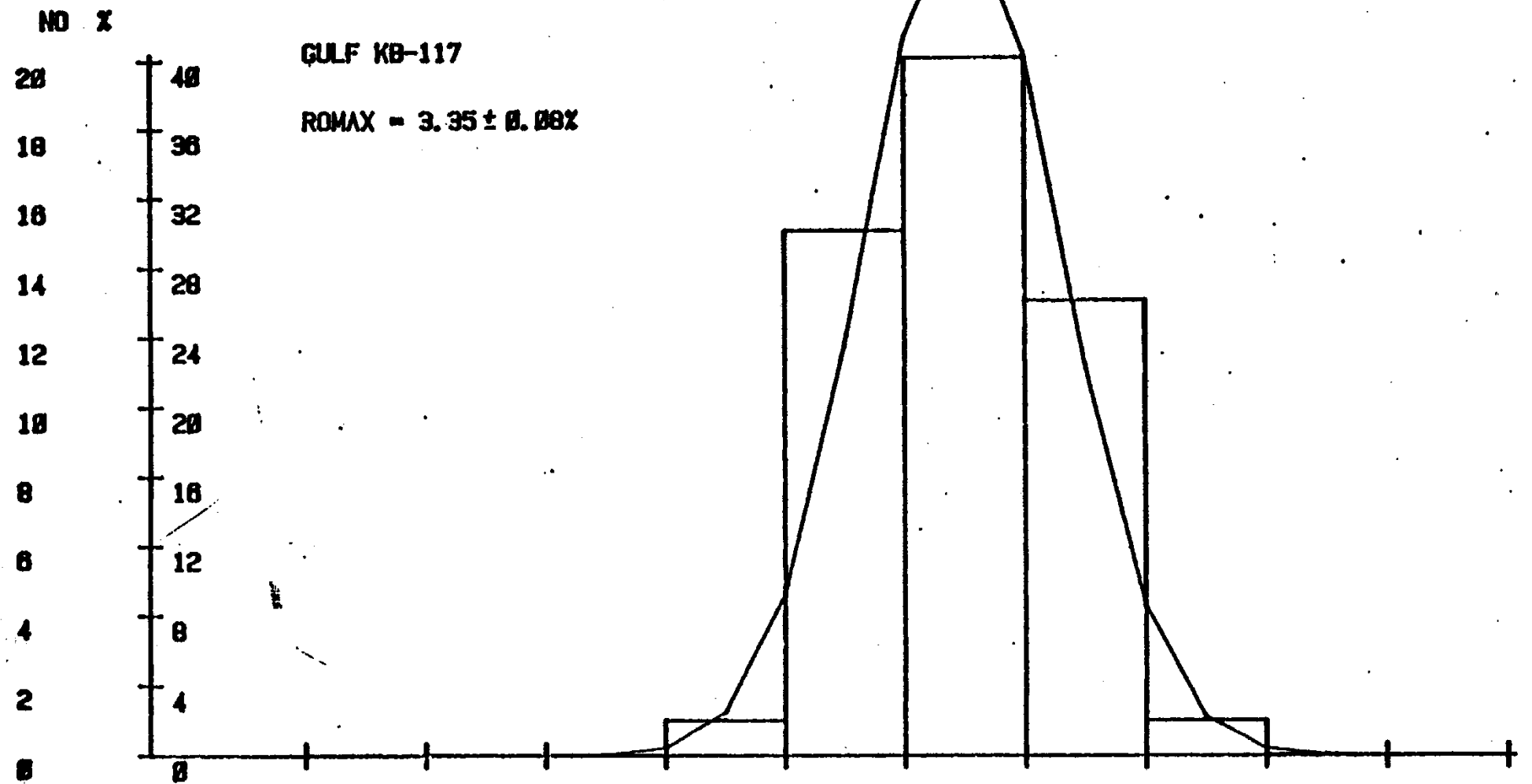
BASIC STATISTICS

N = 50
STD ERROR OF THE MEAN = .01
MEAN = 3.3484
COEF OF VARIATION = 2.42%
VARIANCE = .0066
STANDARD DEVIATION = .0810
SKEWNESS = -.0878
KURTOSIS = 2.2657

95.00% C.I. FOR MEAN
3.3254 3.3714
ONE-TAIL T(49, .025) =
2.01003459016

GULF KB-117

ROMAX = $3.35 \pm 0.08\%$



LIM

28

29

30

31

32

33

34

35

36

37

38

1981

HEAD RAW ANALYSIS

Trench No. TRC-81-001

Lab Sample No. 02561-62

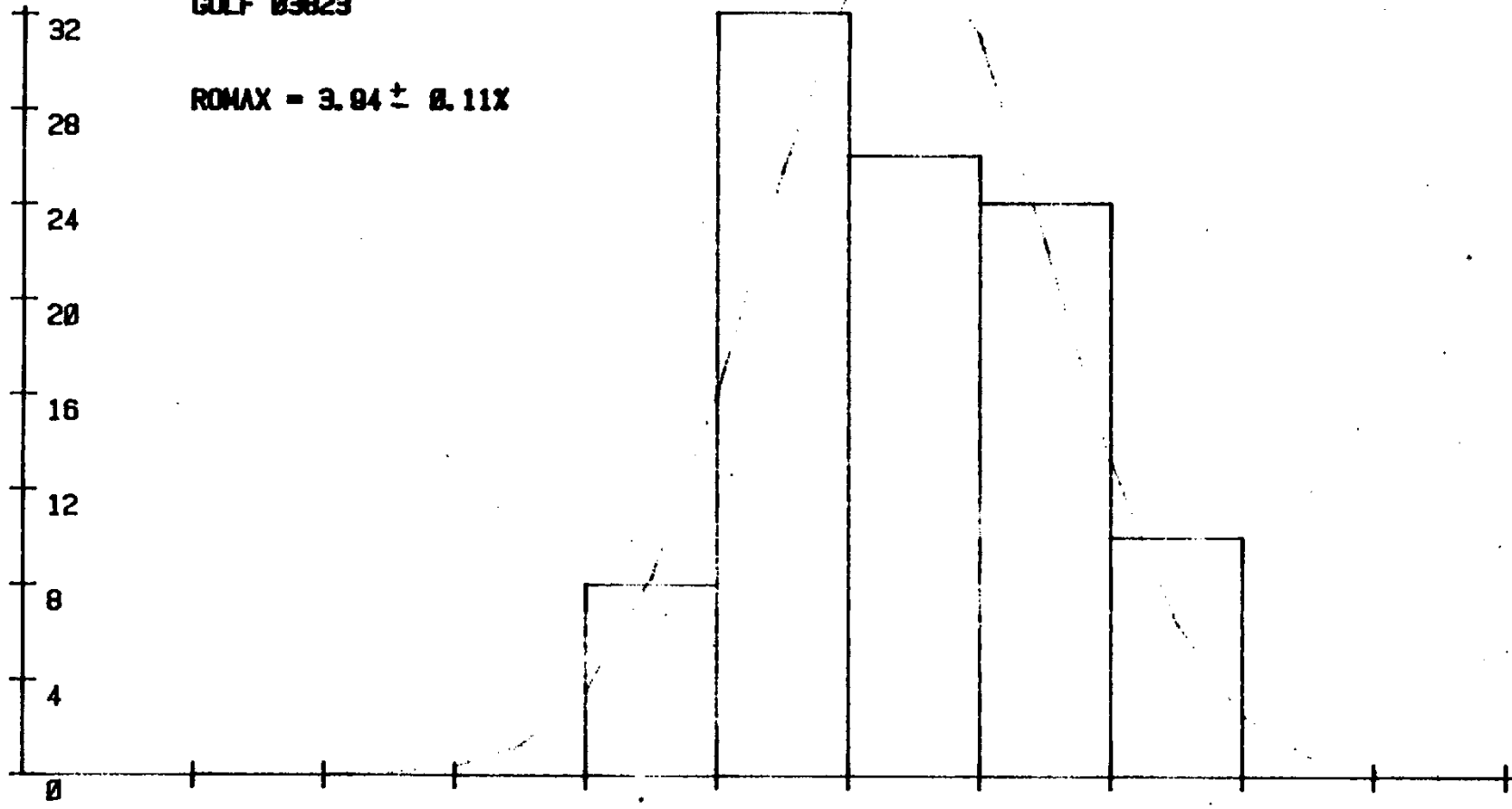
	AIR DRY BASIS	DRY BASIS
RESIDUAL MOISTURE %	6.5	
ASH %	21.5	23.0
VOLATILE MATTER %	12.3	13.2
FIXED CARBON %	59.7	63.8
SULPHUR %	0.39	0.42
CALORIFIC VALUE (cal/gm)	5376	5750
SP. GR.	1.64	-
FSI	0	-
HGI	64	-
VITRINITE REFLECTANCE %	3.94	-

NO %

GULF 03823

ROMAX = 3.94 ± 0.11X

16
14
12
10
8
6
4
2
0



LIMs

3.4 3.5 3.6 3.7 3.8 3.9 4.0 4.1 4.2 4.3 4.4

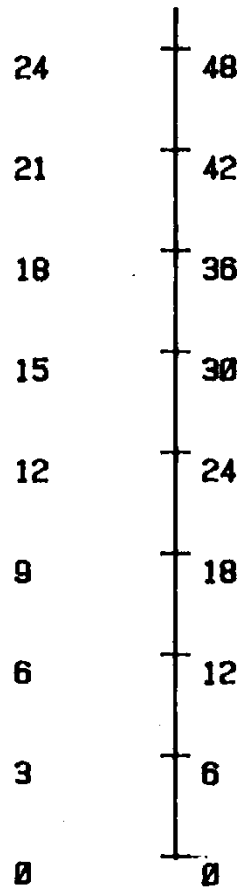
HEAD RAW ANALYSIS

Trench No. TRC-81-002

Lab Sample No. 02563-64

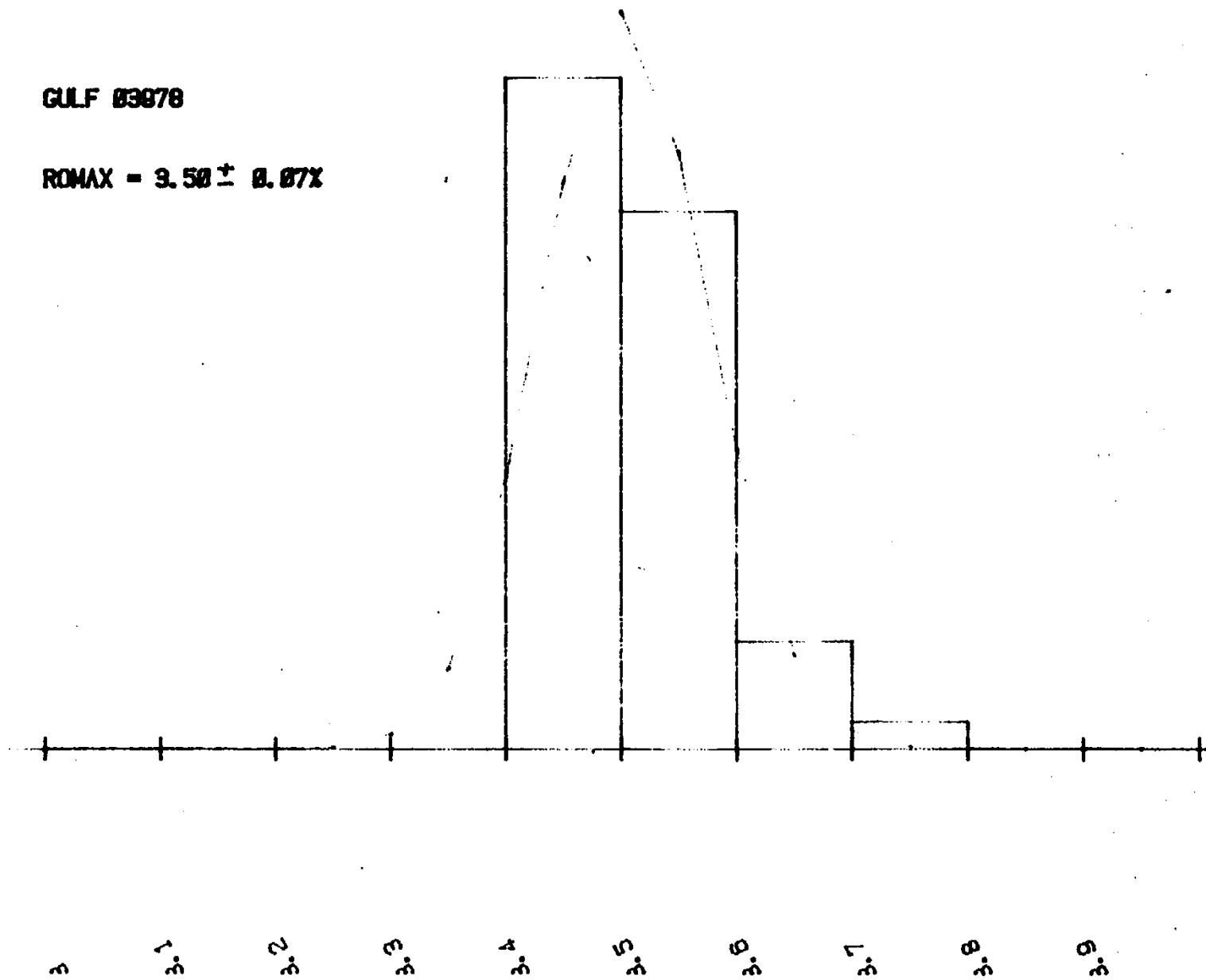
	AIR DRY BASIS	DRY BASIS
RESIDUAL MOISTURE %	4.5	
ASH %	32.3	33.8
VOLATILE MATTER %	9.4	9.8
FIXED CARBON %	53.8	56.4
SULPHUR %	0.42	0.44
CALORIFIC VALUE (cal/gm)	4856	5085
SP. GR.	1.69	-
FSI	0	-
HGI	63	-
VITRINITE REFLECTANCE %	3.50	-

NO X



GULF 03078

ROMAX = 9.50 ± 0.07%



LIMs

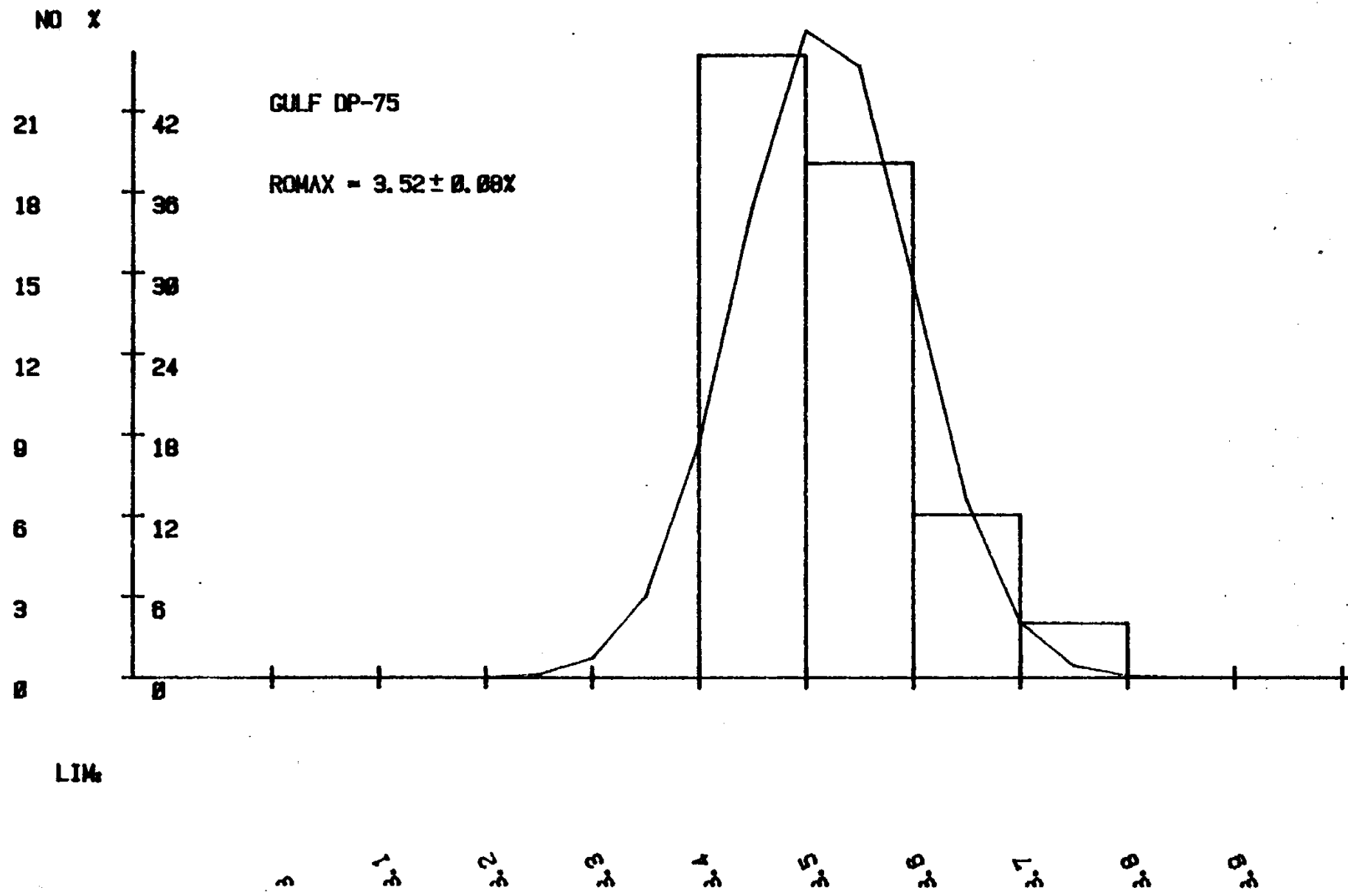
DP-75

I	X(I)	X(I+1)
1	3.4400	3.7100
3	3.5600	3.5500
5	3.5300	3.4600
7	3.4400	3.4400
9	3.4300	3.5800
11	3.4300	3.5700
13	3.4400	3.5700
15	3.4200	3.5200
17	3.6700	3.6300
19	3.5900	3.5400
21	3.5100	3.5500
23	3.5400	3.6100
25	3.5400	3.4900
27	3.4400	3.4500
29	3.4000	3.5700
31	3.5400	3.4600
33	3.4400	3.5900
35	3.4300	3.4400
37	3.5800	3.4700
39	3.7000	3.4100
41	3.4500	3.6000
43	3.5400	3.5300
45	3.4200	3.5200
47	3.4800	3.6600
49	3.4600	3.4300

BASIC STATISTICS

N = 50
STD ERROR OF THE MEAN = .01
MEAN = 3.5174
COEF OF VARIATION = 2.32%
VARIANCE = .0067
STANDARD DEVIATION = .0816
SKEWNESS = .5109
KURTOSIS = 2.3567

95.00% C.I. FOR MEAN:
(3.4942, 3.5406)
ONE-TAIL t(49, .025) =
2.01003450016



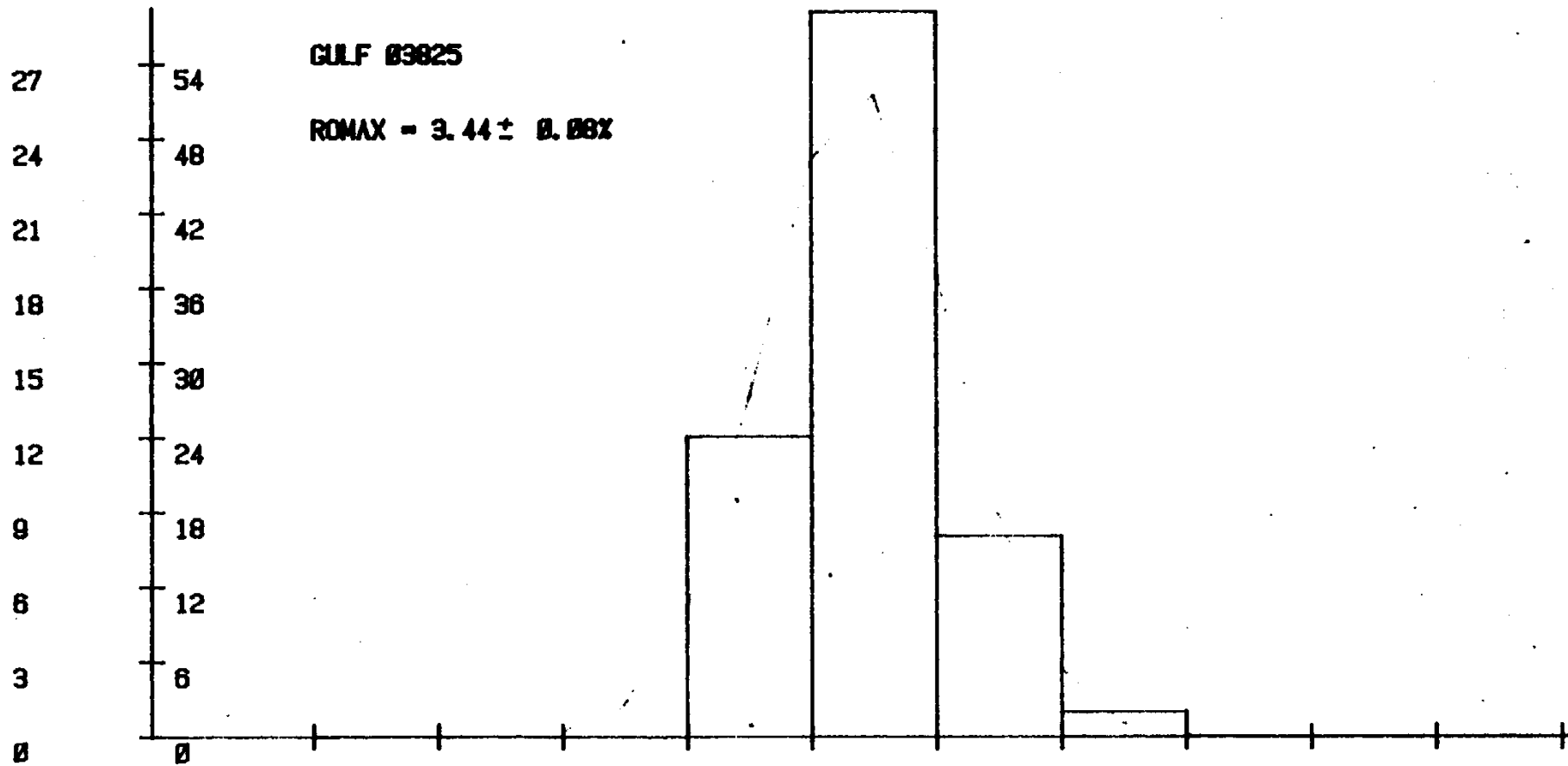
HEAD RAW ANALYSIS

Trench No. TRC-81-004

Lab Sample No. 02565-66

	AIR DRY BASIS	DRY BASIS
RESIDUAL MOISTURE %	1.7	
ASH %	36.4	37.0
VOLATILE MATTER %	5.6	5.7
FIXED CARBON %	56.3	57.3
SULPHUR %	0.69	0.70
CALORIFIC VALUE (cal/gm)	4882	4966
SP. GR.	1.56	-
FSI	0	-
HGI	51	-
VITRINITE REFLECTANCE %	3.44	-

NO X



LIM

3 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9

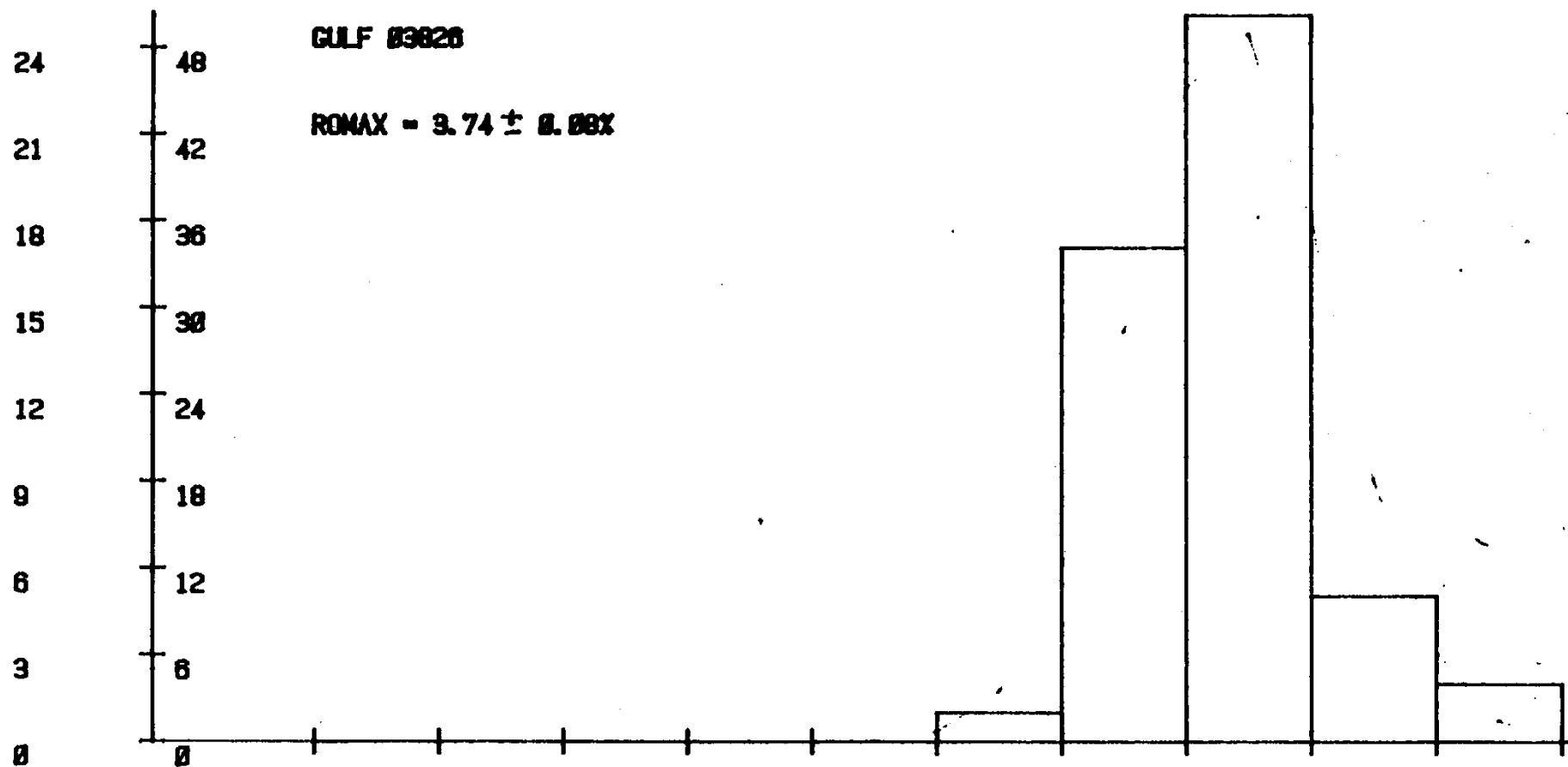
HEAD RAW ANALYSIS

Trench No. TRC-81-005

Lab Sample No. 03838

	AIR DRY BASIS	DRY BASIS
RESIDUAL MOISTURE %	2.3	
ASH %	26.7	27.3
VOLATILE MATTER %	6.4	6.6
FIXED CARBON %	64.6	66.1
SULPHUR %	0.58	0.59
CALORIFIC VALUE (cal/gm)	5834	5971
SP. GR.	1.56	-
FSI	0	-
HGI	68	-
VITRINITE REFLECTANCE %	3.74	-

NO %



LIMs

0 1 2 3 4 5 6 7 8 9

Trench No. TRC-81-006

Lab Sample No. 01411-19

	AIR DRY BASIS	DRY BASIS
RESIDUAL MOISTURE %	1.7	
ASH %	21.1	21.5
VOLATILE MATTER %	7.8	7.9
FIXED CARBON %	69.4	70.6
SULPHUR %	0.40	0.41
CALORIFIC VALUE (cal/gm)	6329	6438
SP. GR.	1.55	-
FSI	0	-
HGI	56	-
VITRINITE REFLECTANCE %	3.93	-

CLEAN COAL COMPOSITE

Trench No. TRC-81-006

Lab Sample No. 01411-19

	AIR DRY BASIS	DRY BASIS
YIELD %	87.29	
RESIDUAL MOISTURE %	2.2	
ASH %	13.9	14.2
VOLATILE MATTER %	8.8	9.0
VOLATILE MATTER (dmmf) %		9.09
FIXED CARBON %	75.1	76.8
SULPHUR %	0.46	0.47
CALORIFIC VALUE (cal/gm)	6803	6956
SP. GR.	1.53	-
FSI	0	-
HGI	47	-
VITRINITE REFLECTANCE %	3.93	-

GULF CANADA RESOURCES INC.

PROJECT: Mt. Klappen

SAMPLE NO.: 01411-19

SIZE CONSIST

<u>Size</u>	<u>Wt. %</u>
3/8" x 28m	82.80
28m x 100m	11.70
100m x 0	<u>5.50</u>
	100.00

RAW SAMPLE ANALYSIS

AIR DRY BASIS

PROXIMATE ANALYSIS:

	MESH SIZE FRACTION		
	<u>3/8" x 28m</u>	<u>28m x 100m</u>	<u>100 x 0</u>
Ash %	20.8	15.2	20.7
Moisture %	1	1.8	1.7
Calorific Value (cal/gm)	-	6870	6313

GULF CANADA RESOURCES INC.

PROJECT: Mt. Klappan

SAMPLE NO.: 01411-19

SIMULATED PRODUCT CONTRIBUTION BY SIZE FRACTION

<u>Size</u>	<u>Cut Point</u>	<u>Size Analysis</u>	<u>Product Yield</u>
3/8" x 28m	2.00	82.80	73.77
28m x 100m	2.00	11.70	10.65
100m x 0	Stage V	<u>5.50</u>	<u>2.87</u>
		100.00	87.29

TRENCH NO.: TRC-81-006
 SAMPLE NO.: 01411-19

SINK-FLOAT ANALYSIS, adb: +28M

SG FRACTION	WT%	RM%	ASH%	C.V. Cal/cm	CUMULATIVE	
					WT%	ASH%
- 1.40	11.3	0.8	1.8	8235	11.3	1.8
1.40 - 1.50	34.9	1.4	7.7	7447	46.2	6.3
1.50 - 1.60	21.7	2.4	17.1	6541	67.9	9.7
1.60 - 1.70	10.7	3.1	24.2	5798	78.6	11.7
1.70 - 1.80	5.8	3.2	32.7	5020	84.4	13.1
1.80 - 1.90	2.9	3.0	39.3	4299	87.3	14.0
1.90 - 2.00	1.8	2.9	45.7	3718	89.1	14.6
+2.00	10.9	2.2	71.0	—	100.0	20.8

SINK-FLOAT ANALYSIS, adb: 28M x 100M

SG FRACTION	WT%	RM%	ASH%	C.V. Cal/cm	CUMULATIVE	
					WT%	ASH%
- 1.40	1.5	1.2	1.3	8174	1.5	1.3
1.40 - 1.50	48.5	2.0	3.1	7980	50.0	3.0
1.50 - 1.60	19.7	3.1	9.4	7297	69.7	4.8
1.60 - 1.70	11.3	4.0	19.3	6262	81.0	6.9
1.70 - 1.80	6.1	3.3	24.4	5811	87.1	8.1
1.80 - 1.90	2.4	2.9	36.2	4688	89.5	8.8
1.90 - 2.00	1.5	2.5	44.3	3864	91.0	9.4
+2.00	9.0	1.7	72.1	—	100.0	15.1

FROTH FLOTATION TEST, adb: 100 M x 0

PRODUCT	WT%	RM%	ASH%	C.V. Cal/cm	CUMULATIVE	
					WT%	ASH%
STAGE I	29.3	1.7	8.3	7567	29.3	8.3
STAGE II	9.2	1.4	14.4	6916	38.5	9.8
STAGE III	7.2	1.8	21.9	6183	45.7	11.7
STAGE IV	3.7	1.8	23.7	5992	49.4	12.6
STAGE V	2.7	1.9	24.8	5883	52.1	13.2
TAILINGS	47.9	2.0	30.3	5316	100.0	21.3

F.F. PARAMETERS: Pulp Density = 10%
 Reagent = 4:1-Kerosene:MIBC
 Dosage = 0.48/lb/Ton
 Conditioning = 60 seconds
 Froths I,II,III,IV,V @ 30,45,60,90,120 secs.

ULTIMATE ANALYSIS, adb

H ₂ O%	C %	H%	N%	S%	ASH %	O% (by diff)
2.19	78.43	2.34	0.74	0.46	13.93	1.91

ASH FUSION TEMPERATURES (°C)

ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	1182	1337	1387	1426
REDUCING	1093	1282	1337	1415

MINERAL ANALYSIS OF ASH

SiO ₂	Al ₂ O ₃	TiO ₂	Fe ₂ O ₃	CaO	MgO	Na ₂ O	K ₂ O	P ₂ O ₅	SO ₂	Undet.
65.42	19.85	1.95	2.93	3.53	1.91	0.89	0.54	1.67	1.09	-0.22

03976

I	X(I)	X(I+1)
1	3.8200	3.8500
3	3.8700	4.0800
5	3.9800	3.9200
7	3.8600	3.9900
9	3.8500	3.7700
11	3.9900	3.7800
13	3.8700	3.8000
15	3.9100	3.9500
17	3.8400	3.9300
19	3.8800	3.8500
21	4.0000	3.9400
23	3.8300	3.8800
25	4.0600	3.7800
27	4.0900	3.9700
29	4.0900	4.0400
31	4.0100	4.0200
33	3.8700	3.9500
35	3.9800	3.8600
37	3.9200	4.0500
39	3.9100	3.8200
41	3.9100	3.9900
43	3.9300	4.0200
45	3.9500	3.9500
47	3.9100	3.9300
49	3.9000	3.9200

BASIC STATISTICS

N = 50

STD ERROR OF THE MEAN = .01

MEAN = 3.9254

COEF OF VARIATION = 2.12%

VARIANCE = .0069

STANDARD DEVIATION = .0833

SKENNESS = .1502

KURTOSIS = 2.3252

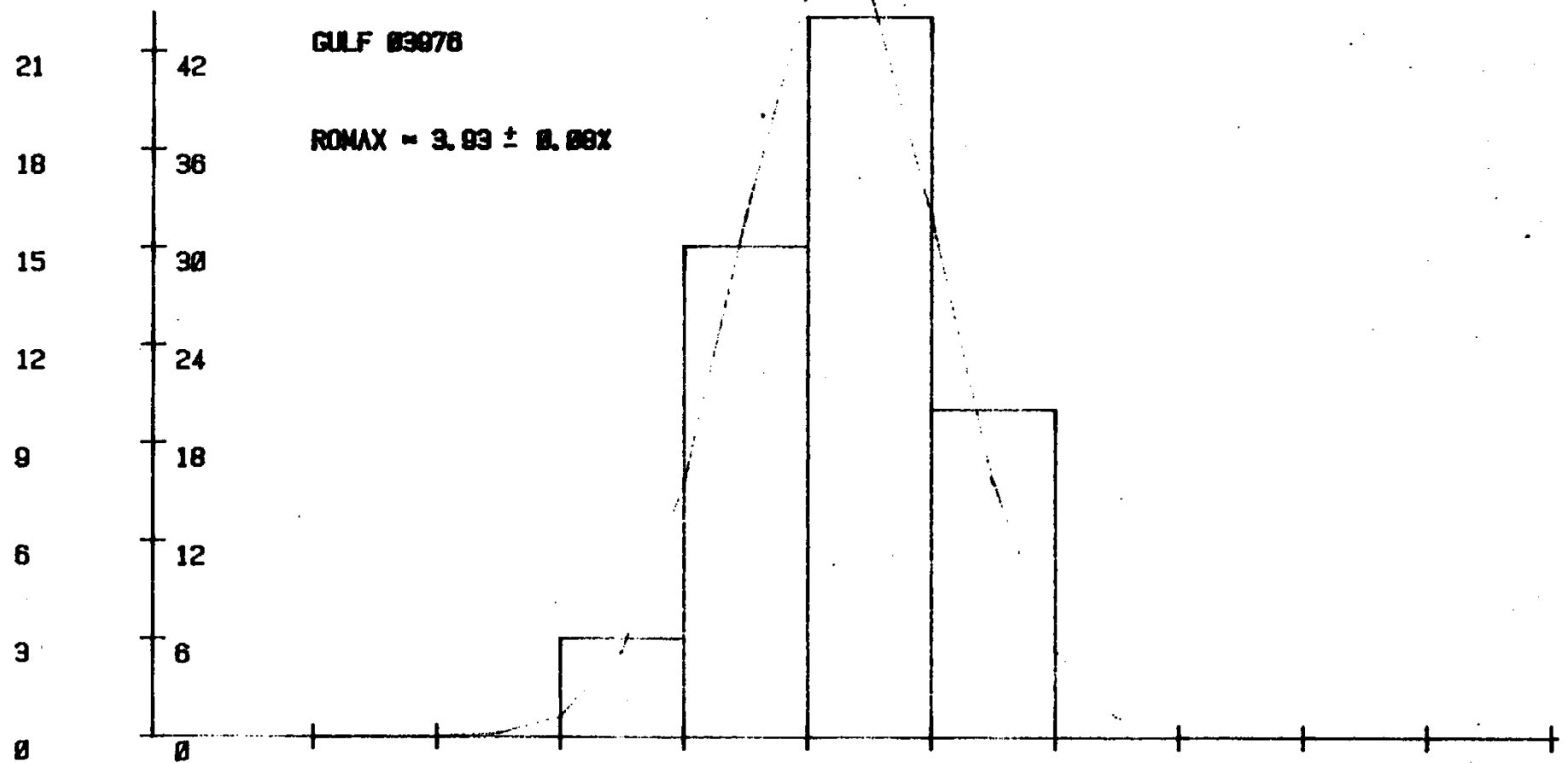
95.00% C.I. FOR MEAN:

(3.9017, 3.9491)

ONE-TAIL t(49 , .025) =

2.01003450016

NO %



GULF 03076

ROMAX = 3.93 ± 0.08%

LIM.

3.5 3.6 3.7 3.8 3.9 4 4.1 4.2 4.3 4.4 4.5

KB-104

I	X(I)	X(I+1)
1	3.3700	3.3500
3	3.2600	3.3300
5	3.3300	3.2300
7	3.3400	3.3100
9	3.3300	3.4000
11	3.4500	3.4000
13	3.4500	3.3900
15	3.3300	3.2600
17	3.3200	3.3800
19	3.5000	3.5300
21	3.4900	3.4300
23	3.4300	3.4200
25	3.4900	3.4700
27	3.3300	3.2300
29	3.3500	3.3200
31	3.4700	3.4200
33	3.3000	3.2700
35	3.2800	3.3600
37	3.4800	3.3700
39	3.2600	3.3900
41	3.4200	3.2400
43	3.2600	3.3000
45	3.2900	3.4100
47	3.4000	3.3300
49	3.2800	3.3000

BASIC STATISTICS

N = 50
STD ERROR OF THE MEAN = .01
MEAN = 3.3610
COEF OF VARIATION = 2.34%
VARIANCE = .0062
STANDARD DEVIATION = .0787
SKEWNESS = .2285
KURTOSIS = 2.1157

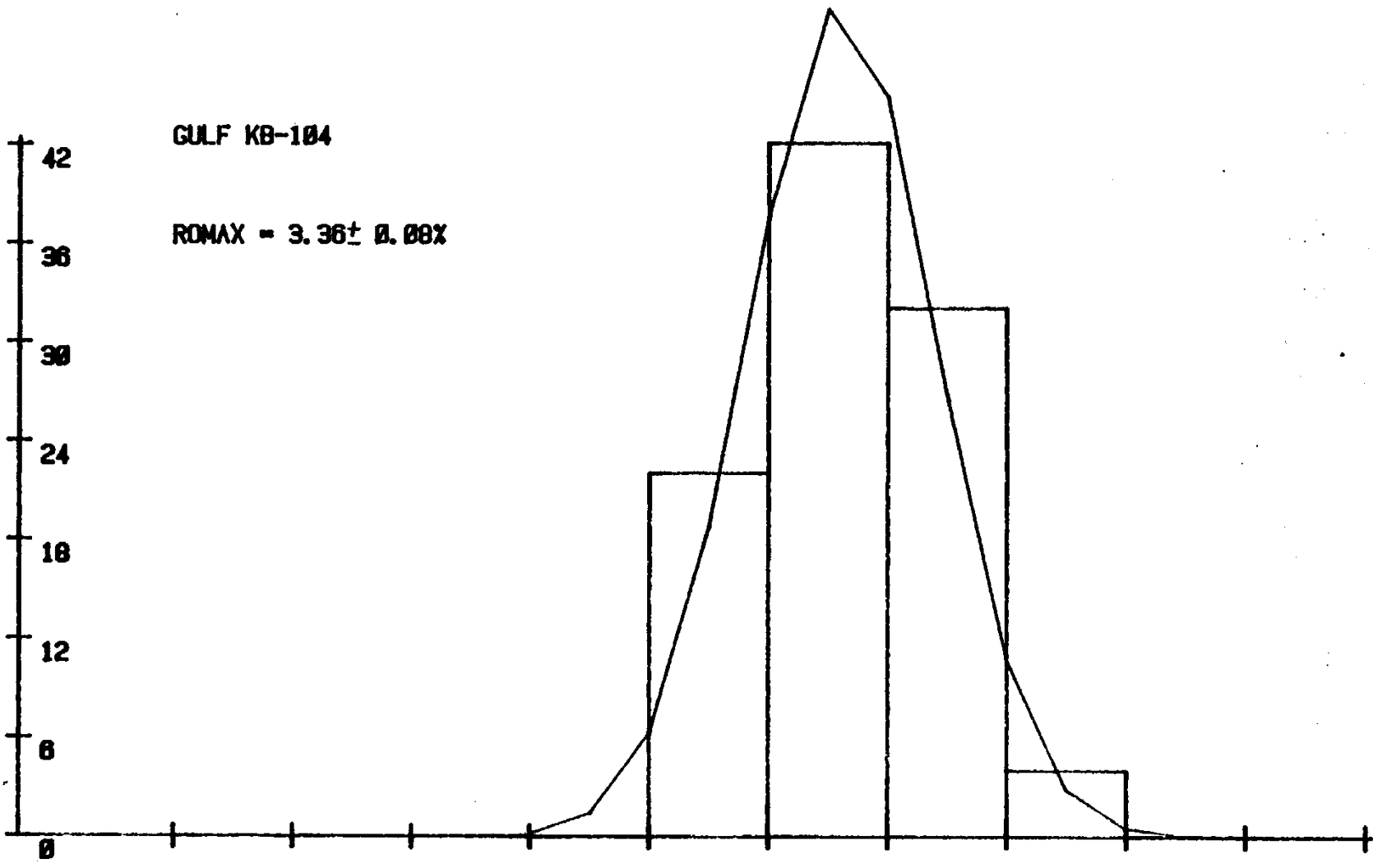
95.00% C.I. FOR MEAN:
(3.3386, 3.3834)
ONE-TAIL t(49, .025) =
2.01003450016

NO %

21 42
18 36
15 30
12 24
9 18
6 12
3 6
0 0

GULF KB-104

RDMAX = $3.36 \pm 0.08\%$



LIM

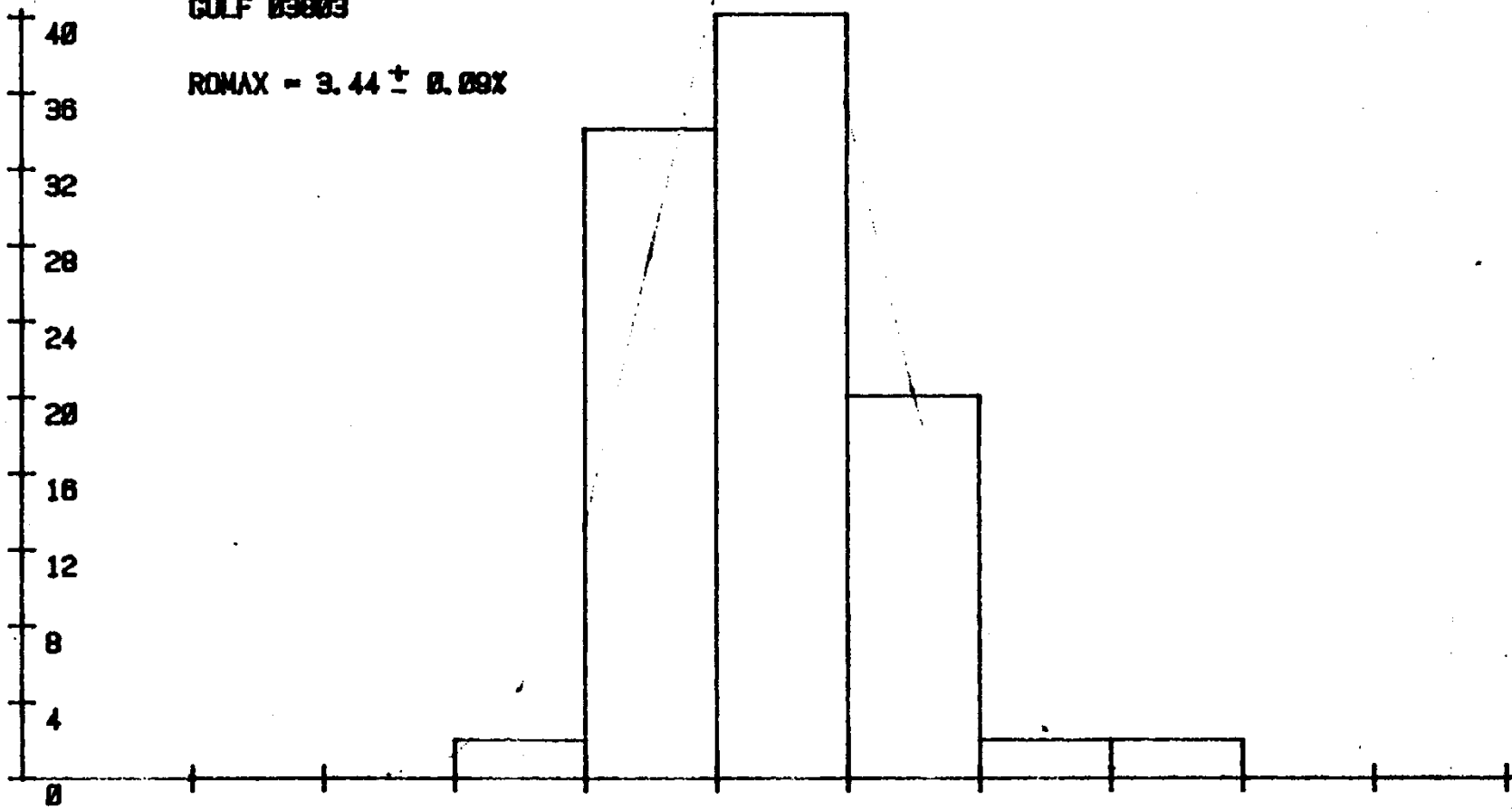
2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8

NO X

20 40
18 36
16 32
14 28
12 24
10 20
8 18
6 12
4 8
2 4
0 0

GULF 03803

ROMAX = 3.44 ± 0.09%



LIMs

0 1 2 3 4 5 6 7 8 9

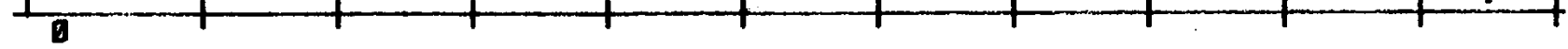
NO %

GULF 03886

ROMAX = 3.29 ± 0.09%

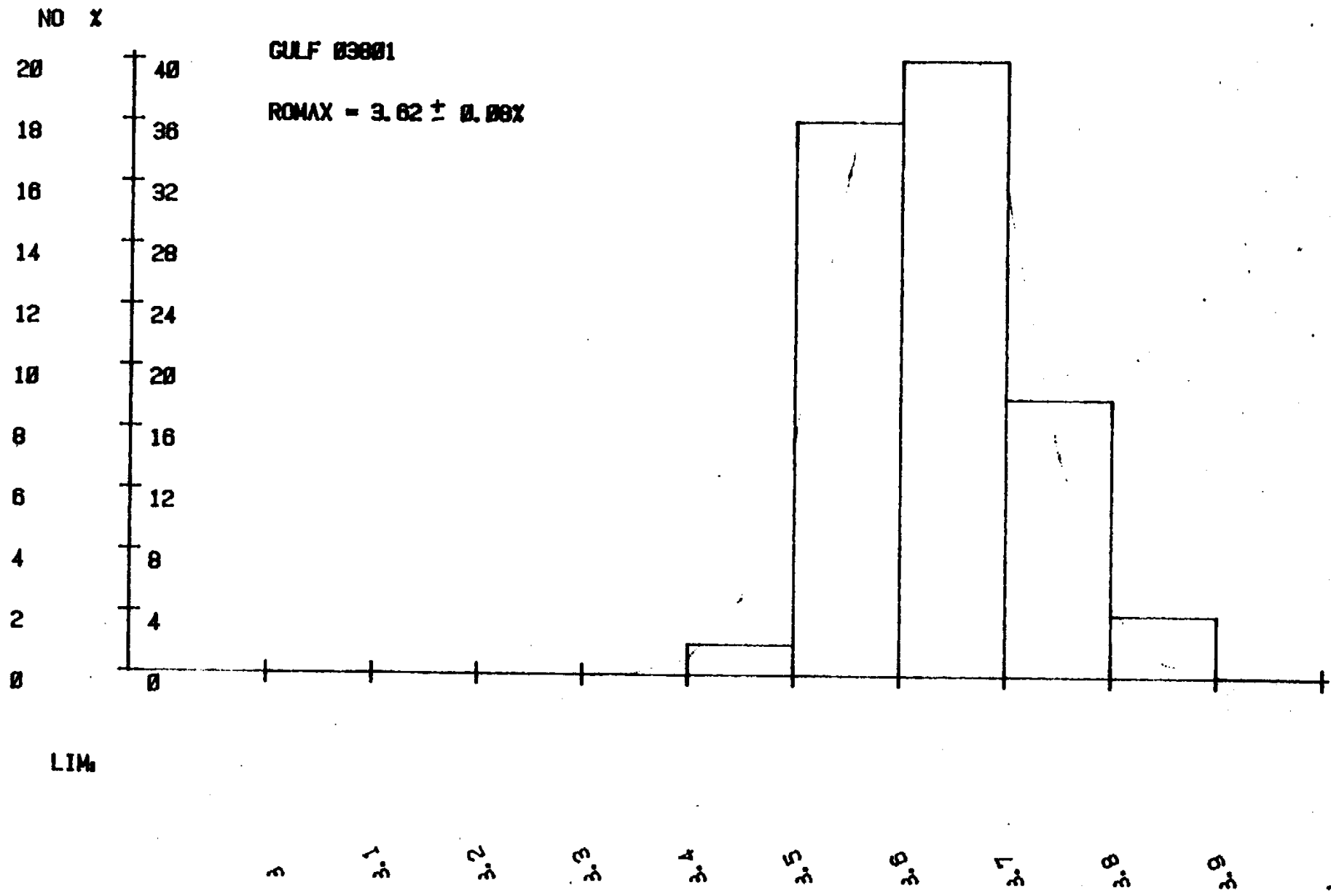
20
18
16
14
12
10
8
6
4
2
0

40
36
32
28
24
20
16
12
8
4
0



LIM

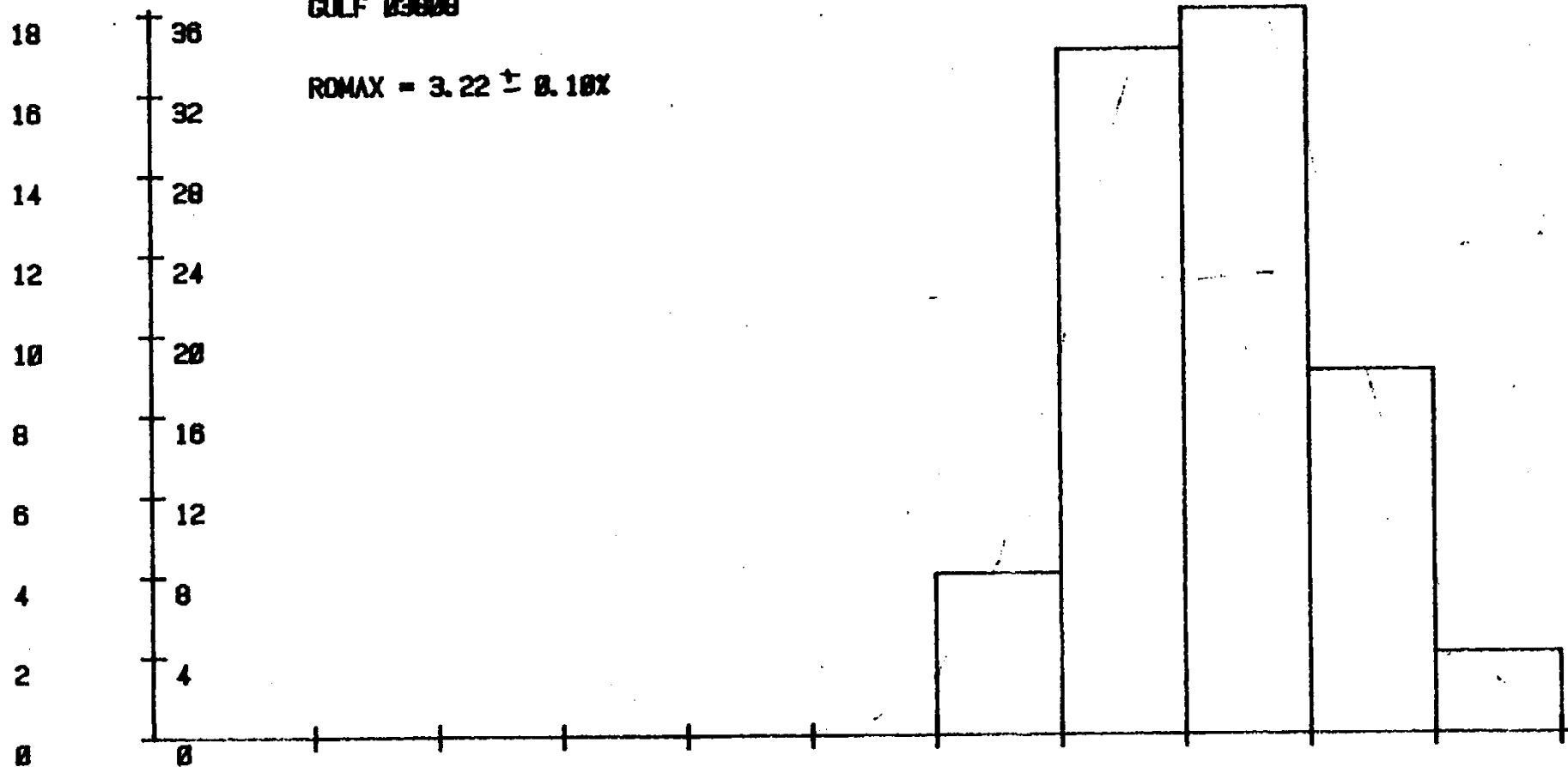
2 6 2 7 2 8 2 9 3 3 1 3 2 3 2 3 3 4 3 4 5 3 5 6



NO X

GULF 03609

ROMAX = $3.22 \pm 0.18X$



LIM

2.5

2.6

2.7

2.8

2.9

3

3.1

3.2

3.3

3.4

3.5

GR-MT.KLAPPAN 84A
HOBBIT-BROATCH AREA

~~CONFIDENTIAL~~ COAL
ANALYSES FROM;
APPENDIX III
1981-1984 COAL TRENCH
DATA
(2)

695

1982

1982

~~CONFIDENTIAL~~

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS TRCB2002

SAMPLE ID 51 2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/93
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE %<AD,AR>	11.40	TOTAL SULPHUR %	0.48
TOTAL MOISTURE %	12.55	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE %<AD,EM>	1.30	FSI	---
ASH %	26.50	HGI	---
VOLATILE MATTER %	11.50	CO2 %	---
FIXED CARBON %	60.70		

GROSS CALORIFIC VALUE (MJ/KG) 23.16
 NET CALORIFIC VALUE (MJ/KG) ---

$R_o_{max} = 3.51$

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS TRC82002

SAMPLE ID 52 2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) ---
SURFACE MOISTURE %(AD,AR) 11.80 TOTAL SULPHUR % 0.50
TOTAL MOISTURE % 12.86 PHOSPHOROUS % ---
EQUILIBRIUM MOISTURE % --- CHLORINE (PPM) ---
RESIDUAL MOISTURE %(AD,EM) 1.20 SPECIFIC GRAVITY ---
ASH % 29.60 FSI ---
VOLATILE MATTER % 10.60 HGI ---
FIXED CARBON % 58.60 CO2 % ---

GROSS CALORIFIC VALUE (MJ/KG) 22.45
NET CALORIFIC VALUE (MJ/KG) ---

Ro = 3.59
max

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS TRC82003

SAMPLE ID 53 3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE %<AD,AR>	14.20	TOTAL SULPHUR %	0.46
TOTAL MOISTURE %	16.09	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE %<AD,EM>	2.20	FSI	---
ASH %	17.40	HGI	---
VOLATILE MATTER %	13.70	CO2 %	---
FIXED CARBON %	66.70		

GROSS CALORIFIC VALUE (MJ/KG) 25.33
NET CALORIFIC VALUE (MJ/KG) ---

Ro = 3.60
max.

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS TRC82004

SAMPLE ID 54 04 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	-----		
SURFACE MOISTURE %<AD,AR>	20.60	TOTAL SULPHUR %	0.48
TOTAL MOISTURE %	22.11	PHOSPHOROUS %	-----
EQUILIBRIUM MOISTURE %	-----	CHLORINE (PPM)	-----
		SPECIFIC GRAVITY	-----
RESIDUAL MOISTURE %<AD,EM>	1.90	FSI	-----
ASH %	10.50	HGI	-----
VOLATILE MATTER %	16.20	CO2 %	-----
FIXED CARBON %	71.40		

GROSS CALORIFIC VALUE (MJ/KG) 27.56
NET CALORIFIC VALUE (MJ/KG) -----

R_o _{max} = 3.61

GCRI COAL DIVISION HEAD PROJ KPN BLK BC DS TRC82006

SAMPLE ID 56 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) ---
SURFACE MOISTURE %<AD,AR> 14.40 TOTAL SULPHUR % 0.55
TOTAL MOISTURE % 15.00 PHOSPHOROUS % ---
EQUILIBRIUM MOISTURE % --- CHLORINE (PPM) ---
RESIDUAL MOISTURE %<AD,EM> 0.70 SPECIFIC GRAVITY ---
ASH % 24.80 FSI ---
VOLATILE MATTER % 7.70 HGI ---
FIXED CARBON % 66.80 CO2 % ---

GROSS CALORIFIC VALUE (MJ/KG) 26.23
NET CALORIFIC VALUE (MJ/KG) ---

Ro = 3.31
max

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS TRC82007

SAMPLE ID 57 7 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE %<AD,AR>	10.60	TOTAL SULPHUR %	0.50
TOTAL MOISTURE %	11.58	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE %<AD,EM>	1.10	FSI	---
ASH %	24.40	HGI	---
VOLATILE MATTER %	9.50	CO2 %	---
FIXED CARBON %	65.00		

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

Ro = 3.56
max

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS TRC82008

SAMPLE ID 58 & DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE %<AD,AR>	18.80	TOTAL SULPHUR %	0.39
TOTAL MOISTURE %	20.26	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE %<AD,EM>	1.80	FSI	---
ASH %	47.30	HGI	---
VOLATILE MATTER %	12.90	CO2 %	---
FIXED CARBON %	38.00		

GROSS CALORIFIC VALUE (MJ/KG) 15.66
NET CALORIFIC VALUE (MJ/KG) ---
Ro_{max} = 3.48

GCRI COAL DIVISION HEAD PROJ KPN BLK GC DS TRC82009

SAMPLE ID 59 9 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE %<AD,AR>	21.90	TOTAL SULPHUR %	0.20
TOTAL MOISTURE %	25.10	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE %<AD,EM>	4.10	FSI	---
ASH %	50.20	HGI	---
VOLATILE MATTER %	19.50	CO2 %	---
FIXED CARBON %	26.20		

GROSS CALORIFIC VALUE (MJ/KG) 10.51
NET CALORIFIC VALUE (MJ/KG) ---

$R_{o_{max}} = 3.20$

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS TRCB2010

SAMPLE ID 60 10 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE %<AD,AR>	11.70	TOTAL SULPHUR %	0.43
TOTAL MOISTURE %	12.49	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE %<AD,EM>	0.90	FSI	---
ASH %	32.90	HGI	---
VOLATILE MATTER %	6.70	CO2 %	---
FIXED CARBON %	59.50		

GROSS CALORIFIC VALUE (MJ/KG) 22.31
NET CALORIFIC VALUE (MJ/KG) ---

R_o _{max} = 3.57

GCRI COAL DIVISION HEAD PROJ KPN BLK BC DS TRC82014

SAMPLE ID 63 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE %<AD,AR>	15.50	TOTAL SULPHUR %	0.59
TOTAL MOISTURE %	16.18	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE %<AD,EM>	0.80	FSI	---
ASH %	29.30	HGI	---
VOLATILE MATTER %	7.70	CO2 %	---
FIXED CARBON %	62.20		

GROSS CALORIFIC VALUE (MJ/KG) 24.12
NET CALORIFIC VALUE (MJ/KG) ---

$R_o_{max} = 3.50$

GCRI COAL DIVISION HEAD PROJ KPN BLK BC DS TRC82016

SAMPLE ID 64 /6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE %<AD,AR>	23.30	TOTAL SULPHUR %	0.41
TOTAL MOISTURE %	25.29	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE %<AD,EM>	2.60	FSI	---
ASH %	9.20	HGI	---
VOLATILE MATTER %	18.50	CO2 %	---
FIXED CARBON %	69.70		

GROSS CALORIFIC VALUE (MJ/KG) 26.54
NET CALORIFIC VALUE (MJ/KG) ---

Ro_{max} = 3.74

GCRI COAL DIVISION HEAD PROJ KPN BLK BC DS TRC82017

SAMPLE ID 65 17 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	-----		
SURFACE MOISTURE %<AD,AR>	23.50	TOTAL SULPHUR %	0.46
TOTAL MOISTURE %	24.90	PHOSPHOROUS %	-----
EQUILIBRIUM MOISTURE %	-----	CHLORINE (PPM)	-----
		SPECIFIC GRAVITY	-----
RESIDUAL MOISTURE %<AD,EM>	1.70	FSI	-----
ASH %	23.20	HGI	-----
VOLATILE MATTER %	17.90	CO2 %	-----
FIXED CARBON %	57.20		

GROSS CALORIFIC VALUE (MJ/KG) 21.99
NET CALORIFIC VALUE (MJ/KG) -----
Ro_{max} = 3.17

GCRI COAL DIVISION HEAD PROJ KPN BLK BC DS TRCB2019

SAMPLE ID 66 19 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE % (AD,AR)	12.40	TOTAL SULPHUR %	1.52
TOTAL MOISTURE %	12.93	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE % (AD,EM)	0.60	FSI	---
ASH %	24.50	HGI	---
VOLATILE MATTER %	7.10	CO2 %	---
FIXED CARBON %	67.80		

GROSS CALORIFIC VALUE (MJ/KG) 25.78
NET CALORIFIC VALUE (MJ/KG) ---

$R_o_{max} = 3.60$

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS TRC82023

SAMPLE ID 70 23 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	-----		
SURFACE MOISTURE %<AD,AR>	10.00	TOTAL SULPHUR %	0.53
TOTAL MOISTURE %	10.63	PHOSPHOROUS %	-----
EQUILIBRIUM MOISTURE %	-----	CHLORINE (PPM)	-----
		SPECIFIC GRAVITY	-----
RESIDUAL MOISTURE %<AD,EM>	0.70	FSI	-----
ASH %	29.20	HGI	-----
VOLATILE MATTER %	9.70	CO2 %	-----
FIXED CARBON %	60.40		
GROSS CALORIFIC VALUE (MJ/KG)	23.55		
NET CALORIFIC VALUE (MJ/KG)	-----	Ro _{max} = 3.27	

GORI COAL DIVISION HEAD PROJ KPN BLK HC DS TRC82024

SAMPLE ID 71 2^d DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE %<AD,AR>	11.50	TOTAL SULPHUR %	0.48
TOTAL MOISTURE %	12.56	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE %<AD,EM>	1.20	FSI	---
ASH %	30.80	HGI	---
VOLATILE MATTER %	9.10	CO2 %	---
FIXED CARBON %	58.90		

GROSS CALORIFIC VALUE (MJ/KG) 22.48
NET CALORIFIC VALUE (MJ/KG) ---

Ro_{max} = 3.53

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS TRC82025

SAMPLE ID 72 25 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE % (AD,AR)	15.00	TOTAL SULPHUR %	0.32
TOTAL MOISTURE %	17.55	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE % (AD,EM)	3.00	FSI	---
ASH %	39.80	HGI	---
VOLATILE MATTER %	18.10	CO2 %	---
FIXED CARBON %	39.10		

GROSS CALORIFIC VALUE (MJ/KG) 15.48
NET CALORIFIC VALUE (MJ/KG) ---

R_o _{max} = 3.41

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS TRC82026

SAMPLE ID 73 26 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE %<AD,AR>	18.70	TOTAL SULPHUR %	0.44
TOTAL MOISTURE %	21.14	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE %<AD,EM>	3.00	FSI	---
ASH %	19.00	HGI	---
VOLATILE MATTER %	14.00	CO2 %	---
FIXED CARBON %	64.00		

GROSS CALORIFIC VALUE (MJ/KG) 24.77
NET CALORIFIC VALUE (MJ/KG) ---

Ro_{max} = 3.66

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS TRC82027

SAMPLE ID 74 27 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) -----
SURFACE MOISTURE % (AD,AR) 19.50 TOTAL SULPHUR % 0.44
TOTAL MOISTURE % 20.22 PHOSPHOROUS % -----
EQUILIBRIUM MOISTURE % ----- CHLORINE (PPM) -----
RESIDUAL MOISTURE % (AD,EM) 0.90 SPECIFIC GRAVITY -----
ASH % 21.60 FSI -----
VOLATILE MATTER % 8.30 HGI -----
FIXED CARBON % 69.20 CO2 % -----

GROSS CALORIFIC VALUE (MJ/KG) 26.44
NET CALORIFIC VALUE (MJ/KG) -----

Ro_{max} = 3.81

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS TRC82028

SAMPLE ID 75 28 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE %<AD,AR>	21.40	TOTAL SULPHUR %	0.44
TOTAL MOISTURE %	23.37	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE %<AD,EM>	2.50	FSI	---
ASH %	28.10	HGI	---
VOLATILE MATTER %	14.80	CO2 %	---
FIXED CARBON %	54.60		

GROSS CALORIFIC VALUE (MJ/KG) 21.47
NET CALORIFIC VALUE (MJ/KG) ---

$R_o_{max} = 3.37$

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS TRCS2029

SAMPLE ID 76 29 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE %<AD,AR>	11.70	TOTAL SULPHUR %	0.45
TOTAL MOISTURE %	13.55	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE %<AD,EM>	2.10	FSI	---
ASH %	31.30	HGI	---
VOLATILE MATTER %	15.60	CO2 %	---
FIXED CARBON %	51.00		

GROSS CALORIFIC VALUE (MJ/KG) 20.23
NET CALORIFIC VALUE (MJ/KG) ---

Ro_{max} = 3.56

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS TRC82030

SAMPLE ID 77 30 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) ---
SURFACE MOISTURE %<AD,AR> 16.20 TOTAL SULPHUR % 0.36
TOTAL MOISTURE % 18.46 PHOSPHOROUS % ---
EQUILIBRIUM MOISTURE % --- CHLORINE (PPM) ---
RESIDUAL MOISTURE %<AD,EM> 2.70 SPECIFIC GRAVITY ---
ASH % 40.30 FSI ---
VOLATILE MATTER % 15.90 HGI ---
FIXED CARBON % 41.10 CO2 % ---

GROSS CALORIFIC VALUE (MJ/KG) 16.35
NET CALORIFIC VALUE (MJ/KG) ---

Ro_{max} = 3.18

GCRI COAL DIVISION HEAD PROJ KPN BLK GC DS TRC82033

SAMPLE ID 80 33 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE %<AD,AR>	13.60	TOTAL SULPHUR %	0.42
TOTAL MOISTURE %	14.72	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE %<AD,EM>	1.30	FSI	---
ASH %	20.00	HGI	---
VOLATILE MATTER %	13.20	CO2 %	---
FIXED CARBON %	65.50		

GROSS CALORIFIC VALUE (MJ/KG) 25.36
NET CALORIFIC VALUE (MJ/KG) ---

$R_{o_{max}} = 3.62$

GCRI COAL DIVISION HEAD PROJ KPN BLK GC DS TRC82034

SAMPLE ID 81 34 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE %<AD,AR>	15.00	TOTAL SULPHUR %	0.52
TOTAL MOISTURE %	16.19	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE %<AD,EM>	1.40	FSI	---
ASH %	33.60	HGI	---
VOLATILE MATTER %	10.70	CO2 %	---
FIXED CARBON %	54.30		

GROSS CALORIFIC VALUE (MJ/KG) 20.09
NET CALORIFIC VALUE (MJ/KG) ---

Ro_{max} = 3.59

GCRI COAL DIVISION HEAD PROJ KPN BLK GC DS TRC82050

SAMPLE ID 96 50 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE %<AD,AR>	33.70	TOTAL SULPHUR %	0.33
TOTAL MOISTURE %	37.41	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE %<AD,EM>	5.60	FSI	---
ASH %	24.50	HGI	---
VOLATILE MATTER %	25.50	CO2 %	---
FIXED CARBON %	44.40		

GROSS CALORIFIC VALUE (MJ/KG) 17.74
NET CALORIFIC VALUE (MJ/KG) ---

Ro_{max} = 3.43

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS TRC82040

SAMPLE ID 87 40 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 13/01/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	---		
SURFACE MOISTURE %<AD,AR>	16.00	TOTAL SULPHUR %	0.45
TOTAL MOISTURE %	18.69	PHOSPHOROUS %	---
EQUILIBRIUM MOISTURE %	---	CHLORINE (PPM)	---
		SPECIFIC GRAVITY	---
RESIDUAL MOISTURE %<AD,EM>	3.20	FSI	---
ASH %	26.20	HGI	---
VOLATILE MATTER %	12.30	CO2 %	---
FIXED CARBON %	58.30		

GROSS CALORIFIC VALUE (MJ/KG) 22.39
NET CALORIFIC VALUE (MJ/KG) ---

Ro_{max} = 3.52

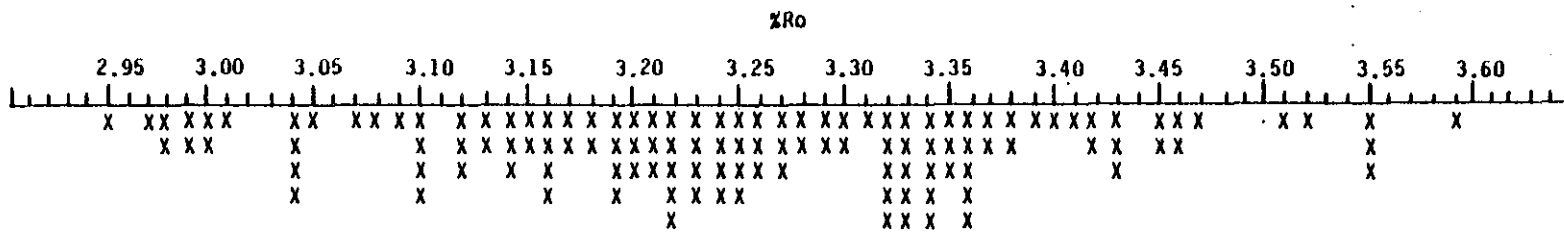
IAD Batch: # 97-N263-662-57

Report of Analysis on Sample: 03564

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.25

Distribution of Vitrinite Reflectance Readings:



This sample is highly oxidized.

Number
of
Counts
(Total=
125)

V-Type Table for Vitrinites (=100%)

$\frac{V-29}{4.8}$	$\frac{V-30}{8.8}$	$\frac{V-31}{20.8}$	$\frac{V-32}{26.4}$
$\frac{V-33}{24.8}$	$\frac{V-34}{9.6}$	$\frac{V-35}{4.8}$	

1984

1984

GORI COAL DIVISION HEAD PROJ KPN BLK HC DS TRC84143

SAMPLE ID 02226 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD7 DATE ANALYSED 14/10/84
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 0.15
 SURFACE MOISTURE % ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE % 1.65
 ASH % 52.10
 VOLATILE MATTER % 6.38
 FIXED CARBON % 39.87
 TOTAL SULPHUR % 0.38
 PHOSPHOROUS % ---
 CHLORINE (PPM) ---
 SPECIFIC GRAVITY ---
 FSI ---
 HGI ---
 CO2 % ---

GROSS CALORIFIC VALUE (MJ/KG) 14.51
 NET CALORIFIC VALUE (MJ/KG) ---

GORI COAL DIVISION SIZE PROJ KPN BLK HC DS TRC84143

SAMPLE ID 02226 DATA TYPE (REAL,BORO,AVER,CALC) CALC
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 12/10/84

FRACTION SIZE		WT%	ASH%	FSI	CAL	RM	VM	TS
FROM (MM) TO (MM)					(MJ/KG)			
50.00	25.00	22.11	---	---	---	---	---	---
25.00	12.00	21.27	---	---	---	---	---	---
12.00	5.00	23.60	---	---	---	---	---	---
5.00	1.00	20.17	---	---	---	---	---	---
1.00	0.50	4.24	---	---	---	---	---	---
0.50	0.15	3.26	---	---	---	---	---	---
0.15	0.00	5.35	---	---	---	---	---	---

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	HC	DS	TRC84143	
=====		=====	=====						
SAMPLE ID		02226	DATA TYPE (REAL,BORO,AVER,CALC) REAL						
SPLIT SAMPLE ID		SZ1	DATE ANALYSED 12/10/84						
FRACTION SIZE		WT%	ASH%	FSI	CAL	RM	VM	TS	
FROM (MM) TO (MM)		(MJ/KG)							
50.00	25.00	22.11	7.49	---	31.60	3.34	4.25	0.52	
25.00	12.00	21.27	8.27	---	31.52	2.86	4.21	0.51	
12.00	5.00	23.60	7.74	---	31.42	3.11	4.68	0.52	
5.00	1.00	20.17	13.48	---	29.46	2.74	4.83	0.50	
1.00	0.50	4.24	20.88	---	26.94	1.56	5.11	0.48	
0.50	0.15	3.26	20.05	---	27.24	1.21	5.72	0.46	
0.15	0.00	5.35	52.10	---	14.51	1.65	6.38	0.38	

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	HC	DS	TRC84143	
=====		=====	=====						
SAMPLE ID		02226	DATA TYPE (REAL,BORO,AVER,CALC) REAL						
SPLIT SAMPLE ID		SZ2	DATE ANALYSED 12/10/84						
FRACTION SIZE		WT%	ASH%	FSI	CAL	RM	VM	TS	
FROM (MM) TO (MM)		(MJ/KG)							
200.00	75.00	34.40	---	---	---	---	---	---	
75.00	50.00	7.30	---	---	---	---	---	---	
50.00	25.00	4.12	---	---	---	---	---	---	
25.00	12.00	10.50	---	---	---	---	---	---	
12.00	5.00	16.24	---	---	---	---	---	---	
5.00	1.00	16.46	---	---	---	---	---	---	
1.00	0.50	3.58	---	---	---	---	---	---	
0.50	0.15	2.62	---	---	---	---	---	---	
0.15	0.00	4.78	---	---	---	---	---	---	

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	HC	DS	TRC84143	
=====		=====	=====						
SAMPLE ID		02226	DATA TYPE (REAL,BORO,AVER,CALC) REAL						
SPLIT SAMPLE ID		SZ3	DATE ANALYSED 12/10/84						
FRACTION SIZE		WT%	ASH%	FSI	CAL	RM	VM	TS	
FROM (MM) TO (MM)		(MJ/KG)							
50.00	25.00	43.18	---	---	---	---	---	---	
25.00	12.00	25.84	---	---	---	---	---	---	
12.00	5.00	17.67	---	---	---	---	---	---	
5.00	1.00	8.77	---	---	---	---	---	---	
1.00	0.50	1.61	---	---	---	---	---	---	
0.50	0.15	1.53	---	---	---	---	---	---	
0.15	0.00	1.40	---	---	---	---	---	---	

GORI COAL DIVISION HEAD PROJ KPN BLK HC DS TRC84143

SAMPLE ID 02227 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD7 DATE ANALYSED 18/10/84
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 0.15
 SURFACE MOISTURE % ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE % 1.68
 ASH % 37.47
 VOLATILE MATTER % 4.58
 FIXED CARBON % 56.27
 TOTAL SULPHUR % 0.40
 PHOSPHOROUS % ---
 CHLORINE (PPM) ---
 SPECIFIC GRAVITY ---
 FSI ---
 HGI ---
 CO2 % ---
 GROSS CALORIFIC VALUE (MJ/KG) 20.71
 NET CALORIFIC VALUE (MJ/KG) ---

GORI COAL DIVISION SIZE PROJ KPN BLK HC DS TRC84143

SAMPLE ID 02227 DATA TYPE (REAL,BORO,AVER,CALC) CALC
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 12/10/84

FRACTION SIZE	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
FROM (MM) TO (MM)							
50.00 25.00	7.80	---	---	---	---	---	---
25.00 12.00	12.44	---	---	---	---	---	---
12.00 5.00	22.59	---	---	---	---	---	---
5.00 1.00	29.59	---	---	---	---	---	---
1.00 0.50	6.80	---	---	---	---	---	---
0.50 0.15	7.40	---	---	---	---	---	---
0.15 0.00	13.38	---	---	---	---	---	---

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	HC	DS	TRC84143			
=====		=====	=====								
SAMPLE ID		02227	DATA TYPE (REAL,BORO,AVER,CALC)						REAL		
SPLIT SAMPLE ID		SZ1	DATE ANALYSED						12/10/85		
FRACTION SIZE		WT%	ASH%	FSI	CAL	RM	VM	TS			
FROM (MM) TO (MM)		(MJ/KG)									
50.00	25.00	7.80	8.67	---	30.68	4.07	4.37	0.51			
25.00	12.00	12.44	10.58	---	31.09	2.42	4.35	0.52			
12.00	5.00	22.59	10.47	---	31.10	2.55	3.64	0.52			
5.00	1.00	29.59	11.94	---	30.18	2.70	3.88	0.51			
1.00	0.50	6.80	11.41	---	30.81	1.63	3.99	0.54			
0.50	0.15	7.40	23.02	---	24.58	1.63	4.33	0.51			
0.15	0.00	13.38	37.47	---	20.71	1.68	4.58	0.40			

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	HC	DS	TRC84143			
=====		=====	=====								
SAMPLE ID		02227	DATA TYPE (REAL,BORO,AVER,CALC)						REAL		
SPLIT SAMPLE ID		SZ2	DATE ANALYSED						12/10/84		
FRACTION SIZE		WT%	ASH%	FSI	CAL	RM	VM	TS			
FROM (MM) TO (MM)		(MJ/KG)									
75.00	50.00	11.45	---	---	---	---	---	---			
50.00	25.00	2.39	---	---	---	---	---	---			
25.00	12.00	10.10	---	---	---	---	---	---			
12.00	5.00	20.77	---	---	---	---	---	---			
5.00	1.00	28.47	---	---	---	---	---	---			
1.00	0.50	6.54	---	---	---	---	---	---			
0.50	0.15	7.18	---	---	---	---	---	---			
0.15	0.00	13.10	---	---	---	---	---	---			

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	HC	DS	TRC84143			
=====		=====	=====								
SAMPLE ID		02227	DATA TYPE (REAL,BORO,AVER,CALC)						REAL		
SPLIT SAMPLE ID		SZ3	DATE ANALYSED						12/10/84		
FRACTION SIZE		WT%	ASH%	FSI	CAL	RM	VM	TS			
FROM (MM) TO (MM)		(MJ/KG)									
50.00	25.00	47.26	---	---	---	---	---	---			
25.00	12.00	20.47	---	---	---	---	---	---			
12.00	5.00	15.88	---	---	---	---	---	---			
5.00	1.00	9.76	---	---	---	---	---	---			
1.00	0.50	2.27	---	---	---	---	---	---			
0.50	0.15	1.88	---	---	---	---	---	---			
0.15	0.00	2.48	---	---	---	---	---	---			

GCRI COAL DIVISION	HEAD	PROJ	KPN	BLK	HC	DS	TRC84143		
=====									
SAMPLE ID	02228	DATA TYPE (REAL,BORO,AVER,CALC)					REAL		
SPLIT SAMPLE ID	HD7	DATE ANALYSED 18/10/84							
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)						ASTM	AD		
TOP SIZE (MM)		0.15							
SURFACE MOISTURE %		---				TOTAL SULPHUR %	0.50		
TOTAL MOISTURE %		---				PHOSPHOROUS %	---		
EQUILIBRIUM MOISTURE %		---				CHLORINE (PPM)	---		
						SPECIFIC GRAVITY	---		
RESIDUAL MOISTURE %		1.47				FSI	---		
ASH %		28.49				HGI	---		
VOLATILE MATTER %		4.87				CO2 %	---		
FIXED CARBON %		65.17							
GROSS CALORIFIC VALUE (MJ/KG)		20.17							
NET CALORIFIC VALUE (MJ/KG)		---							

GCRI COAL DIVISION	SIZE	PROJ	KPN	BLK	HC	DS	TRC84143		
=====									
SAMPLE ID	02228	DATA TYPE (REAL,BORO,AVER,CALC)					CALC		
SPLIT SAMPLE ID	SZ1	DATE ANALYSED 12/10/84							
FRACTION SIZE	WT%	ASH%	FSI	CAL	RM	VM	TS		
FROM (MM) TO (MM)				(MJ/KG)					
50.00	25.00	6.75	---	---	---	---	---	---	
25.00	12.00	12.76	---	---	---	---	---	---	
12.00	5.00	21.39	---	---	---	---	---	---	
5.00	1.00	34.79	---	---	---	---	---	---	
1.00	0.50	7.62	---	---	---	---	---	---	
0.50	0.15	7.26	---	---	---	---	---	---	
0.15	0.00	9.43	---	---	---	---	---	---	

```

GCRI COAL DIVISION  SIZE  PROJ  KPN  BLK  HC  DS  TRC84143
=====
SAMPLE ID           02228  DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID    SZ1    DATE ANALYSED 12/10/85
FRACTION SIZE      WT%    ASH%    FSI    CAL    RM    VM    TS
FROM (MM) TO (MM) (MJ/KG)
50.00  25.00  6.75    7.96    ---    32.63    2.70    3.15    0.49
25.00  12.00  12.76   15.46    ---    29.22    1.75    4.53    0.47
12.00  5.00    21.39   9.83     ---    31.49    1.79    3.81    0.52
5.00   1.00    34.79  13.44    ---    29.91    2.16    4.04    0.50
1.00   0.50    7.62   13.97    ---    30.06    1.16    4.52    0.54
0.50   0.15    7.26   16.48    ---    28.83    1.26    4.72    0.50
0.15   0.00    9.43   28.49    ---    20.17    1.47    4.87    0.50

```

```

GCRI COAL DIVISION  SIZE  PROJ  KPN  BLK  HC  DS  TRC84143
=====
SAMPLE ID           02228  DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID    SZ2    DATE ANALYSED 12/10/84
FRACTION SIZE      WT%    ASH%    FSI    CAL    RM    VM    TS
FROM (MM) TO (MM) (MJ/KG)
200.00  75.00  9.69    ---    ---    ---    ---    ---    ---
75.00   50.00  3.92    ---    ---    ---    ---    ---    ---
50.00   25.00  1.96    ---    ---    ---    ---    ---    ---
25.00   12.00  8.80    ---    ---    ---    ---    ---    ---
12.00   5.00   19.25   ---    ---    ---    ---    ---    ---
5.00    1.00   32.99   ---    ---    ---    ---    ---    ---
1.00    0.50   7.26    ---    ---    ---    ---    ---    ---
0.50    0.15   6.96    ---    ---    ---    ---    ---    ---
0.15    0.00   9.17    ---    ---    ---    ---    ---    ---

```

```

GCRI COAL DIVISION  SIZE  PROJ  KPN  BLK  HC  DS  TRC84143
=====
SAMPLE ID           02228  DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID    SZ3    DATE ANALYSED 12/10/84
FRACTION SIZE      WT%    ASH%    FSI    CAL    RM    VM    TS
FROM (MM) TO (MM) (MJ/KG)
50.00  25.00  35.21   ---    ---    ---    ---    ---    ---
25.00  12.00  29.12   ---    ---    ---    ---    ---    ---
12.00  5.00   15.72   ---    ---    ---    ---    ---    ---
5.00   1.00   13.25   ---    ---    ---    ---    ---    ---
1.00   0.50   2.63    ---    ---    ---    ---    ---    ---
0.50   0.15   2.23    ---    ---    ---    ---    ---    ---
0.15   0.00   1.84    ---    ---    ---    ---    ---    ---

```

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	HC	DS	TRC84143	
=====		=====	=====						
SAMPLE ID		02228	DATA TYPE (REAL,BORO,AVER,CALC)						REAL
SPLIT SAMPLE ID		SZ1	DATE ANALYSED 12/10/85						
FRACTION SIZE		WT%	ASH%	FSI	CAL	RM	VM	TS	
FROM (MM) TO (MM)		(MJ/KG)							
50.00	25.00	6.75	7.96	---	32.63	2.70	3.15	0.49	
25.00	12.00	12.76	15.46	---	29.22	1.75	4.53	0.47	
12.00	5.00	21.39	9.83	---	31.49	1.79	3.81	0.52	
5.00	1.00	34.79	13.44	---	29.91	2.16	4.04	0.50	
1.00	0.50	7.62	13.97	---	30.06	1.16	4.52	0.54	
0.50	0.15	7.26	16.48	---	28.83	1.26	4.72	0.50	
0.15	0.00	9.43	28.49	---	20.17	1.47	4.87	0.50	

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	HC	DS	TRC84143	
=====		=====	=====						
SAMPLE ID		02228	DATA TYPE (REAL,BORO,AVER,CALC)						REAL
SPLIT SAMPLE ID		SZ2	DATE ANALYSED 12/10/84						
FRACTION SIZE		WT%	ASH%	FSI	CAL	RM	VM	TS	
FROM (MM) TO (MM)		(MJ/KG)							
200.00	75.00	9.69	---	---	---	---	---	---	
75.00	50.00	3.92	---	---	---	---	---	---	
50.00	25.00	1.96	---	---	---	---	---	---	
25.00	12.00	8.80	---	---	---	---	---	---	
12.00	5.00	19.25	---	---	---	---	---	---	
5.00	1.00	32.99	---	---	---	---	---	---	
1.00	0.50	7.26	---	---	---	---	---	---	
0.50	0.15	6.96	---	---	---	---	---	---	
0.15	0.00	9.17	---	---	---	---	---	---	

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	HC	DS	TRC84143	
=====		=====	=====						
SAMPLE ID		02228	DATA TYPE (REAL,BORO,AVER,CALC)						REAL
SPLIT SAMPLE ID		SZ3	DATE ANALYSED 12/10/84						
FRACTION SIZE		WT%	ASH%	FSI	CAL	RM	VM	TS	
FROM (MM) TO (MM)		(MJ/KG)							
50.00	25.00	35.21	---	---	---	---	---	---	
25.00	12.00	29.12	---	---	---	---	---	---	
12.00	5.00	15.72	---	---	---	---	---	---	
5.00	1.00	13.25	---	---	---	---	---	---	
1.00	0.50	2.63	---	---	---	---	---	---	
0.50	0.15	2.23	---	---	---	---	---	---	
0.15	0.00	1.84	---	---	---	---	---	---	

GCRI COAL DIVISION HEAD PROJ KPN BLK HC DS TRC84143
 =====

SAMPLE ID 02229 DATA TYPE (REAL,BORO,AVER,CALC) REAL
 SPLIT SAMPLE ID HD7 DATE ANALYSED 18/10/84
 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
 NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) 0.15
 SURFACE MOISTURE % ---
 TOTAL MOISTURE % ---
 EQUILIBRIUM MOISTURE % ---
 RESIDUAL MOISTURE % 1.43
 ASH % 68.13
 VOLATILE MATTER % 6.45
 FIXED CARBON % 23.99
 TOTAL SULPHUR % 0.31
 PHOSPHOROUS % ---
 CHLORINE (PPM) ---
 SPECIFIC GRAVITY ---
 FSI ---
 HGI ---
 CO2 % ---
 GROSS CALORIFIC VALUE (MJ/KG) 7.03
 NET CALORIFIC VALUE (MJ/KG) ---

GCRI COAL DIVISION SIZE PROJ KPN BLK HC DS TRC84143
 =====

SAMPLE ID 02229 DATA TYPE (REAL,BORO,AVER,CALC) CALC
 SPLIT SAMPLE ID SZ1 DATE ANALYSED 12/10/84
 FRACTION SIZE WT% ASH% FSI CAL RM VM TS
 FROM (MM) TO (MM) (MJ/KG)
 50.00 25.00 6.69 --- --- --- --- --- ---
 25.00 12.00 10.76 --- --- --- --- --- ---
 12.00 5.00 19.38 --- --- --- --- --- ---
 5.00 1.00 25.02 --- --- --- --- --- ---
 1.00 0.50 6.44 --- --- --- --- --- ---
 0.50 0.15 7.06 --- --- --- --- --- ---
 0.15 0.00 24.65 --- --- --- --- --- ---

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	HC	DS	TRC84143		
=====		=====	=====							
SAMPLE ID	02229		DATA TYPE (REAL,BORO,AVER,CALC)					REAL		
SPLIT SAMPLE ID	SZ1		DATE ANALYSED 12/10/85							
FRACTION SIZE		WT%	ASH%	FSI	CAL	RM	VM	TS		
FROM (MM) TO (MM)					(MJ/KG)					
50.00	25.00	6.69	21.82	---	26.80	2.61	2.60	0.45		
25.00	12.00	10.76	22.37	---	25.36	1.79	6.14	0.41		
12.00	5.00	19.38	21.82	---	26.70	1.63	4.42	0.44		
5.00	1.00	25.02	19.97	---	27.34	1.91	4.16	0.47		
1.00	0.50	6.44	22.14	---	26.62	1.24	4.88	0.46		
0.50	0.15	7.06	30.58	---	23.08	1.31	5.45	0.40		
0.15	0.00	24.65	68.13	---	7.03	1.43	6.45	0.31		

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	HC	DS	TRC84143		
=====		=====	=====							
SAMPLE ID	02229		DATA TYPE (REAL,BORO,AVER,CALC)					REAL		
SPLIT SAMPLE ID	SZ2		DATE ANALYSED 12/10/84							
FRACTION SIZE		WT%	ASH%	FSI	CAL	RM	VM	TS		
FROM (MM) TO (MM)					(MJ/KG)					
75.00	50.00	1.06	---	---	---	---	---	---		
50.00	25.00	5.80	---	---	---	---	---	---		
25.00	12.00	10.70	---	---	---	---	---	---		
12.00	5.00	19.34	---	---	---	---	---	---		
5.00	1.00	24.98	---	---	---	---	---	---		
1.00	0.50	6.43	---	---	---	---	---	---		
0.50	0.15	7.05	---	---	---	---	---	---		
0.15	0.00	24.64	---	---	---	---	---	---		

GCRI COAL DIVISION		SIZE	PROJ	KPN	BLK	HC	DS	TRC84143		
=====		=====	=====							
SAMPLE ID	02229		DATA TYPE (REAL,BORO,AVER,CALC)					REAL		
SPLIT SAMPLE ID	SZ3		DATE ANALYSED 12/10/84							
FRACTION SIZE		WT%	ASH%	FSI	CAL	RM	VM	TS		
FROM (MM) TO (MM)					(MJ/KG)					
50.00	25.00	83.91	---	---	---	---	---	---		
25.00	12.00	5.29	---	---	---	---	---	---		
12.00	5.00	4.16	---	---	---	---	---	---		
5.00	1.00	3.15	---	---	---	---	---	---		
1.00	0.50	1.01	---	---	---	---	---	---		
0.50	0.15	1.35	---	---	---	---	---	---		
0.15	0.00	1.13	---	---	---	---	---	---		

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

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DATA SOURCE - KPNHCTRC84143 SEAM - I

SAMPLE ID - 2226

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	50.00 X		25.00		RELATIVE WEIGHT % -		10.00 ASH % -	
S.G.TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.	
1.40	1.57	2.90	1.57	2.90	98.43	7.28			
1.45	79.57	5.74	81.14	5.69	18.86	13.79			
1.50	14.37	11.05	95.51	6.49	4.49	22.55			
1.60	1.23	15.18	96.74	6.60	3.26	25.33			
1.70	2.01	23.40	98.75	6.94	1.25	28.43			
1.80	1.25	28.43	100.00	7.21					

ANALYSIS TYPE - FLOAT									
FRACTION	SIZE(MM)	25.00 X		12.00		RELATIVE WEIGHT % -		10.00 ASH % -	
S.G.TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		C.V.		CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	(MJ KG)	C.V.	
1.38	0.17	2.41	0.17	2.41	99.83	9.13			
1.40	8.89	2.96	9.06	2.95	90.94	9.73			
1.45	69.35	5.57	78.41	5.27	21.59	23.10			
1.50	13.54	9.65	91.95	5.91	8.05	45.73			
1.60	1.96	18.01	93.91	6.17	6.09	54.66			
1.70	1.16	28.19	95.07	6.43	4.93	60.89			
1.80	0.64	29.25	95.71	6.59	4.29	65.60			
1.90	1.15	35.16	96.86	6.93	3.14	76.75			
2.00	0.45	44.03	97.31	7.10	2.69	82.23			
2.60	2.69	82.23	100.00	9.12					

GULF CANADA RESOURCES INC. - COAL DIVISION

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WASHABILITY REPORT 1

PAGE -

DATA SOURCE - KPNHCTRC84143 SEAM - I

SAMPLE ID - 2226

WASHABILITY ID - WA1

----- ANALYSIS TYPE - FLOAT -----

FRACTION S.G.TME	SIZE(MM) 12.00 X		5.00 ELEMENTAL		CUM. FLOATS		RELATIVE WEIGHT % -		10.00 ASH % -	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ KG)	CUM. C.V.
1.38	1.76	3.18	1.76	3.18	98.24	8.70				
1.40	21.51	3.61	23.27	3.58	76.73	10.13				
1.45	51.51	5.73	74.78	5.06	25.22	19.10				
1.50	16.02	9.70	90.80	5.88	9.20	35.48				
1.60	3.74	17.05	94.54	6.32	5.46	48.11				
1.70	0.77	28.40	95.31	6.50	4.69	51.34				
1.80	0.96	32.00	96.27	6.75	3.73	56.32				
1.90	0.75	42.30	97.02	7.03	2.98	59.85				
2.00	0.53	43.58	97.55	7.23	2.45	63.37				
2.60	2.45	63.37	100.00	8.60						

----- ANALYSIS TYPE - FLOAT -----

FRACTION S.G.TME	SIZE(MM) 5.00 X		0.50 ELEMENTAL		CUM. FLOATS		RELATIVE WEIGHT % -		10.00 ASH % -	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ KG)	CUM. C.V.
1.38	0.50	1.61	0.50	1.61	99.50	13.05				
1.40	10.50	2.98	11.00	2.92	89.00	14.24				
1.45	32.65	5.44	43.65	4.80	56.35	19.33				
1.50	27.26	9.30	70.91	6.53	29.09	28.73				
1.60	16.69	16.45	87.60	8.42	12.40	45.27				
1.70	3.89	27.29	91.49	9.22	8.51	53.48				
1.80	2.42	34.91	93.91	9.89	6.09	60.86				
1.90	1.04	39.35	94.95	10.21	5.05	65.30				
2.00	0.31	37.40	95.26	10.30	4.74	67.12				
2.60	4.74	67.12	100.00	12.99						

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FRACTION	ANALYSIS TYPE - FLOAT		SIZE(MM) 50.00 X 25.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 7.80 ASH % -	
	S.G.TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ KG)	CUM. C.V.
1.38	4.58	1.09	4.58	1.09	95.42	10.14				
1.40	3.94	6.23	8.52	3.47	91.48	10.31				
1.45	66.13	7.62	74.65	7.15	25.35	17.32				
1.50	11.21	14.94	85.86	8.16	14.14	19.21				
1.60	14.14	19.21	100.00	9.73						

FRACTION	ANALYSIS TYPE - FLOAT		SIZE(MM) 25.00 X 12.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 12.44 ASH % -	
	S.G.TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	C.V. (MJ KG)	CUM. C.V.
1.38	2.29	1.76	2.29	1.76	97.71	9.75				
1.40	53.55	6.12	55.84	5.94	44.16	14.15				
1.45	32.00	9.26	87.84	7.15	12.16	27.03				
1.50	5.50	15.21	93.34	7.63	6.66	36.79				
1.60	1.70	24.64	95.04	7.93	4.96	40.96				
1.90	4.96	40.96	100.00	9.57						

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DATA SOURCE - KPNHCTRCB4143 SEAM - I

SAMPLE ID - 2227

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 12.00 X		5.00		RELATIVE WEIGHT % - 22.59 ASH % -		CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	
1.38	18.40	3.21	18.40	3.21	81.60	11.37	
1.40	37.17	6.21	55.57	5.22	44.43	15.69	
1.45	28.48	9.93	84.05	6.81	15.95	25.97	
1.50	8.21	14.54	92.26	7.50	7.74	38.09	
1.60	3.78	22.00	96.04	8.07	3.96	53.45	
1.70	0.84	31.56	96.88	8.28	3.12	59.35	
1.80	0.31	36.57	97.19	8.37	2.81	61.86	
1.90	0.28	40.77	97.47	8.46	2.53	64.19	
2.00	0.23	50.44	97.70	8.56	2.30	65.57	
2.60	2.30	65.57	100.00	9.87			

ANALYSIS TYPE - FLOAT

FRACTION S.G.TME	SIZE(MM) 5.00 X		1.00		RELATIVE WEIGHT % - 29.59 ASH % -		CUM. C.V.
	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. SINKS WT%	ASH%	
1.38	9.13	2.40	9.13	2.40	90.87	12.22	
1.40	29.19	4.57	38.32	4.05	61.68	15.84	
1.45	28.00	8.55	66.32	5.95	33.68	21.91	
1.50	16.53	13.47	82.85	7.45	17.15	30.04	
1.60	10.08	20.03	92.93	8.82	7.07	44.31	
1.70	2.61	28.72	95.54	9.36	4.46	53.44	
1.80	1.19	36.69	96.73	9.70	3.27	59.53	
1.90	0.68	45.03	97.41	9.94	2.59	63.34	
2.00	0.35	50.88	97.76	10.09	2.24	65.29	
2.10	2.24	65.29	100.00	11.33			