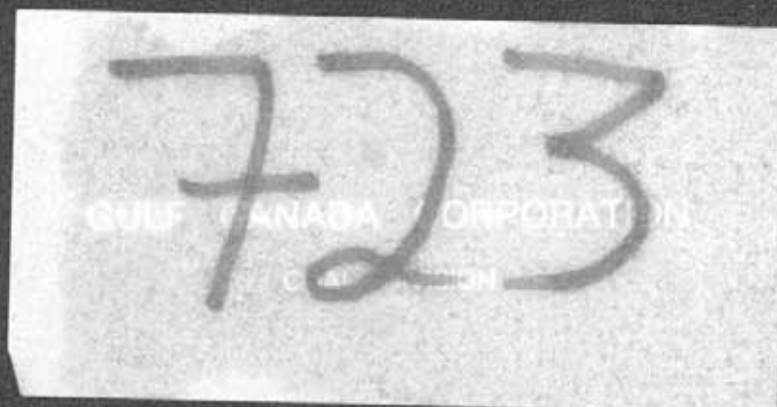


MOUNT KLAPPAN ANTHRACITE PROJECT
LOST - FOX AREA
GEOLOGICAL REPORT
1986

APPENDIX V

DIAMOND DRILL HOLE COAL QUALITY
VOLUME I

KPNLRDDH 86001
TO
KPNLRDDH 86017



APPENDIX V
LOST-FOX AREA
DIAMOND DRILL HOLE
COAL QUALITY
VOLUME I

CONFIDENTIAL

LOST-FOX AREA

1986

COAL QUALITY LEGEND

SAMPLE ID	1 - 99	Raw Coal
COMPOSITE SAMPLE ID	200 - 299	35 x 6 mm size fraction
	300 - 399	6 x 0.5 mm size fraction
ASH MINERAL ANALYSIS		
(RAW COAL)	AM3	0.5 x 0.15 mm size fraction
	AM4	-0.15 mm size fraction
ASH FUSION ANALYSIS		
(RAW COAL)	AF3	0.5 x 0.15 mm size fraction
	AF4	-0.15 mm size fraction
SAMPLE PRODUCT		
	SP - 1	Raw Coal
	SP - 2	6.3% Ash Coal Product
	SP - 3	7.5% Ash Coal Product
	SP - 4	12.0% Ash (Primary Wash) Coal Product
	SP - 5	12.0% Ash (Middlings) Coal Product (produced from 6.3% ash product reject)

CRUSH +35mm MATERIAL
BY HAND TO PASS 35mm

SCREEN CRUSHED MATERIAL
AT +35mm, 35mm,
25mm, 12mm, 6mm,
0.5mm, 0.15mm

RESERVE SAMPLE
FOR HEAD ANALYSIS SAMPLE

Head Analysis
Total Moisture, Proximate,
Total Sulphur, Equilibrium
Moisture, S.G., Cal. VAL., Cl, H.G.I.,
CO₂, Ultimate, Ash Fusion,
Ash Mineral Composition,
Forms of Sulphur

35mm to 6mm

Equilibrium Moisture
Proximate, Colorific
Value, Total Sulphur

F/S at 1.40, 1.45
1.50, 1.55, 1.60, 1.70
1.80, 2.00, 2.60
Specific Gravity
Ash + RM on each

Hold For
Instructions

Full Prox. and C.V.
On Each For
Selected Samples

6.3% Ash Composite To Form
Coarse Product
Simulation

Reject To Produce
12% Ash Middlings

12% Ash

Hold Reject
By Individual
Floats

Hold Reject
By Individual
Floats

Product Analysis
Proximate, Total Sulphur,
Colorific Value, H.G.I.,
Ash Fusion, Ash Mineral
Comp.

Hold And Store
Product

6mm to 0.5mm

Equilibrium Moisture
Proximate,
Colorific Value

F/S at 1.40, 1.45
1.50, 1.55, 1.60, 1.70
1.80, 2.00, 2.60
Specific Gravity
Ash + RM on each

Hold For
Instructions

Full Prox. and C.V.
On Each For
Selected Samples

Composite To
Form Product
Simulation

7.5% Ash

Hold Reject
By Individual
Floats

Product Analysis
Proximate, Total Sulphur,
Colorific Value, H.G.I.,
Ash Fusion, Ash Mineral
Comp.

Hold And Store
Product

0.5mm to 0.15mm

Proximate,
Total Sulphur,
Colorific Value,
Ash Fusion, Ash
Mineral Composition

F/S at 1.40, 1.45
1.50, 1.60, 1.70
1.80, 2.00, 2.60
Specific Gravity
Ash + RM on each

Hold Sample
By Individual
Floats

0.15mm to 0

Proximate,
Total Sulphur,
Colorific Value,
Ash Fusion, Ash
Mineral Composition

Hold Sample

MOUNT KLAPPAN ANTHRACITE PROJECT
DIAMOND DRILL HOLE
COAL CORE ANALYSIS FLOW SHEET (1986)

GULF CANADA CORPORATION

GULF CANADA CORPORATION
12/11/86
KLAPP:12050571860591001.CHT



KPNLRDDH86001

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPnlRDDH86001

DATE - 04/03/87

- HISTORY -

START DATE - 18/08/86

END DATE - 20/08/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - BARKER

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - SEAM I AND H WERE INTERSECTED.

- LOCATION -

PROVINCE - BC

ELEVATION - 1797.32

ZONE - 9

NORTHING - 6344069.00

EASTING - 505992.12

LICENCE/LEASE NUMBER -

LATITUDE - 571430

LONGITUDE - 1285403

- ORIENTATION -

LENGTH - 81.07

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

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

02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

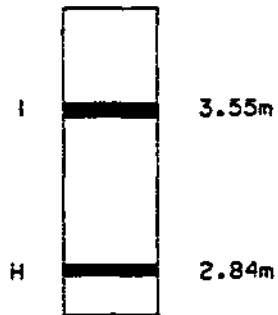
DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL - ROCK
DDH86001										
	I	4451	25.65	29.20	46.20	1.367	0.270	1.909		3.276- 0.270
		4452	25.16	25.65	79.59		0.390		0.100	0.000- 0.490
		4453	29.20	29.45	100.00		0.249			0.000- 0.249
		4454	68.01	68.24	100.00		0.230			0.000- 0.230
	H	4455	68.24	71.08	65.14	1.680	0.170	0.490	0.500	2.170- 0.670
		4456	71.08	71.26	100.00		0.180			0.000- 0.180

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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

DDH86004												
K		1	5409	5409	89.27	91.56	73.36	1.68	0.00	0.61	0.00	2.29- 0.00
K		2	5410	5410	91.56	93.83	92.07	2.00	0.09	0.00	0.18	2.00- 0.27
K		3	5411	5411	93.83	95.00	100.00	0.82	0.35	0.00	0.00	0.82- 0.35
I		4	5414	5414	135.44	137.12	90.47	1.46	0.06	0.16	0.00	1.62- 0.06
I		5	5415	5415	137.12	138.82	77.05	1.09	0.22	0.33	0.06	1.42- 0.28
I		6	5416	5416	138.82	140.76	100.00	1.94	0.00	0.00	0.00	1.94- 0.00
H		7	5419	5419	191.50	196.63	86.15	3.66	0.76	0.39	0.32	4.05- 1.08
H		8	5420	5420	196.63	199.00	77.63	1.77	0.07	0.46	0.07	2.23- 0.14
K		200	5409	5411	89.27	95.00	86.21	4.50	0.44	0.61	0.18	5.11- 0.62
I		201	5414	5415	135.44	138.82	83.72	2.55	0.28	0.49	0.06	3.04- 0.34
I		202	5416	5416	138.82	140.76	100.00	1.94	0.00	0.00	0.00	1.94- 0.00
H		203	5419	5420	191.50	199.00	83.46	5.43	0.83	0.85	0.39	6.28- 1.22
K		300	5409	5411	89.27	95.00	86.21	4.50	0.44	0.61	0.18	5.11- 0.62
I		301	5414	5416	135.44	140.76	89.66	4.49	0.28	0.49	0.06	4.98- 0.34
H		303	5419	5420	191.50	199.00	83.46	5.43	0.83	0.85	0.39	6.28- 1.22

SEAM TRUE SEAM THICKNESS
 (COAL & ROCK)



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

**1986 DIAMOND DRILL HOLES
DDH86001**

QULF CANADA CORPORATION
11/03/87
KLAP:12050571870063001.LOG



KPNLRDDH86002

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86002

DATE - 04/03/87

- HISTORY -

START DATE - 21/08/86

END DATE - 22/08/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - SAVOIE

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1715.83

ZONE - 9

NORTHING - 6343591.00

EASTING - 506123.12

LICENCE/LEASE NUMBER -

LATITUDE - 571414

LONGITUDE - 1285355

- ORIENTATION -

LENGTH - 100.58

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 12.19

AQUIFER DEPTHS (M) - 0.00

0.00

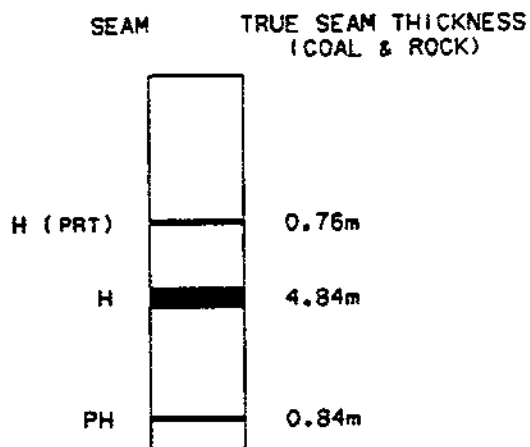
LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE 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
DDHB6002		4457	38.21	39.33	100.00		0.955			0.000- 0.955
	H PART	4458	39.33	40.21	100.00	0.759				0.759- 0.000
		4459	40.21	41.29	100.00		0.939			0.000- 0.939
		4460	56.29	56.74	100.00		0.395			0.000- 0.395
	H	4461	56.74	59.42	57.84	0.867	0.518	0.845	0.160	1.712- 0.678
	H	4462	59.42	62.11	75.84	1.616	0.249	0.445	0.146	2.061- 0.395
		4463	62.11	63.69	100.00		1.467			0.000- 1.467



NOTE:

SCHMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

**1986 DIAMOND DRILL HOLES
DDH86002**

GULF CANADA CORPORATION
11/03/87
KLAP:12050571870063002.LOG



KPNLRDDH86003

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86003

DATE - 04/03/87

- HISTORY -

START DATE - 22/08/86

END DATE - 23/08/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - LOVE

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS -

- LOCATION -

PROVINCE - BC

ELEVATION - 1606.64

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6345041.00

EASTING - 505846.31

LATITUDE - 571501

LONGITUDE - 1285411

- ORIENTATION -

LENGTH - 98.10

CORE SIZE - 0.0

INCLINATION - 75.0

AZIMUTH - 25.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 3.30

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

02/APR/87

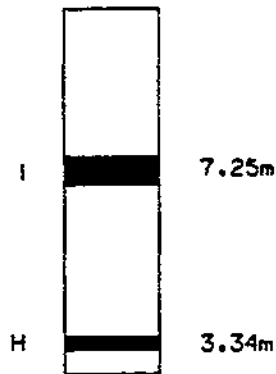
GULF CANADA CORPORATION - COAL DIVISION
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

PAGE 1

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

DDH86003		4464	39.58	40.08	100.00		0.500			0.000	0.500
	I	4465	40.08	45.16	32.87	1.369	0.300	3.258	0.150	4.627	0.450
	I	4466	45.16	47.34	28.44	0.618		1.556		2.174	0.000
		4467	47.34	48.78	100.00		1.434			0.000	1.434
		4468	87.18	88.03	100.00		0.810			0.000	0.810
	H	4469	88.03	90.22	64.38	1.099	0.202	0.428	0.291	1.527	0.493
	H	4470	90.22	91.73	62.25	0.556	0.274	0.319	0.177	0.875	0.451
		4471	91.73	93.07	100.00		1.123			0.000	1.123

SEAM TRUE SEAM THICKNESS
 (COAL & ROCK)



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

**1986 DIAMOND DRILL HOLES
DDH86003**

GULF CANADA CORPORATION
11/03/87
KLAP: (205657)870063003.LOG



KPNLRDDH86004

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPMLRDDH86004

DATE - 04/03/87

- HISTORY -

START DATE - 22/08/86
END DATE - 25/08/86

CONTRACTOR - J.T. THOMAS
GEOLOGIST - BARKER

OPERATOR - G.C.C.
SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE. PIEZ AT 30 M.

- LOCATION -

PROVINCE - BC
ELEVATION - 1632.52

ZONE - 9
NORTHING - 6344684.00
EASTING - 507152.37

LICENCE/LEASE NUMBER -

LATITUDE - 571449
LONGITUDE - 1285253

- ORIENTATION -

LENGTH - 206.35

INCLINATION - 75.0
AZIMUTH - 350.0

CORE SIZE - 0.0

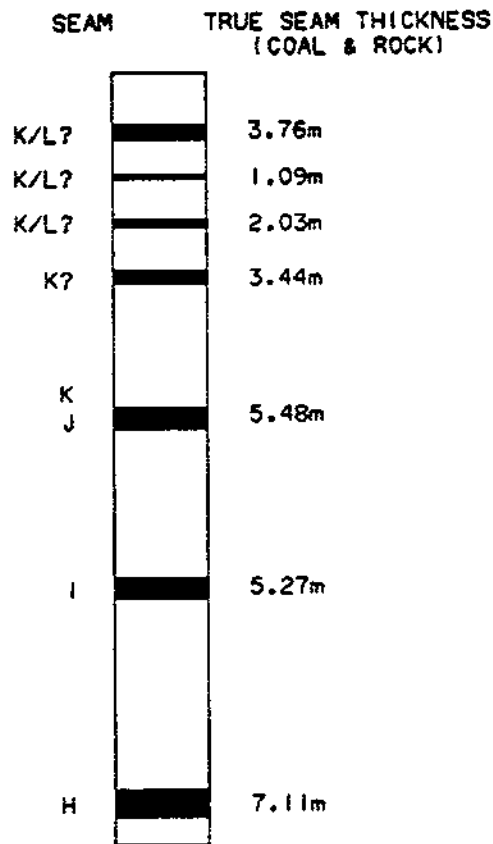
CEMENT - N
PLUG - N
PIEZ - Y

CASING DEPTH (M) - 16.46
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 SEAM SUMMARY PAGE 1
 TRUE THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK
DDH86004									
	K/L?	13.97	17.79	26.18	0.749	0.237	2.511	0.265	3.26- 0.50
	K/L?	27.14	28.24	34.55	0.554	0.139	0.168	0.227	0.72- 0.37
	K/L?	39.38	41.47	43.65	0.992	0.332	0.653	0.059	1.64- 0.39
	K?	53.20	56.64	53.97	1.940	0.640	0.670	0.190	2.61- 0.83
	K	89.27	95.00	65.39	4.304	0.425	0.574	0.171	4.88- 0.60
	J	103.70	104.39	66.80		0.666			0.00- 0.67
	I	135.44	140.76	72.28	4.448	0.279	0.486	0.060	4.93- 0.34
	H	191.50	199.00	75.11	5.147	0.786	0.800	0.370	5.95- 1.16



NOTE:

SCHMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86004

GULF CANADA CORPORATION
11/03/87
KLAP:12050571870063004.L00



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: K
 Field sample no.: 05409 Composite sample no.: 1
 Lab sample no.: 29264
 True sample thickness: 2.161 meters Drill core recovery (%): 73.36 %
 Coal/Rock: 2.161 / 0.000 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 28.14 19.45 13.42 30.88
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 5.30 2.81

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.89	
Ash (%):	19.40	19.57
Volatile matter (%):	7.47	7.54
Fixed carbon (%):	72.24	72.89
Total sulphur (%):	0.49	0.49
Combustible sulphur (%):	0.18	
Net calorific value (cal/g):	6562.00	6621.00
Gross calorific value (cal/g):	6563.00	6622.00
Volatile matter (dmmf%):	7.40	
Hardgrove index:	46.00	
Specific gravity:	1.41	
Carbon dioxide (%):	1.65	
Phosphorous in coal (%):	0.038	
Chlorine in coal (ppm):	2480.00	
Forms of Sulphur (%):	PYRITE 02.00	SULPHATE 00.00 ORGANIC 98.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	73.29	73.95
Hydrogen (%):	2.49	2.51
Nitrogen (%):	0.95	0.96
Oxygen (%):	2.49	2.52

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1289.00	1246.00
Softening temperature (°C):	1300.00	1257.00
Hemispherical temperature (°C):	1313.00	1270.00
Final temperature (°C):	1380.00	1343.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	54.24	TiO2 (%):	1.43
Al2O3 (%):	23.12	Na2O (%):	2.10
Fe2O3 (%):	4.79	K2O (%):	1.06
CaO (%):	5.57	SO3 (%):	4.03
MgO (%):	3.19	P2O5 (%):	0.45

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: K
 Field sample no.: 05410 Composite sample no.: 2
 Lab sample no.: 29264
 True sample thickness: 2.180 meters Drill core recovery (%): 92.07 %
 Coal/Rock: 1.924 / 0.256 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 40.16 24.22 11.74 21.29
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 1.76 0.83

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.98	
Ash (%):	21.39	21.60
Volatile matter (%):	7.28	7.35
Fixed carbon (%):	70.35	71.05
Total sulphur (%):	0.50	0.50
Combustible sulphur (%):	0.15	
Net calorific value (cal/g):	6393.00	6457.00
Gross calorific value (cal/g):	6393.00	6457.00
Volatile matter (dmmf %):	7.10	
Hardgrove index:	42.00	
Specific gravity:	1.47	
Carbon dioxide (%):	2.41	
Phosphorous in coal (%):	0.183	
Chlorine in coal (ppm):	2440.00	
Forms of Sulphur (%):	PYRITE 06.00	SULPHATE 00.00 ORGANIC 94.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	71.51	72.22
Hydrogen (%):	2.31	2.33
Nitrogen (%):	0.94	0.95
Oxygen (%):	2.37	2.40

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1284.00	1233.00
Softening temperature (°C):	1297.00	1246.00
Hemispherical temperature (°C):	1308.00	1257.00
Final temperature (°C):	1337.00	1297.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	48.34	TiO2 (%):	1.33
Al2O3 (%):	22.68	Na2O (%):	2.09
Fe2O3 (%):	7.22	K2O (%):	1.28
CaO (%):	7.23	SO3 (%):	4.08
MgO (%):	3.61	P2O5 (%):	1.96

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: K
 Field sample no.: 05411 Composite sample no.: 3
 Lab sample no.: 29264
 True sample thickness: 1.133 meters Drill core recovery (%): 100.00 %
 Coal/Rock: 0.793 / 0.340 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 26.67 17.74 12.74 30.61
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 7.34 4.90

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.11	
Ash (%):	51.46	52.04
Volatile matter (%):	8.42	8.51
Fixed carbon (%):	39.01	39.45
Total sulphur (%):	0.33	0.33
Combustible sulphur (%):	0.13	
Net calorific value (cal/g):	3415.00	3454.00
Gross calorific value (cal/g):	3415.00	3454.00
Volatile matter (dmmf %):	9.70	
Hardgrove index:	72.00	
Specific gravity:	1.78	
Carbon dioxide (%):	4.11	
Phosphorous in coal (%):	0.043	
Chlorine in coal (ppm):	2460.00	
Forms of Sulphur (%):	PYRITE 15.00	SULPHATE 00.00 ORGANIC 85.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	40.73	41.19
Hydrogen (%):	1.50	1.52
Nitrogen (%):	0.59	0.60
Oxygen (%):	4.28	4.32

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1286.00	1235.00
Softening temperature (°C):	1329.00	1262.00
Hemispherical temperature (°C):	1362.00	1292.00
Final temperature (°C):	1388.00	1354.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	63.06	TiO2 (%):	1.04
Al2O3 (%):	19.06	Na2O (%):	1.63
Fe2O3 (%):	6.99	K2O (%):	1.60
CaO (%):	1.74	SO3 (%):	0.99
MgO (%):	3.60	P2O5 (%):	0.19

1

gcrl coal division ash fusion proj KPN BLK LR DS DDH86004

sample id 00001
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 24/11/86

oxidizing atmosphere initial temp.(C) 1235.0
softening temp.(C) 1241.0
hemispherical temp.(C) 1246.0
fluid temp.(C) 1286.0
reducing atmosphere initial temp.(C) 1203.0
softening temp.(C) 1208.0
hemispherical temp.(C) 1214.0
fluid temp.(C) 1251.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcrl coal division ash mineral proj KPN BLK LR DS DDH86004

sample id 00001
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 24/11/86

silicon dioxide % (sio2) 49.14
aluminium oxide % (al2o3) 15.88
ferric oxide % (fe2o3) 7.71
titanium dioxide % (tio2) 0.99
phosphorous pentoxide % (p2o5) 0.35
calcium oxide % (cao) 11.70
magnesium oxide % (mgo) 5.81
sulphur trioxide % (so3) 4.67
sodium oxide % (na2o) 1.74
potassium oxide % (k2o) 0.87

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86004

```

=====
sample id 00001
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 24/11/86

oxidizing atmosphere reducing atmosphere
*****
initial temp.(C) 1294.0 initial temp.(C) 1249.0
softening temp.(C) 1472.0 softening temp.(C) 1431.0
hemispherical temp.(C) 1472.0 hemispherical temp.(C) 1472.0
fluid temp.(C) 1472.0 fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

```

gcri coal division ash mineral proj KPN BLK LR DS DDH86004

```

=====
sample id 00001
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 24/11/86

silicon dioxide % (sio2) 53.10
aluminium oxide % (al2o3) 31.13
ferric oxide % (fe2o3) 3.98
titanium dioxide % (tio2) 1.07
phosphorous pentoxide % (p2o5) 0.22
calcium oxide % (cao) 2.91
magnesium oxide % (mgo) 2.27
sulphur trioxide % (so3) 2.02
sodium oxide % (na2o) 2.21
potassium oxide % (k2o) 1.07

90.0 <= total <= 100.0

```

1

gcri coal division ash fusion proj KPN BLK LR DS DDH86004

sample id 00002
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 24/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1276.0
softening temp.(C) 1294.0
hemispherical temp.(C) 1302.0
fluid temp.(C) 1324.0
initial temp.(C) 1238.0
softening temp.(C) 1262.0
hemispherical temp.(C) 1273.0
fluid temp.(C) 1297.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86004

sample id 00002
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 24/11/86

silicon dioxide % (sio2) 43.72
aluminium oxide % (al2o3) 24.19
ferric oxide % (fe2o3) 7.61
titanium dioxide % (tio2) 1.03
phosphorous pentoxide % (p2o5) 4.77
calcium oxide % (cao) 9.49
magnesium oxide % (mgo) 3.35
sulphur trioxide % (so3) 2.61
sodium oxide % (na2o) 2.18
potassium oxide % (k2o) 1.00

90.0 <= total <= 100.0

2

gcri coal division ash fusion proj KPN BLK LR DS DDH86004

sample id 00002 data type (real,boro,aver,calc) REAL
sample product id SP1 date analysed 24/11/86
split sample id AF4

oxidizing atmosphere reducing atmosphere
initial temp.(C) 1300.0 initial temp.(C) 1262.0
softening temp.(C) 1316.0 softening temp.(C) 1276.0
hemispherical temp.(C) 1327.0 hemispherical temp.(C) 1286.0
fluid temp.(C) 1391.0 fluid temp.(C) 1348.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86004

sample id 00002 data type (real,boro,aver,calc) REAL
sample product id SP1 date analysed 24/11/86
split sample id AM4

silicon dioxide % (sio2) 47.92
aluminium oxide % (al2o3) 26.34
ferric oxide % (fe2o3) 6.08
titanium dioxide % (tio2) 0.61
phosphorous pentoxide % (p2o5) 3.33
calcium oxide % (cao) 7.23
magnesium oxide % (mgo) 2.98
sulphur trioxide % (so3) 1.75
sodium oxide % (na2o) 2.40
potassium oxide % (k2o) 0.93

90.0 <= total <= 100.0

1

gcri coal division ash fusion proj KPN BLK LR DS DDH86004

sample id 00003
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 24/11/86

oxidizing atmosphere reducing atmosphere

initial temp.(C) 1281.0 initial temp.(C) 1257.0
softening temp.(C) 1364.0 softening temp.(C) 1340.0
hemispherical temp.(C) 1418.0 hemispherical temp.(C) 1388.0
fluid temp.(C) 1472.0 fluid temp.(C) 1469.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86004

sample id 00003
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 24/11/86

silicon dioxide % (sio2) 60.02 X
aluminium oxide % (al2o3) 24.95 X
ferric oxide % (fe2o3) 4.78 X
titanium dioxide % (tio2) 1.36 X
phosphorous pentoxide % (p2o5) 0.28
calcium oxide % (cao) 1.29 X
magnesium oxide % (mgo) 3.02 X
sulphur trioxide % (so3) 0.60 X
sodium oxide % (na2o) 1.81 X
potassium oxide % (k2o) 1.72 X

90.0 <= total <= 100.0

2

gcri coal division ash fusion proj KPN BLK LR DS DDH86004

sample id 00003
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 24/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1354.0
softening temp.(C) 1423.0
hemispherical temp.(C) 1461.0
fluid temp.(C) 1472.0

initial temp.(C) 1289.0
softening temp.(C) 1324.0
hemispherical temp.(C) 1356.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86004

sample id 00003
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 24/11/86

silicon dioxide % (sio2) 57.36
aluminium oxide % (al2o3) 25.71
ferric oxide % (fe2o3) 5.69
titanium dioxide % (tio2) 1.39
phosphorous pentoxide % (p2o5) 0.23
calcium oxide % (cao) 1.64
magnesium oxide % (mgo) 3.34
sulphur trioxide % (so3) 0.73
sodium oxide % (na2o) 1.99
potassium oxide % (k2o) 1.48

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: 1
 Field sample no.: 05414 Composite sample no.: 4
 Lab sample no.: 29162
 True sample thickness: 1.669 meters Drill core recovery (%): 90.47 %
 Coal/Rock: 1.609 / 0.060 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 30.92 29.06 17.38 19.39
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 2.31 0.94

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.27	
Ash (%):	21.54	21.82
Volatile matter (%):	6.62	6.71
Fixed carbon (%):	70.57	71.47
Total sulphur (%):	0.42	0.43
Combustible sulphur (%):	0.26	
Net calorific value (cal/g):	6433.00	6516.00
Gross calorific value (cal/g):	6434.00	6517.00
Volatile matter (dmmf %):	6.30	
Hardgrove index:	41.00	
Specific gravity:	1.51	
Carbon dioxide (%):	0.92	
Phosphorous in coal (%):	0.055	
Chlorine in coal (ppm):	1920.00	
Forms of Sulphur (%):	PYRITE 00.02	SULPHATE 00.00 ORGANIC 00.98

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	69.08	69.97
Hydrogen (%):	2.54	2.57
Nitrogen (%):	0.89	0.90
Oxygen (%):	4.26	4.31

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1265.00	1198.00
Softening temperature (°C):	1292.00	1276.00
Hemispherical temperature (°C):	1302.00	1289.00
Final temperature (°C):	1375.00	1345.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	58.78	TiO2 (%):	0.50
Al2O3 (%):	20.66	Na2O (%):	1.61
Fe2O3 (%):	4.16	K2O (%):	1.72
CaO (%):	4.65	SO3 (%):	1.82
MgO (%):	3.31	P2O5 (%):	0.58

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: I
 Field sample no.: 05415 Composite sample no.: 5
 Lab sample no.: 29162
 True sample thickness: 1.686 meters Drill core recovery (%): 77.05 %
 Coal/Rock: 1.407 / 0.279 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 33.46 28.33 13.04 18.59
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 4.02 2.56

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.31	
Ash (%):	32.34	32.77
Volatile matter (%):	7.31	7.41
Fixed carbon (%):	59.04	59.82
Total sulphur (%):	0.38	0.39
Combustible sulphur (%):	0.26	
Net calorific value (cal/g):	5189.00	5258.00
Gross calorific value (cal/g):	5189.00	5258.00
Volatile matter (dmmf %):	7.20	
Hardgrove index:	45.00	
Specific gravity:	1.60	
Carbon dioxide (%):	2.62	
Phosphorous in coal (%):	0.028	
Chlorine in coal (ppm):	1920.00	
Forms of Sulphur (%):	PYRITE 08.00	SULPHATE 00.00 ORGANIC 92.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	58.38	59.16
Hydrogen (%):	2.12	2.15
Nitrogen (%):	0.89	0.90
Oxygen (%):	4.58	4.63

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1262.00	1208.00
Softening temperature (°C):	1375.00	1329.00
Hemispherical temperature (°C):	1437.00	1394.00
Final temperature (°C):	1472.00	1472.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	59.22	TiO2 (%):	0.64
Al2O3 (%):	24.57	Na2O (%):	1.91
Fe2O3 (%):	4.38	K2O (%):	1.03
CaO (%):	2.32	SO3 (%):	0.96
MgO (%):	2.76	P2O5 (%):	0.20

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: 1
 Field sample no.: 05416 Composite sample no.: 6
 Lab sample no.: 29162
 True sample thickness: 1.918 meters Drill core recovery (%): 100.00 %
 Coal/Rock: 1.918 / 0.000 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 13.27 22.43 17.84 37.20
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 5.65 3.61

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.02	
Ash (%):	11.30	11.42
Volatile matter (%):	6.81	6.88
Fixed carbon (%):	80.87	81.70
Total sulphur (%):	0.46	0.46
Combustible sulphur (%):	0.24	
Net calorific value (cal/g):	7360.00	7436.00
Gross calorific value (cal/g):	7361.00	7437.00
Volatile matter (dmmf%):	6.70	
Hardgrove index:	39.00	
Specific gravity:	1.46	
Carbon dioxide (%):	1.91	
Phosphorous in coal (%):	0.224	
Chlorine in coal (ppm):	1800.00	
Forms of Sulphur (%):	PYRITE 02.00	SULPHATE 00.00 ORGANIC 98.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	81.15	81.99
Hydrogen (%):	2.54	2.57
Nitrogen (%):	0.94	0.95
Oxygen (%):	2.59	2.61

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1257.00	1149.00
Softening temperature (°C):	1281.00	1203.00
Hemispherical temperature (°C):	1284.00	1211.00
Final temperature (°C):	1300.00	1254.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	35.31	TiO2 (%):	1.27
Al2O3 (%):	21.38	Na2O (%):	2.01
Fe2O3 (%):	11.49	K2O (%):	0.92
CaO (%):	10.19	SO3 (%):	4.90
MgO (%):	5.69	P2O5 (%):	4.54

1

gcri coal division ash fusion proj KPN BLK LR DS DDH86004

sample id 00004 data type (real,boro,aver,calc) REAL
sample product id SP1 date analysed 21/10/86
split sample id AF3

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1319.0
softening temp.(C) 1429.0
hemispherical temp.(C) 1458.0
fluid temp.(C) 1472.0

initial temp.(C) 1284.0
softening temp.(C) 1380.0
hemispherical temp.(C) 1423.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86004

sample id 00004 data type (real,boro,aver,calc) REAL
sample product id SP1 date analysed 21/10/86
split sample id AM3

silicon dioxide % (sio2) 53.16
aluminium oxide % (al2o3) 27.90
ferric oxide % (fe2o3) 3.81
titanium dioxide % (tio2) 0.64
phosphorous pentoxide % (p2o5) 0.31
calcium oxide % (cao) 2.83
magnesium oxide % (mgo) 3.22
sulphur trioxide % (so3) 1.54
sodium oxide % (na2o) 2.18
potassium oxide % (k2o) 2.10

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86004

sample id 00004
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 21/10/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1251.0
softening temp.(C) 1399.0
hemispherical temp.(C) 1439.0
fluid temp.(C) 1472.0

initial temp.(C) 1179.0
softening temp.(C) 1354.0
hemispherical temp.(C) 1407.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86004

sample id 00004
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 21/10/86

silicon dioxide % (sio2) 55.96
aluminium oxide % (al2o3) 26.33
ferric oxide % (fe2o3) 4.09
titanium dioxide % (tio2) 0.79
phosphorous pentoxide % (p2o5) 0.18
calcium oxide % (cao) 2.18
magnesium oxide % (mgo) 3.44
sulphur trioxide % (so3) 0.78
sodium oxide % (na2o) 2.64
potassium oxide % (k2o) 1.54

90.0 <= total <= 100.0

1

gcri coal division ash fusion proj KPN BLK LR DS DDH86004

sample id 00005
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 21/10/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1203.0	initial temp.(C)	1144.0
softening temp.(C)	1413.0	softening temp.(C)	1351.0
hemispherical temp.(C)	1456.0	hemispherical temp.(C)	1402.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0

oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86004

sample id 00005
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 21/10/86

silicon dioxide %	(sio2)	54.74
aluminium oxide %	(al2o3)	26.71
ferric oxide %	(fe2o3)	5.12
titanium dioxide %	(tio2)	1.19
phosphorous pentoxide %	(p2o5)	0.43
calcium oxide %	(cao)	2.04
magnesium oxide %	(mgo)	2.95
sulphur trioxide %	(so3)	0.81
sodium oxide %	(na2o)	2.40
potassium oxide %	(k2o)	1.12

90.0 <= total <= 100.0

2

gcri coal division ash fusion proj KPN BLK LR DS DDH86004

sample id 00005
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 21/10/86

oxidizing atmosphere	reducing atmosphere
initial temp.(C) 1278.0	initial temp.(C) 1225.0
softening temp.(C) 1297.0	softening temp.(C) 1281.0
hemispherical temp.(C) 1308.0	hemispherical temp.(C) 1289.0
fluid temp.(C) 1370.0	fluid temp.(C) 1362.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86004

sample id 00005
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 21/10/86

silicon dioxide %	(sio2)	43.62
aluminium oxide %	(al2o3)	26.33
ferric oxide %	(fe2o3)	6.55
titanium dioxide %	(tio2)	0.79
phosphorous pentoxide %	(p2o5)	3.37
calcium oxide %	(cao)	7.42
magnesium oxide %	(mgo)	4.02
sulphur trioxide %	(so3)	2.68
sodium oxide %	(na2o)	1.94
potassium oxide %	(k2o)	1.02

90.0 <= total <= 100.0

1

gcri coal division ash fusion proj KPN BLK LR DS DDH86004

```

=====
#00000000 20  RJ  YLS  WRX  lots  output  has  noisivib  leac  ltop
sample id 000006
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 21/10/86
oxidizing atmosphere reducing atmosphere
*****
initial temp.(C) 1273.0 initial temp.(C) 1233.0
softening temp.(C) 1286.0 softening temp.(C) 1249.0
hemispherical temp.(C) 1294.0 hemispherical temp.(C) 1262.0
fluid temp.(C) 1342.0 fluid temp.(C) 1337.0
normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps
0.0001 => values = 0.0001
0.0001 => values = 0.0001

```

gcri coal division ash mineral proj KPN BLK LR DS DDH86004

```

=====
#00000000 20  RJ  YLS  WRX  lots  lationim  has  noisivib  leac  ltop
sample id 000006
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 21/10/86
silicon dioxide % (sio2) 39.38
aluminium oxide % (al2o3) 21.04
ferric oxide % (fe2o3) 6.76
titanium dioxide % (tio2) 1.23
phosphorous pentoxide % (p2o5) 4.05
calcium oxide % (cao) 11.42
magnesium oxide % (mgo) 5.59
sulphur trioxide % (so3) 5.96
sodium oxide % (na2o) 1.81
potassium oxide % (k2o) 0.87
90.0 <= total <= 100.0
0.0001 => total = 0.0001

```

2

gcri coal division ash fusion proj KPN BLK LR DS DDH86004

sample id 00006 sample product id SP1 data type (real,boro,aver,calc) REAL split sample id AF4 date analysed 21/10/86

oxidizing atmosphere reducing atmosphere
initial temp.(C) = 1281.0 1257.0
softening temp.(C) 1294.0 1284.0
hemispherical temp.(C) 1311.0 1297.0
fluid temp.(C) 1409.0 1407.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86004

sample id 00006 sample product id SP1 data type (real,boro,aver,calc) REAL split sample id AM4 date analysed 21/10/86

silicon dioxide % (sio2) 56.54
aluminium oxide % (al2o3) 23.02
ferric oxide % (fe2o3) 4.49
titanium dioxide % (tio2) 0.65
phosphorous pentoxide % (p2o5) 0.33
calcium oxide % (cao) 4.14
magnesium oxide % (mgo) 2.83
sulphur trioxide % (so3) 2.29
sodium oxide % (na2o) 2.09
potassium oxide % (k2o) 1.44

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: H
 Field sample no.: 05419 Composite sample no.: 7
 Lab sample no.: 29261
 True sample thickness: 4.885 meters Drill core recovery(%): 86.15 %
 Coal/Rock: 3.859 / 1.026 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 31.81 20.56 15.42 23.77
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 5.21 3.23

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.81	
Ash (%):	43.65	44.01
Volatile matter (%):	8.27	8.34
Fixed carbon (%):	47.27	47.65
Total sulphur (%):	0.41	0.41
Combustible sulphur (%):	0.08	
Net calorific value (cal/g):	4187.00	4222.00
Gross calorific value (cal/g):	4187.00	4222.00
Volatile matter (dmmf %):	9.00	
Hardgrove index:	55.00	
Specific gravity:	1.73	
Carbon dioxide (%):	3.25	
Phosphorous in coal (%):	0.048	
Chlorine in coal (ppm):	2250.00	
Forms of Sulphur (%):	PYRITE 10.00	SULPHATE 00.00 ORGANIC 90.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	48.90	49.30
Hydrogen (%):	1.91	1.93
Nitrogen (%):	0.59	0.59
Oxygen (%):	3.73	3.76

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1235.00	1219.00
Softening temperature (°C):	1276.00	1233.00
Hemispherical temperature (°C):	1286.00	1243.00
Final temperature (°C):	1359.00	1321.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	61.72	TiO2 (%):	0.96
Al2O3 (%):	17.25	Na2O (%):	1.53
Fe2O3 (%):	3.77	K2O (%):	0.96
CaO (%):	5.96	SO3 (%):	1.87
MgO (%):	3.61	P2O5 (%):	0.25

1

gcri coal division ash fusion proj KPN BLK LR DS DDH86004

sample id 00007
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1294.0	initial temp.(C)	1268.0
softening temp.(C)	1335.0	softening temp.(C)	1300.0
hemispherical temp.(C)	1364.0	hemispherical temp.(C)	1332.0
fluid temp.(C)	1461.0	fluid temp.(C)	1459.0

normal ranges all temps.
 = 1000.0 >= values <= 1500.0
 oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86004

sample id 00007
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/11/86

silicon dioxide %	(sio2)	57.02
aluminium oxide %	(al2o3)	25.88
ferric oxide %	(fe2o3)	3.43
titanium dioxide %	(tio2)	1.41
phosphorous pentoxide %	(p2o5)	0.35
calcium oxide %	(cao)	4.09
magnesium oxide %	(mgo)	2.91
sulphur trioxide %	(so3)	1.55
sodium oxide %	(na2o)	2.10
potassium oxide %	(k2o)	1.23

90.0 <= total <= 100.0

2

gcri coal division ash fusion proj KPN BLK LR DS DDH86004

sample id 00007
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1268.0	initial temp.(C)	1217.0
softening temp.(C)	1386.0	softening temp.(C)	1332.0
hemispherical temp.(C)	1442.0	hemispherical temp.(C)	1394.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86004

sample id 00007
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/11/86

silicon dioxide %	(sio2)	55.80
aluminium oxide %	(al2o3)	28.35
ferric oxide %	(fe2o3)	3.34
titanium dioxide %	(tio2)	1.24
phosphorous pentoxide %	(p2o5)	0.36
calcium oxide %	(cao)	3.16
magnesium oxide %	(mgo)	2.53
sulphur trioxide %	(so3)	1.76
sodium oxide %	(na2o)	1.69
potassium oxide %	(k2o)	1.08

90.0 <= total <= 100.0

GULF CANADA CORPORATION - COAL DIVISION

MAR 30/87

WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRDDH86004 SEAM - H

SAMPLE ID - 7

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 67.79				ASH % - 48.30						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	1.18	2.38	1.18	2.38	98.82	49.16							0.75	0.75
1.45	1.22	6.25	2.40	4.35	97.60	49.69							0.72	0.73
1.50	1.77	11.31	4.17	7.30	95.83	50.40							0.76	0.75
1.55	4.87	16.70	9.04	12.37	90.96	52.21							0.55	0.64
1.60	6.45	22.16	15.49	16.44	84.51	54.50							0.71	0.67
1.70	25.15	29.62	40.64	24.60	59.36	65.04							0.68	0.68
1.80	9.53	36.17	50.17	26.80	49.83	70.56							0.76	0.69
2.00	10.24	46.02	60.41	30.05	39.59	76.91							0.76	0.70
2.60	39.59	76.91	100.00	48.60									0.48	0.61

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 23.77				ASH % - 36.77						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	3.83	1.93	3.83	1.93	96.17	35.68							0.68	0.68
1.45	8.78	5.25	12.61	4.24	87.39	38.73							0.67	0.67
1.50	8.93	9.34	21.54	6.36	78.46	42.08							0.71	0.69
1.55	10.86	14.15	32.40	8.97	67.60	46.57							0.64	0.67
1.60	7.51	18.22	39.91	10.71	60.09	50.11							0.74	0.68
1.70	15.01	21.86	54.92	13.76	45.08	59.51							1.57	0.93
1.80	11.12	28.99	66.04	16.32	33.96	69.51							1.60	1.04
2.00	8.33	42.28	74.37	19.23	25.63	78.36							1.22	1.06
2.60	25.63	78.36	100.00	34.38									1.04	1.06

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: H
 Field sample no.: 05420 Composite sample no.: 8
 Lab sample no.: 29261
 True sample thickness: 2.218 meters Drill core recovery(%): 77.63 %
 Coal/Rock: 2.088 / 0.130 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 22.64 23.86 17.75 28.94
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 4.35 2.46

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.81	
Ash (%) :	30.69	30.94
Volatile matter (%) :	8.67	8.74
Fixed carbon (%) :	59.83	60.32
Total sulphur (%) :	0.42	0.42
Combustible sulphur (%) :	0.08	
Net calorific value (cal/g) :	5368.00	5412.00
Gross calorific value (cal/g) :	5368.00	5412.00
Volatile matter (dmmf%) :	9.20	
Hardgrove index :	46.00	
Specific gravity :	1.57	
Carbon dioxide (%) :	3.95	
Phosphorous in coal (%) :	0.084	
Chlorine in coal (ppm) :	2480.00	
Forms of Sulphur (%) :	PYRITE 12.00	SULPHATE 00.00 ORGANIC 88.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%) :	61.84	62.35
Hydrogen (%) :	1.81	1.82
Nitrogen (%) :	0.68	0.69
Oxygen (%) :	3.75	3.78

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C) :	1225.00	1214.00
Softening temperature (°C) :	1265.00	1222.00
Hemispherical temperature (°C) :	1278.00	1230.00
Final temperature (°C) :	1348.00	1292.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	51.84	TiO2 (%) :	1.49
Al2O3 (%) :	19.90	Na2O (%) :	2.08
Fe2O3 (%) :	4.89	K2O (%) :	1.15
CaO (%) :	8.70	SO3 (%) :	2.75
MgO (%) :	4.39	P2O5 (%) :	0.63

1

gcri coal division ash fusion proj KPN BLK LR DS DDH86004

sample id 00008
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1297.0
softening temp.(C) 1321.0
hemispherical temp.(C) 1335.0
fluid temp.(C) 1402.0

initial temp.(C) 1262.0
softening temp.(C) 1284.0
hemispherical temp.(C) 1297.0
fluid temp.(C) 1391.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86004

sample id 00008
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/11/86

silicon dioxide % (sio2) 53.44
aluminium oxide % (al2o3) 25.33
ferric oxide % (fe2o3) 3.99
titanium dioxide % (tio2) 1.41
phosphorous pentoxide % (p2o5) 0.85
calcium oxide % (cao) 4.90
magnesium oxide % (mgo) 2.61
sulphur trioxide % (so3) 1.91
sodium oxide % (na2o) 2.24
potassium oxide % (k2o) 1.17

90.0 <= total <= 100.0

2

gcri coal division ash fusion proj KPN BLK LR DS DDH86004

sample id 00008
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1286.0
softening temp.(C) 1337.0
hemispherical temp.(C) 1388.0
fluid temp.(C) 1453.0

initial temp.(C) 1262.0
softening temp.(C) 1311.0
hemispherical temp.(C) 1354.0
fluid temp.(C) 1423.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86004

sample id 00008
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/11/86

silicon dioxide % (sio2) 53.64
aluminium oxide % (al2o3) 27.59
ferric oxide % (fe2o3) 3.82
titanium dioxide % (tio2) 1.01
phosphorous pentoxide % (p2o5) 0.79
calcium oxide % (cao) 3.89
magnesium oxide % (mgo) 2.98
sulphur trioxide % (so3) 1.64
sodium oxide % (na2o) 2.10
potassium oxide % (k2o) 1.16

90.0 <= total <= 100.0

KPNLRDDH86005

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86005

DATE - 04/03/87

- HISTORY -

START DATE - 24/08/86

END DATE - 25/08/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - SAVOIE

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - SEAMS J, I, H WERE INTERSECTED. SITE B. UPRIGHT. COA
L LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1623.33

ZONE - 9

NORTHING - 6344884.00

EASTING - 506166.87

LICENCE/LEASE NUMBER -

LATITUDE - 571456

LONGITUDE - 1285352

- ORIENTATION -

LENGTH - 102.72

INCLINATION - 80.0

AZIMUTH - 360.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

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

02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

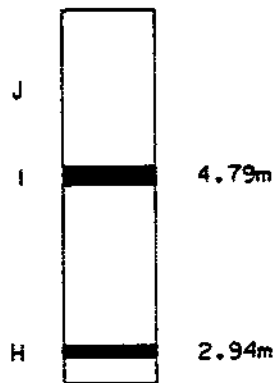
DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL	TOTAL ROCK

DDH86005		4472	40.04	41.00	100.00		0.857			0.000	0.857
	I	4473	41.00	44.46	48.27	1.289	0.206	1.555	0.045	2.844	0.251
	I	4474	44.46	46.35	60.32	1.021		0.671		1.692	0.000
		4475	46.35	46.56	100.00		0.188			0.000	0.188
		4476	89.54	90.45	100.00		0.853			0.000	0.853
	H	4477	90.45	92.23	79.21	0.931	0.408	0.349		1.280	0.408
	H	4478	92.23	93.53	100.00	1.210	0.038			1.210	0.038
		4479	93.53	95.41	100.00		1.827			0.000	1.827

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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
DDH86005	H	9	4477	4477	90.45	92.23	79.21	0.98	0.43	0.37	0.00	1.35- 0.43
	H	10	4478	4478	92.23	93.53	100.00	1.26	0.04	0.00	0.00	1.26- 0.04
	H	204	4477	4478	90.45	93.53	87.98	2.24	0.47	0.37	0.00	2.61- 0.47
	H	304	4477	4478	90.45	93.53	87.98	2.24	0.47	0.37	0.00	2.61- 0.47

SEAM TRUE SEAM THICKNESS
 (COAL & ROCK)



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86005

GULF CANADA CORPORATION
11/03/87
KLAP: [205057] 1870063005.L03



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86005
 Coal zone: H
 Field sample no.: 04477 Composite sample no.: 9
 Lab sample no.: 29261
 True sample thickness: 1.688 meters Drill core recovery(%): 79.21 %
 Coal/Rock: 1.280 / 0.408 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 30.78 24.13 16.18 22.58
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 4.13 2.20

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.01	
Ash (%):	55.75	56.32
Volatile matter (%):	6.63	6.70
Fixed carbon (%):	36.61	36.98
Total sulphur (%):	1.07	1.08
Combustible sulphur (%):	0.89	
Net calorific value (cal/g):	3160.00	3192.00
Gross calorific value (cal/g):	3160.00	3192.00
Volatile matter (dmmf %):	4.60	
Hardgrove index:	56.00	
Specific gravity:	1.84	
Carbon dioxide (%):	0.90	
Phosphorous in coal (%):	0.037	
Chlorine in coal (ppm):	2680.00	
Forms of Sulphur (%):	PYRITE 96.00	SULPHATE 02.00 ORGANIC 02.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	36.99	37.37
Hydrogen (%):	1.88	1.90
Nitrogen (%):	0.48	0.48
Oxygen (%):	2.82	2.85

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1302.00	1268.00
Softening temperature (°C):	1391.00	1340.00
Hemispherical temperature (°C):	1437.00	1386.00
Final temperature (°C):	1472.00	1472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	63.82	TiO2 (%):	1.15
Al2O3 (%):	21.79	Na2O (%):	2.02
Fe2O3 (%):	4.26	K2O (%):	1.74
CaO (%):	1.23	SO3 (%):	0.80
MgO (%):	1.61	P2O5 (%):	0.15

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86005
 Coal zone: H
 Field sample no.: 04478 Composite sample no.: 10
 Lab sample no.: 29261
 True sample thickness: 1.248 meters Drill core recovery(%): 100.00 %
 Coal/Rock: 1.210 / 0.038 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight(%): 21.36 24.13 15.31 31.32
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight(%): 5.34 2.54

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.63	
Ash (%) :	25.98	26.14
Volatile matter (%) :	7.86	7.91
Fixed carbon (%) :	65.53	65.95
Total sulphur (%) :	0.44	0.44
Combustible sulphur (%) :	0.07	
Net calorific value(cal/g) :	5908.00	5945.00
Gross calorific value(cal/g) :	5908.00	5945.00
Volatile matter (dmmf%) :	7.90	
Hardgrove index:	45.00	
Specific gravity:	1.42	
Carbon dioxide (%) :	2.55	
Phosphorous in coal (%) :	0.116	
Chlorine in coal (ppm) :	2860.00	
Forms of Sulphur (%) :	PYRITE 09.00	SULPHATE 00.00 ORGANIC 91.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%) :	67.92	68.35
Hydrogen (%) :	1.93	1.94
Nitrogen (%) :	0.76	0.76
Oxygen (%) :	2.34	2.37

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C) :	1208.00	1187.00
Softening temperature(°C) :	1246.00	1206.00
Hemispherical temperature(°C) :	1265.00	1225.00
Final temperature(°C) :	1472.00	1284.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	59.02	TiO2 (%) :	1.14
Al2O3 (%) :	14.86	Na2O (%) :	1.51
Fe2O3 (%) :	5.52	K2O (%) :	0.58
CaO (%) :	7.19	SO3 (%) :	3.53
MgO (%) :	3.52	P2O5 (%) :	1.02

1

gcri coal division ash fusion proj KPN BLK LR DS DDH86005

sample id 00009
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1380.0

initial temp.(C) 1337.0

softening temp.(C) 1472.0

softening temp.(C) 1394.0

hemispherical temp.(C) 1472.0

hemispherical temp.(C) 1439.0

fluid temp.(C) 1472.0

fluid temp.(C) 1472.0

normal ranges all temps.

1000.0 >= values <= 1500.0

oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86005

sample id 00009
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/11/86

silicon dioxide % (sio2) 58.16

aluminium oxide % (al2o3) 26.84

ferric oxide % (fe2o3) 3.56

titanium dioxide % (tio2) 1.42

phosphorous pentoxide % (p2o5) 0.18

calcium oxide % (cao) 1.96

magnesium oxide % (mgo) 2.30

sulphur trioxide % (so3) 1.23

sodium oxide % (na2o) 2.16

potassium oxide % (k2o) 1.55

90.0 <= total <= 100.0

2

gcri coal division ash fusion proj KPN BLK LR DS DDH86005

sample id 00009
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/11/86

oxidizing atmosphere reducing atmosphere
initial temp.(C) 1235.0 initial temp.(C) 1184.0
softening temp.(C) 1472.0 softening temp.(C) 1391.0
hemispherical temp.(C) 1472.0 hemispherical temp.(C) 1450.0
fluid temp.(C) 1472.0 fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86005

sample id 00009
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/11/86

silicon dioxide % (sio2) 56.52
aluminium oxide % (al2o3) 28.73
ferric oxide % (fe2o3) 3.92
titanium dioxide % (tio2) 1.11
phosphorous pentoxide % (p2o5) 0.21
calcium oxide % (cao) 1.85
magnesium oxide % (mgo) 3.20
sulphur trioxide % (so3) 0.98
sodium oxide % (na2o) 2.05
potassium oxide % (k2o) 1.42

90.0 <= total <= 100.0

①

gcri coal division ash fusion proj KPN BLK LR DS DDH86005

sample id 00010
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1286.0
softening temp.(C) 1308.0
hemispherical temp.(C) 1321.0
fluid temp.(C) 1391.0

initial temp.(C) 1233.0
softening temp.(C) 1260.0
hemispherical temp.(C) 1278.0
fluid temp.(C) 1378.0

normal ranges all temps.

1000.0 >= values <= 1500.0

oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86005

sample id 00010
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/11/86

silicon dioxide % (sio2) 56.04
aluminium oxide % (al2o3) 23.06
ferric oxide % (fe2o3) 5.31
titanium dioxide % (tio2) 1.31
phosphorous pentoxide % (p2o5) 1.26
calcium oxide % (cao) 4.79
magnesium oxide % (mgo) 3.19
sulphur trioxide % (so3) 2.46
sodium oxide % (na2o) 1.81
potassium oxide % (k2o) 0.61

90.0 <= total <= 100.0

2

gcri coal division ash fusion proj KPN BLK LR DS DDH86005

sample id 00010 data type (real,boro,aver,calc) REAL
sample product id SP1 date analysed 20/11/86
split sample id AF4

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1300.0
softening temp.(C) 1332.0
hemispherical temp.(C) 1364.0
fluid temp.(C) 1436.0

initial temp.(C) 1249.0
softening temp.(C) 1262.0
hemispherical temp.(C) 1294.0
fluid temp.(C) 1434.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86005

sample id 00010 data type (real,boro,aver,calc) REAL
sample product id SP1 date analysed 20/11/86
split sample id AM4

silicon dioxide % (sio2) 53.94
aluminium oxide % (al2o3) 24.57
ferric oxide % (fe2o3) 5.25
titanium dioxide % (tio2) 1.12
phosphorous pentoxide % (p2o5) 1.18
calcium oxide % (cao) 4.25
magnesium oxide % (mgo) 3.03
sulphur trioxide % (so3) 1.89
sodium oxide % (na2o) 1.74
potassium oxide % (k2o) 0.63

90.0 <= total <= 100.0

KPNLRDDH86006

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPnlRDDH86006

DATE - 04/03/87

- HISTORY -

START DATE - 25/08/86
END DATE - 26/08/86

CONTRACTOR - J.T. THOMAS
GEOLOGIST - LOVE

OPERATOR - G.C.C.
SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC
ELEVATION - 1592.60

ZONE - 9
NORTHING - 6344957.00
EASTING - 506566.25

LICENCE/LEASE NUMBER -

LATITUDE - 571458
LONGITUDE - 1285328

- ORIENTATION -

LENGTH - 91.74

INCLINATION - 80.0
AZIMUTH - 355.0

CORE SIZE - 0.0

CEMENT - N
PLUG - N
PIEZ - N

CASING DEPTH (M) - 21.34
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE



02/APR/87

GULF CANADA CORPORATION - COAL DIVISION
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

PAGE 1

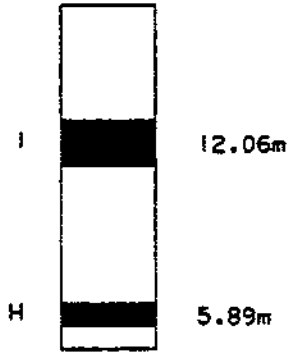
DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED		MISSING		TOTAL	
						COAL	ROCK	COAL	ROCK	COAL	ROCK

DDHB6006		4489	27.24	28.44	100.00		0.849			0.000	0.849
	I	4490	28.44	42.43	27.81	3.070	0.349	8.080	0.559	11.150	0.908
		4491	42.43	43.83	100.00		1.360			0.000	1.360
		4492	77.16	78.50	100.00		1.112			0.000	1.112
	H	4493	78.50	82.69	100.00	3.148	0.591			3.148	0.591
	H	4494	82.69	84.95	85.84	1.665	0.182	0.226	0.075	1.891	0.257
		4495	84.95	86.27	100.00		1.284			0.000	1.284

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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
DDH86006												
H		11	4493	4493	78.50	82.69	100.00	3.53	0.66	0.00	0.00	3.53- 0.66
H		12	4494	4494	82.69	84.95	85.84	1.75	0.19	0.24	0.08	1.99- 0.27
H		205	4493	4494	78.50	84.95	95.03	5.28	0.85	0.24	0.08	5.52- 0.93
H		305	4493	4494	78.50	84.95	95.03	5.28	0.85	0.24	0.08	5.52- 0.93

SEAM TRUE SEAM THICKNESS
 (COAL & ROCK)



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

**1986 DIAMOND DRILL HOLES
DDH86006**

GULF CANADA CORPORATION
11/03/87
KLAP:12050571870063006.LOG



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86006
 Coal zone: H
 Field sample no.: 04493 Composite sample no.: 11
 Lab sample no.: 29261
 True sample thickness: 3.739 meters Drill core recovery(%): 100.00 %
 Coal/Rock: 3.148 / 0.591 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 27.24 22.46 14.15 26.27
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 6.07 3.81

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.80	
Ash (%):	40.98	41.31
Volatile matter (%):	8.08	8.15
Fixed carbon (%):	50.14	50.54
Total sulphur (%):	0.34	0.34
Combustible sulphur (%):	0.05	
Net calorific value (cal/g):	4522.00	4559.00
Gross calorific value (cal/g):	4522.00	4559.00
Volatile matter (dmmf %):	8.60	
Hardgrove index:	56.00	
Specific gravity:	1.69	
Carbon dioxide (%):	3.04	
Phosphorous in coal (%):	0.048	
Chlorine in coal (ppm):	2400.00	
Forms of Sulphur (%):	PYRITE 12.00	SULPHATE 00.00 ORGANIC 88.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	51.45	51.87
Hydrogen (%):	1.79	1.80
Nitrogen (%):	0.61	0.61
Oxygen (%):	4.03	4.07

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1265.00	1233.00
Softening temperature (°C):	1289.00	1246.00
Hemispherical temperature (°C):	1311.00	1260.00
Final temperature (°C):	1375.00	1354.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	59.36	TiO2 (%):	1.18
Al2O3 (%):	18.90	Na2O (%):	2.21
Fe2O3 (%):	4.22	K2O (%):	0.87
CaO (%):	5.26	SO3 (%):	1.77
MgO (%):	3.56	P2O5 (%):	0.27

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86006
 Coal zone: H
 Field sample no.: 04494 Composite sample no.: 12
 Lab sample no.: 29261
 True sample thickness: 2.148 meters Drill core recovery (%): 85.84 %
 Coal/Rock: 1.891 / 0.257 meters

----- RAW HEAD ANALYSIS (HBI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 38.39 24.34 13.01 19.93
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 2.88 1.45

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.87	
Ash (%):	32.60	32.89
Volatile matter (%):	8.19	8.26
Fixed carbon (%):	58.34	58.85
Total sulphur (%):	0.36	0.36
Combustible sulphur (%):	0.07	
Net calorific value (cal/g):	5256.00	5302.00
Gross calorific value (cal/g):	5256.00	5302.00
Volatile matter (dmmf%):	8.60	
Hardgrove index:	46.00	
Specific gravity:	1.59	
Carbon dioxide (%):	3.26	
Phosphorous in coal (%):	0.141	
Chlorine in coal (ppm):	2480.00	
Forms of Sulphur (%):	PYRITE 11.00	SULPHATE 00.00 ORGANIC 89.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	59.91	60.44
Hydrogen (%):	2.05	2.07
Nitrogen (%):	0.68	0.69
Oxygen (%):	3.53	3.55

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1230.00	1203.00
Softening temperature (°C):	1276.00	1219.00
Hemispherical temperature (°C):	1286.00	1225.00
Final temperature (°C):	1388.00	1308.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	56.38	TiO2 (%):	1.17
Al2O3 (%):	18.39	Na2O (%):	2.18
Fe2O3 (%):	6.91	K2O (%):	0.67
CaO (%):	5.20	SO3 (%):	2.20
MgO (%):	3.48	P2O5 (%):	0.99

①

gcri coal division ash fusion proj KPN BLK LR DS DDH86006

sample id 00011
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1294.0
softening temp.(C) 1302.0
hemispherical temp.(C) 1316.0
fluid temp.(C) 1380.0

initial temp.(C) 1246.0
softening temp.(C) 1262.0
hemispherical temp.(C) 1278.0
fluid temp.(C) 1343.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86006

sample id 00011
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/11/86

silicon dioxide % (sio2) 57.08
aluminium oxide % (al2o3) 21.92
ferric oxide % (fe2o3) 4.82
titanium dioxide % (tio2) 1.00
phosphorous pentoxide % (p2o5) 0.23
calcium oxide % (cao) 5.91
magnesium oxide % (mgo) 3.37
sulphur trioxide % (so3) 1.63
sodium oxide % (na2o) 2.08
potassium oxide % (k2o) 0.63

90.0 <= total <= 100.0

2

gcri coal division ash fusion proj KPN BLK LR DS DDH86006

sample id 00011
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1321.0
softening temp.(C) 1418.0
hemispherical temp.(C) 1472.0
fluid temp.(C) 1472.0

initial temp.(C) 1262.0
softening temp.(C) 1362.0
hemispherical temp.(C) 1405.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86006

sample id 00011
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/11/86

silicon dioxide % (sio2) 55.46
aluminium oxide % (al2o3) 29.48
ferric oxide % (fe2o3) 4.23
titanium dioxide % (tio2) 1.12
phosphorous pentoxide % (p2o5) 0.21
calcium oxide % (cao) 2.52
magnesium oxide % (mgo) 2.69
sulphur trioxide % (so3) 1.78
sodium oxide % (na2o) 1.71
potassium oxide % (k2o) 0.79

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86006

sample id 00012
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/11/86

oxidizing atmosphere initial temp.(C) 1362.0
softening temp.(C) 1418.0
hemispherical temp.(C) 1461.0
fluid temp.(C) 1472.0
reducing atmosphere initial temp.(C) 1300.0
softening temp.(C) 1354.0
hemispherical temp.(C) 1394.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86006

sample id 00012
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/11/86

silicon dioxide % (sio2) 59.46
aluminium oxide % (al2o3) 22.68
ferric oxide % (fe2o3) 4.13
titanium dioxide % (tio2) 1.17
phosphorous pentoxide % (p2o5) 1.00
calcium oxide % (cao) 2.88
magnesium oxide % (mgo) 2.79
sulphur trioxide % (so3) 2.97
sodium oxide % (na2o) 1.91
potassium oxide % (k2o) 0.95

90.0 <= total <= 100.0

2

ecri coal division ash fusion proj KPN BLK LR DS DDH86006

sample id 00012
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/11/86

oxidizing atmosphere
initial temp.(C) 1311.0
softening temp.(C) 1329.0
hemispherical temp.(C) 1356.0
fluid temp.(C) 1418.0
reducing atmosphere
initial temp.(C) 1276.0
softening temp.(C) 1294.0
hemispherical temp.(C) 1321.0
fluid temp.(C) 1414.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

ecri coal division ash mineral proj KPN BLK LR DS DDH8600

sample id 00012
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/11/86

silicon dioxide % (sio2) 53.06
aluminium oxide % (al2o3) 26.46
ferric oxide % (fe2o3) 4.14
titanium dioxide % (tio2) 0.72
phosphorous pentoxide % (p2o5) 0.80
calcium oxide % (cao) 4.79
magnesium oxide % (mgo) 2.88
sulphur trioxide % (so3) 1.98
sodium oxide % (na2o) 2.18
potassium oxide % (k2o) 0.70

90.0 <= total <= 100.0

KPNLRDDH86007

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86007

DATE - 04/03/87

- HISTORY -

START DATE - 26/08/86

END DATE - 27/08/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - BARKER

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE. THERMISTOR AT 7
5 M.

- LOCATION -

PROVINCE - BC

ELEVATION - 1568.88

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6344780.00

EASTING - 507445.50

LATITUDE - 571453

LONGITUDE - 1285236

- ORIENTATION -

LENGTH - 168.55

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 16.76

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE 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
DDHB6007		4480	97.85	98.96	100.00		1.006			0.000- 1.006
	I	4481	98.96	100.72	83.52	1.270	0.063	0.263		1.533- 0.063
	I	4482	100.72	102.61	100.00	1.522	0.190			1.522- 0.190
	I	4483	102.61	105.11	95.20	2.157		0.109		2.266- 0.000
		4484	105.11	105.41	100.00		0.272			0.000- 0.272
		4485	156.88	157.89	100.00		0.902			0.000- 0.902
	H	4486	157.89	159.30	85.11	0.973	0.119	0.091	0.100	1.064- 0.219
	H	4487	159.30	161.84	95.67	2.100	0.169	0.104		2.204- 0.169
		4488	161.84	162.53	100.00		0.657			0.000- 0.657

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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
DDH86007												
I		13	4481	4481	98.96	100.72	83.52	1.40	0.07	0.29	0.00	1.69- 0.07
I		14	4482	4482	100.72	102.61	100.00	1.68	0.21	0.00	0.00	1.68- 0.21
I		15	4483	4483	102.61	105.11	95.20	2.38	0.00	0.12	0.00	2.50- 0.00
H		16	4486	4486	157.89	159.30	85.10	1.07	0.13	0.10	0.11	1.17- 0.24
H		17	4487	4487	159.30	161.84	95.66	2.25	0.18	0.11	0.00	2.36- 0.18
I		206	4481	4482	98.96	102.61	92.05	3.08	0.28	0.29	0.00	3.37- 0.28
I		207	4483	4483	102.61	105.11	95.20	2.38	0.00	0.12	0.00	2.50- 0.00
H		208	4486	4487	157.89	161.84	91.89	3.32	0.31	0.21	0.11	3.53- 0.42
I		306	4481	4483	98.96	105.11	93.33	5.46	0.28	0.41	0.00	5.87- 0.28
H		308	4486	4487	157.89	161.84	91.89	3.32	0.31	0.21	0.11	3.53- 0.42

**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86007
 Coal zone: 1
 Field sample no.: 04481 Composite sample no.: 13
 Lab sample no.: 29162
 True sample thickness: 1.596 meters Drill core recovery(%): 83.52 %
 Coal/Rock: 1.533 / 0.063 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 30.42 23.54 15.60 24.59
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 3.77 2.08

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.16	
Ash (%):	27.94	28.27
Volatile matter (%):	7.56	7.65
Fixed carbon (%):	63.34	64.08
Total sulphur (%):	0.36	0.36
Combustible sulphur (%):	0.05	
Net calorific value (cal/g):	5801.00	5868.00
Gross calorific value (cal/g):	5801.00	5868.00
Volatile matter (dmmf%):	7.60	
Hardgrove index:	51.00	
Specific gravity:	1.58	
Carbon dioxide (%):	2.58	
Phosphorous in coal (%):	0.050	
Chlorine in coal (ppm):	1560.00	
Forms of Sulphur (%):	PYRITE 03.00	SULPHATE 00.00 ORGANIC 97.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	64.31	65.06
Hydrogen (%):	2.09	2.11
Nitrogen (%):	0.74	0.75
Oxygen (%):	3.40	3.45

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1265.00	1217.00
Softening temperature (°C):	1278.00	1233.00
Hemispherical temperature (°C):	1289.00	1251.00
Final temperature (°C):	1367.00	1321.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	58.80	TiO2 (%):	0.50
Al2O3 (%):	17.26	Na2O (%):	1.82
Fe2O3 (%):	4.25	K2O (%):	1.84
CaO (%):	5.91	SO3 (%):	2.80
MgO (%):	3.98	P2O5 (%):	0.41

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86007
 Coal zone: 1
 Field sample no.: 04482 Composite sample no.: 14
 Lab sample no.: 29162
 True sample thickness: 1.712 meters Drill core recovery(%): 100.00 %
 Coal/Rock: 1.522 / 0.190 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size(mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight(%): 22.59 21.17 15.84 32.47
 Fraction size(mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight(%): 5.02 2.91

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture(%) :	1.30	
Ash(%) :	28.65	29.03
Volatile matter(%) :	7.46	7.56
Fixed carbon(%) :	62.59	63.41
Total sulphur(%) :	0.39	0.40
Combustible sulphur(%) :	0.25	
Net calorific value(cal/g) :	5734.00	5809.00
Gross calorific value(cal/g) :	5734.00	5809.00
Volatile matter(dmmf%) :	7.50	
Hardgrove index:	47.00	
Specific gravity:	1.58	
Carbon dioxide(%) :	1.63	
Phosphorous in coal(%) :	0.025	
Chlorine in coal(ppm) :	2320.00	
Forms of Sulphur(%) :	PYRITE 03.00	SULPHATE 00.00 ORGANIC 97.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon(%) :	63.35	64.19
Hydrogen(%) :	2.19	2.22
Nitrogen(%) :	0.90	0.91
Oxygen(%) :	3.22	3.25

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C) :	1278.00	1203.00
Softening temperature(°C) :	1337.00	1289.00
Hemispherical temperature(°C) :	1356.00	1311.00
Final temperature(°C) :	1453.00	1448.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2(%) :	57.72	TiO2(%) :	0.92
Al2O3(%) :	23.80	Na2O(%) :	2.45
Fe2O3(%) :	5.13	K2O(%) :	1.14
CaO(%) :	2.13	SO3(%) :	1.23
MgO(%) :	3.02	P2O5(%) :	0.20

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86007
 Coal zone: 1
 Field sample no.: 04483 Composite sample no.: 15
 Lab sample no.: 29162
 True sample thickness: 2.266 meters Drill core recovery (%): 95.20 %
 Coal/Rock: 2.266 / 0.000 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 30.80 20.26 13.93 26.65
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 5.23 3.13

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.35	
Ash (%):	12.94	13.12
Volatile matter (%):	6.91	7.00
Fixed carbon (%):	78.80	79.88
Total sulphur (%):	0.46	0.47
Combustible sulphur (%):	0.32	
Net calorific value (cal/g):	7136.00	7233.00
Gross calorific value (cal/g):	7137.00	7234.00
Volatile matter (dmmf%):	6.80	
Hardgrove index:	41.00	
Specific gravity:	1.45	
Carbon dioxide (%):	1.55	
Phosphorous in coal (%):	0.196	
Chlorine in coal (ppm):	2120.00	
Forms of Sulphur (%):	PYRITE 07.00	SULPHATE 00.00 ORGANIC 91.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	78.58	79.66
Hydrogen (%):	2.56	2.60
Nitrogen (%):	0.92	0.93
Oxygen (%):	3.19	3.22

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1260.00	1179.00
Softening temperature (°C):	1276.00	1208.00
Hemispherical temperature (°C):	1286.00	1217.00
Final temperature (°C):	1313.00	1308.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	46.29	TiO2 (%):	0.94
Al2O3 (%):	21.86	Na2O (%):	1.87
Fe2O3 (%):	8.73	K2O (%):	0.99
CaO (%):	7.03	SO3 (%):	2.66
MgO (%):	3.79	P2O5 (%):	3.47

1

gcri coal division ash fusion proj KPN BLK LR DS DDH86007

sample id 00013
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 21/10/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1270.0
softening temp.(C) 1284.0
hemispherical temp.(C) 1305.0
fluid temp.(C) 1350.0

initial temp.(C) 1246.0
softening temp.(C) 1262.0
hemispherical temp.(C) 1294.0
fluid temp.(C) 1345.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86007

sample id 00013
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 21/10/86

silicon dioxide % (sio2) 57.86
aluminium oxide % (al2o3) 18.90
ferric oxide % (fe2o3) 4.26
titanium dioxide % (tio2) 0.64
phosphorous pentoxide % (p2o5) 0.68
calcium oxide % (cao) 5.37
magnesium oxide % (mgo) 3.71
sulphur trioxide % (so3) 3.04
sodium oxide % (na2o) 1.51
potassium oxide % (k2o) 1.76

90.0 <= total <= 100.0

2

gcri coal division ash fusion proj KPN BLK LR DS DDH86007

sample id 00013
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 21/10/86

oxidizing atmosphere reducing atmosphere
initial temp.(C) 1286.0 initial temp.(C) 1233.0
softening temp.(C) 1316.0 softening temp.(C) 1302.0
hemispherical temp.(C) 1348.0 hemispherical temp.(C) 1340.0
fluid temp.(C) 1448.0 fluid temp.(C) 1432.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86007

sample id 00013
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 21/10/86

silicon dioxide % (sio2) 56.38
aluminium oxide % (al2o3) 24.44
ferric oxide % (fe2o3) 3.50
titanium dioxide % (tio2) 0.64
phosphorous pentoxide % (p2o5) 0.50
calcium oxide % (cao) 3.27
magnesium oxide % (mgo) 2.94
sulphur trioxide % (so3) 1.91
sodium oxide % (na2o) 2.35
potassium oxide % (k2o) 1.76

90.0 <= total <= 100.0

1

gcri coal division ash fusion proj KPN BLK LR DS DDH86007

sample id 00014
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 21/10/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1286.0
softening temp.(C) 1343.0
hemispherical temp.(C) 1372.0
fluid temp.(C) 1450.0

initial temp.(C) 1235.0
softening temp.(C) 1294.0
hemispherical temp.(C) 1321.0
fluid temp.(C) 1426.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86007

sample id 00014
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 21/10/86

silicon dioxide % (sio2) 58.06
aluminium oxide % (al2o3) 22.30
ferric oxide % (fe2o3) 5.63
titanium dioxide % (tio2) 0.92
phosphorous pentoxide % (p2o5) 0.27
calcium oxide % (cao) 2.77
magnesium oxide % (mgo) 3.11
sulphur trioxide % (so3) 1.51
sodium oxide % (na2o) 2.18
potassium oxide % (k2o) 1.05

90.0 <= total <= 100.0

2

gcri coal division ash fusion proj KPN BLK LR DS DDH86007

sample id 00014 data type (real,boro,aver,calc) REAL
sample product id SP1 date analysed 21/10/86
split sample id AF4

oxidizing atmosphere reducing atmosphere
initial temp.(C) 1268.0 1211.0
softening temp.(C) 1278.0 1233.0
hemispherical temp.(C) 1294.0 1257.0
fluid temp.(C) 1391.0 1367.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86007

sample id 00014 data type (real,boro,aver,calc) REAL
sample product id SP1 date analysed 21/10/86
split sample id AM4

silicon dioxide % (sio2) 55.76
aluminium oxide % (al2o3) 19.15
ferric oxide % (fe2o3) 8.28
titanium dioxide % (tio2) 0.79
phosphorous pentoxide % (p2o5) 0.54
calcium oxide % (cao) 3.47
magnesium oxide % (mgo) 4.15
sulphur trioxide % (so3) 2.24
sodium oxide % (na2o) 2.40
potassium oxide % (k2o) 0.91

90.0 <= total <= 100.0

1

gcri coal division ash fusion proj KPN BLK LR DS DDH66007

sample id 00015
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 21/10/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1284.0
softening temp.(C) 1289.0
hemispherical temp.(C) 1294.0
fluid temp.(C) 1348.0

initial temp.(C) 1208.0
softening temp.(C) 1265.0
hemispherical temp.(C) 1289.0
fluid temp.(C) 1345.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH66007

sample id 00015
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 21/10/86

silicon dioxide % (sio2) 47.84
aluminium oxide % (al2o3) 24.57
ferric oxide % (fe2o3) 5.38
titanium dioxide % (tio2) 1.23
phosphorous pentoxide % (p2o5) 3.20
calcium oxide % (cao) 6.19
magnesium oxide % (mgo) 3.48
sulphur trioxide % (so3) 2.79
sodium oxide % (na2o) 1.97
potassium oxide % (k2o) 1.16

90.0 <= total <= 100.0

2

gcri coal division ash fusion proj KPN BLK LR DS DDH86007

sample id 00015 data type (real,boro,aver,calc) REAL
sample product id SP1 date analysed 21/10/86
split sample id AF4

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1254.0
softening temp.(C) 1407.0
hemispherical temp.(C) 1450.0
fluid temp.(C) 1472.0

initial temp.(C) 1179.0
softening temp.(C) 1380.0
hemispherical temp.(C) 1410.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86007

sample id 00015 data type (real,boro,aver,calc) REAL
sample product id SP1 date analysed 21/10/86
split sample id AM4

silicon dioxide % (sio2) 54.60
aluminium oxide % (al2o3) 27.60
ferric oxide % (fe2o3) 4.56
titanium dioxide % (tio2) 0.92
phosphorous pentoxide % (p2o5) 0.40
calcium oxide % (cao) 2.41
magnesium oxide % (mgo) 3.17
sulphur trioxide % (so3) 0.84
sodium oxide % (na2o) 2.32
potassium oxide % (k2o) 1.08

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86007
 Coal zone: H
 Field sample no.: 04486 Composite sample no.: 16
 Lab sample no.: 29261
 True sample thickness: 1.283 meters Drill core recovery (%): 85.10 %
 Coal/Rock: 1.064 / 0.219 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 18.10 20.83 15.58 32.44
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 7.88 5.17

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.67	
Ash (%):	38.08	38.34
Volatile matter (%):	7.58	7.63
Fixed carbon (%):	53.67	54.03
Total sulphur (%):	0.33	0.33
Combustible sulphur (%):	0.07	
Net calorific value (cal/g):	4842.00	4875.00
Gross calorific value (cal/g):	4842.00	4875.00
Volatile matter (dmmf %):	7.60	
Hardgrove index:	78.00	
Specific gravity:	1.67	
Carbon dioxide (%):	1.88	
Phosphorous in coal (%):	0.068	
Chlorine in coal (ppm):	2610.00	
Forms of Sulphur (%):	PYRITE 06.00	SULPHATE 00.00 ORGANIC 94.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	55.82	56.19
Hydrogen (%):	1.91	1.92
Nitrogen (%):	0.65	0.65
Oxygen (%):	2.54	2.57

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1286.00	1270.00
Softening temperature (°C):	1302.00	1286.00
Hemispherical temperature (°C):	1329.00	1321.00
Final temperature (°C):	1407.00	1404.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	65.92	TiO2 (%):	0.81
Al2O3 (%):	17.51	Na2O (%):	1.50
Fe2O3 (%):	2.90	K2O (%):	0.81
CaO (%):	3.78	SO3 (%):	1.70
MgO (%):	2.36	P2O5 (%):	0.41

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86007
 Coal zone: H
 Field sample no.: 04487 Composite sample no.: 17
 Lab sample no.: 29261
 True sample thickness: 2.373 meters Drill core recovery(%): 95.66 %
 Coal/Rock: 2.204 / 0.169 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 22.29 21.84 13.50 30.77
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 7.32 4.28

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.65	
Ash (%):	28.69	28.88
Volatile matter (%):	8.82	8.88
Fixed carbon (%):	61.84	62.24
Total sulphur (%):	0.39	0.39
Combustible sulphur (%):	0.07	
Net calorific value (cal/g):	5569.00	5605.00
Gross calorific value (cal/g):	5569.00	5605.00
Volatile matter (dmmf%):	9.40	
Hardgrove index:	52.00	
Specific gravity:	1.56	
Carbon dioxide (%):	3.80	
Phosphorous in coal (%):	0.154	
Chlorine in coal (ppm):	2420.00	
Forms of Sulphur (%):	PYRITE 10.00	SULPHATE 00.00 ORGANIC 90.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	63.89	64.31
Hydrogen (%):	1.92	1.93
Nitrogen (%):	0.68	0.68
Oxygen (%):	3.78	3.81

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1235.00	1217.00
Softening temperature (°C):	1251.00	1225.00
Hemispherical temperature (°C):	1286.00	1230.00
Final temperature (°C):	1337.00	1311.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	52.40	TiO2 (%):	1.34
Al2O3 (%):	18.01	Na2O (%):	2.08
Fe2O3 (%):	7.29	K2O (%):	0.86
CaO (%):	8.01	SO3 (%):	2.75
MgO (%):	4.21	P2O5 (%):	1.23

1

gcri coal division ash fusion proj KPN BLK LR DS DDH86007

sample id 00017
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1343.0
softening temp.(C) 1375.0
hemispherical temp.(C) 1429.0
fluid temp.(C) 1472.0

initial temp.(C) 1327.0
softening temp.(C) 1359.0
hemispherical temp.(C) 1391.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86007

sample id 00017
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/11/86

silicon dioxide % (sio2) 56.60
aluminium oxide % (al2o3) 26.84
ferric oxide % (fe2o3) 3.45
titanium dioxide % (tio2) 0.81
phosphorous pentoxide % (p2o5) 0.80
calcium oxide % (cao) 4.31
magnesium oxide % (mgo) 2.36
sulphur trioxide % (so3) 2.04
sodium oxide % (na2o) 1.73
potassium oxide % (k2o) 0.68

90.0 <= total <= 100.0

2

gcri coal division ash fusion proj KPN BLK LR DS DDH86007

sample id 00017
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1332.0 1284.0
softening temp.(C) 1343.0 1294.0
hemispherical temp.(C) 1370.0 1316.0
fluid temp.(C) 1439.0 1394.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86007

sample id 00017
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/11/86

silicon dioxide % (sio2) 58.40
aluminium oxide % (al2o3) 21.55
ferric oxide % (fe2o3) 3.91
titanium dioxide % (tio2) 1.34
phosphorous pentoxide % (p2o5) 1.01
calcium oxide % (cao) 5.21
magnesium oxide % (mgo) 2.78
sulphur trioxide % (so3) 2.83
sodium oxide % (na2o) 1.72
potassium oxide % (k2o) 0.76

90.0 <= total <= 100.0

①

gcri coal division ash fusion proj KPN BLK LR DS DDH86007

sample id 00016
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1324.0
softening temp.(C) 1354.0
hemispherical temp.(C) 1388.0
fluid temp.(C) 1466.0

initial temp.(C) 1308.0
softening temp.(C) 1335.0
hemispherical temp.(C) 1364.0
fluid temp.(C) 1458.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86007

sample id 00016
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/11/86

silicon dioxide % (sio2) 55.90
aluminium oxide % (al2o3) 25.70
ferric oxide % (fe2o3) 3.01
titanium dioxide % (tio2) 1.08
phosphorous pentoxide % (p2o5) 0.45
calcium oxide % (cao) 4.39
magnesium oxide % (mgo) 2.21
sulphur trioxide % (so3) 2.24
sodium oxide % (na2o) 1.58
potassium oxide % (k2o) 0.85

90.0 <= total <= 100.0

2

gcri coal division ash fusion proj KPN BLK LR DS DDH86007

sample id 00016
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1364.0
softening temp.(C) 1418.0
hemispherical temp.(C) 1464.0
fluid temp.(C) 1472.0

initial temp.(C) 1302.0
softening temp.(C) 1354.0
hemispherical temp.(C) 1394.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86007

sample id 00016
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/11/86

silicon dioxide % (sio2) 61.01
aluminium oxide % (al2o3) 23.95
ferric oxide % (fe2o3) 2.60
titanium dioxide % (tio2) 1.19
phosphorous pentoxide % (p2o5) 0.48
calcium oxide % (cao) 3.27
magnesium oxide % (mgo) 2.95
sulphur trioxide % (so3) 1.87
sodium oxide % (na2o) 1.75
potassium oxide % (k2o) 0.92

90.0 <= total <= 100.0

KPNLRDDH86008

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86008

DATE - 04/03/87

- HISTORY -

START DATE - 27/08/86

END DATE - 29/08/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - SAVOIE

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - SITE D. COAL LOGGED BY BRAD VANDENBUSSCHE. PIEZ AT
110 M, STAND PIPE (1.5") AT 88 M.

- LOCATION -

PROVINCE - BC

ELEVATION - 1614.37

ZONE - 9

NORTHING - 6344918.00

EASTING - 507080.94

LICENCE/LEASE NUMBER -

LATITUDE - 571457

LONGITUDE - 1285258

- ORIENTATION -

LENGTH - 136.25

INCLINATION - 77.0

AZIMUTH - 350.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - Y

CASING DEPTH (M) - 19.81

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

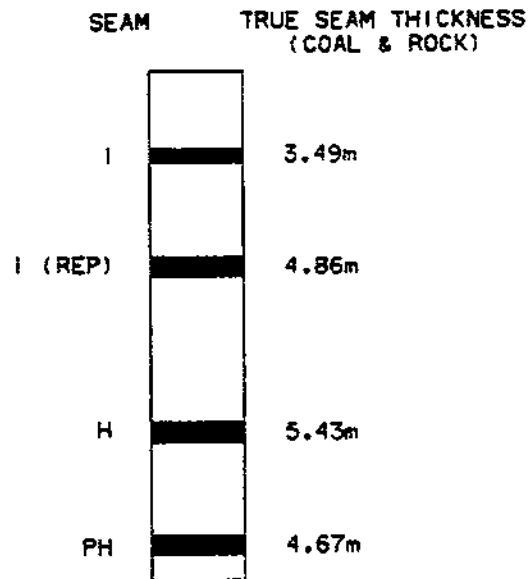
02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL	TOTAL ROCK
DDHB6008		5422	47.69	48.74	100.00		0.909			0.000	0.909
	I REP	5423	48.74	50.66	59.90	0.997		0.468	0.199	1.465	0.199
	I REP	5424	50.66	52.63	79.19	1.074	0.277		0.355	1.074	0.632
	I REP	5425	52.63	54.35	100.00	1.489				1.489	0.000
		5426	54.35	56.10	100.00		1.516			0.000	1.516
		5427	92.69	93.65	100.00		0.914			0.000	0.914
	H	5428	93.65	94.50	90.59	0.728		0.076		0.804	0.000
	H	5429	94.50	95.26	100.00	0.047	0.669			0.047	0.669
	H	5430	95.26	97.08	90.66	1.279	0.260	0.158		1.437	0.260
	H	5431	97.08	100.01	84.30	2.024	0.237	0.417		2.441	0.237
		5432	100.01	100.53	100.00		0.468			0.000	0.468
		5433	123.39	124.33	100.00		0.908			0.000	0.908
	PH	5434	124.33	125.13	100.00	0.772				0.772	0.000
	PH	5435	125.13	125.49	100.00		0.348			0.000	0.348
	PH	5436	125.49	127.04	85.81	1.189	0.097	0.213		1.402	0.097
	PH	5437	127.04	129.17	98.59	1.942	0.087	0.029		1.971	0.087
		5438	129.17	129.39	100.00		0.213			0.000	0.213
		5439	20.12	20.92	100.00		0.769			0.000	0.769
	I	5440	20.92	21.96	53.85	0.442	0.096	0.461		0.903	0.096
	I	5441	21.96	24.56	48.46	1.019	0.193	1.182	0.106	2.201	0.299
		5442	24.56	24.69	100.00		0.125			0.000	0.125

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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

DDHB6008												
	I	18	5423	5424	48.74	52.63	69.66	2.39	0.32	0.54	0.64	2.93- 0.96
	I	19	5425	5425	52.63	54.35	100.00	1.72	0.00	0.00	0.00	1.72- 0.00
	H	20	5428	5430	93.65	97.08	92.71	2.19	0.99	0.25	0.00	2.44- 0.99
	H	21	5431	5431	97.08	100.01	84.30	2.21	0.26	0.46	0.00	2.67- 0.26
	PH	22	5434	5435	124.33	125.49	100.00	0.80	0.36	0.00	0.00	0.80- 0.36
	PH	23	5436	5436	125.49	127.04	85.80	1.23	0.10	0.22	0.00	1.45- 0.10
	PH	24	5437	5437	127.04	129.17	98.59	2.01	0.09	0.03	0.00	2.04- 0.09
	I	209	5423	5424	48.74	52.63	69.66	2.39	0.32	0.54	0.64	2.93- 0.96
	I	210	5425	5425	52.63	54.35	100.00	1.72	0.00	0.00	0.00	1.72- 0.00
	H	211	5428	5431	93.65	100.01	88.83	4.40	1.25	0.71	0.00	5.11- 1.25
	H REP	212	5434	5437	124.33	129.17	94.83	4.04	0.55	0.25	0.00	4.29- 0.55
	I	309	5423	5425	48.74	54.35	78.96	4.11	0.32	0.54	0.64	4.65- 0.96
	H	311	5428	5431	93.65	100.01	88.83	4.40	1.25	0.71	0.00	5.11- 1.25
	H REP	312	5434	5437	124.33	129.17	94.83	4.04	0.55	0.25	0.00	4.29- 0.55



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
D0H86008

GULF CANADA CORPORATION
11/03/87
KLAP: (205057)870063008.L09



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86008
 Coal zone: 1
 Field sample no.: 05423 - 05424 Composite sample no.: 18
 Lab sample no.: 29162
 True sample thickness: 3.370 meters Drill core recovery (%): 69.66 %
 Coal/Rock: 2.539 / 0.831 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 35.20 21.58 15.88 22.01
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 3.42 1.91

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.50	
Ash (%):	27.95	28.37
Volatile matter (%):	7.19	7.30
Fixed carbon (%):	63.36	64.33
Total sulphur (%):	0.44	0.45
Combustible sulphur (%):	0.24	
Net calorific value (cal/g):	5848.00	5937.00
Gross calorific value (cal/g):	5848.00	5937.00
Volatile matter (dmmf %):	7.10	
Hardgrove index:	44.00	
Specific gravity:	1.57	
Carbon dioxide (%):	2.01	
Phosphorous in coal (%):	0.040	
Chlorine in coal (ppm):	2080.00	
Forms of Sulphur (%):	PYRITE 05.00	SULPHATE 00.00 ORGANIC 95.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	63.63	64.60
Hydrogen (%):	2.19	2.22
Nitrogen (%):	0.87	0.88
Oxygen (%):	3.42	3.48

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1273.00	1217.00
Softening temperature (°C):	1289.00	1249.00
Hemispherical temperature (°C):	1311.00	1289.00
Final temperature (°C):	1410.00	1394.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	55.86	TiO2 (%):	0.92
Al2O3 (%):	22.55	Na2O (%):	2.45
Fe2O3 (%):	5.86	K2O (%):	1.11
CaO (%):	3.25	SO3 (%):	1.78
MgO (%):	3.65	P2O5 (%):	0.33

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86008
 Coal zone: 1
 Field sample no.: 05425 Composite sample no.: 19
 Lab sample no.: 29162
 True sample thickness: 1.489 meters Drill core recovery (%): 100.00 %
 Coal/Rock: 1.489 / 0.000 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 13.79 16.97 21.90 38.47
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 5.10 3.77

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.18	
Ash (%):	11.17	11.30
Volatile matter (%):	6.79	6.87
Fixed carbon (%):	80.86	81.83
Net calorific value (cal/g):	7382.00	7470.00
Gross calorific value (cal/g):	7383.00	7471.00
Volatile matter (dmmf %):	6.80	
Hardgrove index:	40.00	
Specific gravity:	1.44	
Carbon dioxide (%):	1.12	
Phosphorous in coal (%):	0.214	
Chlorine in coal (ppm):	2200.00	
Forms of Sulphur (%):	PYRITE 04.00	SULPHATE 00.00 ORGANIC 96.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	80.42	81.38
Hydrogen (%):	2.45	2.48
Nitrogen (%):	0.95	0.96
Oxygen (%):	3.35	3.88

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1276.00	1214.00
Softening temperature (°C):	1300.00	1276.00
Hemispherical temperature (°C):	1311.00	1289.00
Final temperature (°C):	1340.00	1319.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	44.44	TiO2 (%):	1.19
Al2O3 (%):	23.44	Na2O (%):	1.94
Fe2O3 (%):	7.08	K2O (%):	1.06
CaO (%):	8.73	SO3 (%):	2.21
MgO (%):	3.77	P2O5 (%):	4.38

gcri coal division ash fusion proj KPN BLK LR DS DDH86008
=====

sample id 00018
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 21/10/86

oxidizing atmosphere

initial temp.(C) 1289.0
softening temp.(C) 1343.0
hemispherical temp.(C) 1375.0
fluid temp.(C) 1461.0

reducing atmosphere

initial temp.(C) 1251.0
softening temp.(C) 1294.0
hemispherical temp.(C) 1327.0
fluid temp.(C) 1442.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86008
=====

sample id 00018
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 21/10/86

silicon dioxide %	(sio2)	55.60
aluminium oxide %	(al2o3)	24.57
ferric oxide %	(fe2o3)	5.68
titanium dioxide %	(tio2)	0.64
phosphorous pentoxide %	(p2o5)	0.21
calcium oxide %	(cao)	2.18
magnesium oxide %	(mgo)	4.24
sulphur trioxide %	(so3)	0.99
sodium oxide %	(na2o)	2.45
potassium oxide %	(k2o)	1.28

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86008
=====

sample id 00018
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 21/10/86

oxidizing atmosphere

initial temp.(C) 1257.0
softening temp.(C) 1308.0
hemispherical temp.(C) 1316.0
fluid temp.(C) 1348.0

reducing atmosphere

initial temp.(C) 1182.0
softening temp.(C) 1292.0
hemispherical temp.(C) 1300.0
fluid temp.(C) 1342.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86008
=====

sample id 00018
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 21/10/86

silicon dioxide %	(sio2)	40.58
aluminium oxide %	(al2o3)	27.02
ferric oxide %	(fe2o3)	6.00
titanium dioxide %	(tio2)	0.81
phosphorous pentoxide %	(p2o5)	4.34
calcium oxide %	(cao)	9.25
magnesium oxide %	(mgo)	4.37
sulphur trioxide %	(so3)	2.68
sodium oxide %	(na2o)	1.91
potassium oxide %	(k2o)	0.95

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86008
=====

sample id 00019
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 21/10/86

oxidizing atmosphere
oooooooooooooooooooo

reducing atmosphere
oooooooooooooooooooo

initial temp.(C)	1268.0	initial temp.(C)	1214.0
softening temp.(C)	1311.0	softening temp.(C)	1284.0
hemispherical temp.(C)	1319.0	hemispherical temp.(C)	1294.0
fluid temp.(C)	1355.0	fluid temp.(C)	1351.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86008
=====

sample id 00019
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 21/10/86

silicon dioxide %	(sio2)	39.58
aluminium oxide %	(al2o3)	22.68
ferric oxide %	(fe2o3)	7.15
titanium dioxide %	(tio2)	1.23
phosphorous pentoxide %	(p2o5)	3.52
calcium oxide %	(cao)	10.13
magnesium oxide %	(mgo)	5.47
sulphur trioxide %	(so3)	4.97
sodium oxide %	(na2o)	1.94
potassium oxide %	(k2o)	1.03

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86008
=====

sample id 00019
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 21/10/86

oxidizing atmosphere

initial temp.(C) 1300.0
softening temp.(C) 1342.0
hemispherical temp.(C) 1357.0
fluid temp.(C) 1399.0

reducing atmosphere

initial temp.(C) 1297.0
softening temp.(C) 1340.0
hemispherical temp.(C) 1354.0
fluid temp.(C) 1396.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86008
=====

sample id 00019
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 21/10/86

silicon dioxide %	(sio2)	46.82
aluminium oxide %	(al2o3)	26.08
ferric oxide %	(fe2o3)	4.07
titanium dioxide %	(tio2)	1.19
phosphorous pentoxide %	(p2o5)	3.94
calcium oxide %	(cao)	8.12
magnesium oxide %	(mgo)	2.82
sulphur trioxide %	(so3)	1.86
sodium oxide %	(na2o)	2.00
potassium oxide %	(k2o)	1.04

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86008
 Coal zone: H
 Field sample no.: 05428 - 05430 Composite sample no.: 20
 Lab sample no.: 29261
 True sample thickness: 3.217 meters Drill core recovery(%): 92.71 %
 Coal/Rock: 2.288 / 0.929 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size(mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight(%): 31.61 27.24 13.42 22.09
 Fraction size(mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight(%): 3.81 1.83

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture(%) :	0.55	
Ash(%) :	55.28	55.58
Volatile matter(%) :	9.09	9.14
Fixed carbon(%) :	35.08	35.28
Total sulphur(%) :	0.36	0.36
Combustible sulphur(%) :	0.13	
Net calorific value(cal/g) :	3016.00	3033.00
Gross calorific value(cal/g) :	3016.00	3033.00
Volatile matter(dmmf%) :	11.50	
Hardgrove index:	63.00	
Specific gravity:	1.86	
Carbon dioxide(%) :	5.04	
Phosphorous in coal(%) :	0.058	
Chlorine in coal(ppm) :	2680.00	
Forms of Sulphur(%) :	PYRITE 31.00	SULPHATE 00.00 ORGANIC 69.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon(%) :	36.76	36.96
Hydrogen(%) :	1.91	1.92
Nitrogen(%) :	0.45	0.45
Oxygen(%) :	4.69	4.73

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C) :	1286.00	1270.00
Softening temperature(°C) :	1329.00	1292.00
Hemispherical temperature(°C) :	1343.00	1311.00
Final temperature(°C) :	1375.00	1365.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2(%) :	58.66	TiO2(%) :	1.06
Al2O3(%) :	19.52	Na2O(%) :	1.83
Fe2O3(%) :	5.22	K2O(%) :	1.45
CaO(%) :	5.74	SO3(%) :	1.03
MgO(%) :	3.61	P2O5(%) :	0.24

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86008
 Coal zone: H
 Field sample no.: 05431 Composite sample no.: 21
 Lab sample no.: 29261
 True sample thickness: 2.678 meters Drill core recovery(%): 84.30 %
 Coal/Rock: 2.441 / 0.237 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 33.07 22.48 16.72 20.91
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 4.22 2.60

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.47	
Ash (%):	35.06	35.22
Volatile matter (%):	8.68	8.72
Fixed carbon (%):	55.79	56.06
Total sulphur (%):	0.40	0.40
Combustible sulphur (%):	0.11	
Net calorific value (cal/g):	5050.00	5074.00
Gross calorific value (cal/g):	5050.00	5074.00
Volatile matter (dmmf%):	9.40	
Hardgrove index:	56.00	
Specific gravity:	1.65	
Carbon dioxide (%):	3.53	
Phosphorous in coal (%):	0.119	
Chlorine in coal (ppm):	2460.00	
Forms of Sulphur (%):	PYRITE 12.00	SULPHATE 00.00 ORGANIC 88.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	57.25	57.52
Hydrogen (%):	1.76	1.77
Nitrogen (%):	0.65	0.65
Oxygen (%):	4.41	4.44

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1246.00	1198.00
Softening temperature (°C):	1257.00	1230.00
Hemispherical temperature (°C):	1276.00	1249.00
Final temperature (°C):	1370.00	1311.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	58.84	TiO2 (%):	1.13
Al2O3 (%):	16.63	Na2O (%):	2.13
Fe2O3 (%):	4.66	K2O (%):	0.72
CaO (%):	7.14	SO3 (%):	2.06
MgO (%):	3.81	P2O5 (%):	0.78

gcri coal division ash fusion proj KPN BLK LR DS DDH26008
=====

sample id 00020
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AFG date analysed 20/11/86

oxidizing atmosphere

initial temp.(C) 1386.0
softening temp.(C) 1472.0
hemispherical temp.(C) 1472.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1337.0
softening temp.(C) 1396.0
hemispherical temp.(C) 1439.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH26008
=====

sample id 00020
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/11/86

silicon dioxide %	(sio2)	54.38
aluminium oxide %	(al2o3)	28.35
ferric oxide %	(fe2o3)	3.74
titanium dioxide %	(tio2)	1.44
phosphorous pentoxide %	(p2o5)	0.33
calcium oxide %	(cao)	3.11
magnesium oxide %	(mgo)	2.36
sulphur trioxide %	(so3)	1.45
sodium oxide %	(na2o)	2.02
potassium oxide %	(k2o)	1.54

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86008
=====

sample id 00020
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/11/86

oxidizing atmosphere

initial temp.(C) 1472.0
softening temp.(C) 1472.0
hemispherical temp.(C) 1472.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1434.0
softening temp.(C) 1472.0
hemispherical temp.(C) 1472.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH8600F
=====

sample id 00020
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/11/86

silicon dioxide %	(sio2)	53.10
aluminium oxide %	(al2o3)	31.00
ferric oxide %	(fe2o3)	3.52
titanium dioxide %	(tio2)	1.13
phosphorous pentoxide %	(p2o5)	0.27
calcium oxide %	(cao)	2.60
magnesium oxide %	(mgo)	2.34
sulphur trioxide %	(so3)	1.40
sodium oxide %	(na2o)	1.87
potassium oxide %	(k2o)	1.34

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DCH86008
=====

sample id 00021
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/11/86

oxidizing atmosphere

initial temp.(C) 1332.0
softening temp.(C) 1345.0
hemispherical temp.(C) 1364.0
fluid temp.(C) 1402.0

reducing atmosphere

initial temp.(C) 1321.0
softening temp.(C) 1332.0
hemispherical temp.(C) 1354.0
fluid temp.(C) 1398.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DCH86008
=====

sample id 00021
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/11/86

silicon dioxide %	(sio2)	55.00
aluminium oxide %	(al2o3)	22.42
ferric oxide %	(fe2o3)	3.87
titanium dioxide %	(tio2)	1.53
phosphorous pentoxide %	(p2o5)	0.88
calcium oxide %	(cao)	5.57
magnesium oxide %	(mgo)	3.07
sulphur trioxide %	(so3)	2.76
sodium oxide %	(na2o)	1.85
potassium oxide %	(k2o)	0.79

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86008
=====

sample id 00021
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/11/86

oxidizing atmosphere
"*****"

initial temp.(C) 1351.0
softening temp.(C) 1367.0
hemispherical temp.(C) 1386.0
fluid temp.(C) 1453.0

reducing atmosphere
"*****"

initial temp.(C) 1337.0
softening temp.(C) 1354.0
hemispherical temp.(C) 1370.0
fluid temp.(C) 1437.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86008
=====

sample id 00021
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/11/86

silicon dioxide %	(sio2)	53.32
aluminium oxide %	(al2o3)	28.42
ferric oxide %	(fe2o3)	3.42
titanium dioxide %	(tio2)	1.21
phosphorous pentoxide %	(p2o5)	0.78
calcium oxide %	(cao)	5.32
magnesium oxide %	(mgo)	2.54
sulphur trioxide %	(so3)	2.34
sodium oxide %	(na2o)	1.81
potassium oxide %	(k2o)	0.79

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86008
 Coal zone: PH
 Field sample no.: 05434 - 05435 Composite sample no.: 22
 Lab sample no.: 29264
 True sample thickness: 1.120 meters Drill core recovery(%): 100.00 %
 Coal/Rock: 0.772 / 0.348 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size(mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight(%): 24.47 21.35 15.88 28.48
 Fraction size(mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight(%): 6.15 3.67

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture(%) :	0.61	
Ash(%) :	50.35	50.66
Volatile matter(%) :	11.35	11.42
Fixed carbon(%) :	37.69	37.92
Total sulphur(%) :	0.28	0.28
Combustible sulphur(%) :	0.07	
Net calorific value(cal/g) :	3449.00	3470.00
Gross calorific value(cal/g) :	3449.00	3470.00
Volatile matter(dmmf%) :	16.10	
Hardgrove index:	79.00	
Specific gravity:	1.77	
Carbon dioxide(%) :	7.72	
Phosphorous in coal(%) :	0.097	
Chlorine in coal(ppm) :	2620.00	
Forms of Sulphur(%) :	PYRITE 07.00	SULPHATE 00.00 ORGANIC 93.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon(%) :	42.42	42.68
Hydrogen(%) :	1.48	1.49
Nitrogen(%) :	0.47	0.47
Oxygen(%) :	4.39	4.42

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C) :	1268.00	1225.00
Softening temperature(°C) :	1292.00	1249.00
Hemispherical temperature(°C) :	1302.00	1260.00
Final temperature(°C) :	1335.00	1297.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2(%) :	51.26	TiO2(%) :	1.40
Al2O3(%) :	21.17	Na2O(%) :	2.75
Fe2O3(%) :	5.68	K2O(%) :	0.85
CaO(%) :	10.07	SO3(%) :	1.06
MgO(%) :	5.25	P2O5(%) :	0.44

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86008
 Coal zone: PH
 Field sample no.: 05436 Composite sample no.: 23
 Lab sample no.: 29326
 True sample thickness: 1.499 meters Drill core recovery (%): 85.80 %
 Coal/Rock: 1.402 / 0.097 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 21.12 19.46 13.31 34.10
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 8.33 3.68

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.99	
Ash (%):	26.76	27.03
Volatile matter (%):	8.23	8.31
Fixed carbon (%):	64.02	64.66
Total sulphur (%):	0.37	0.37
Net calorific value (cal/g):	5652.00	5709.00
Gross calorific value (cal/g):	5652.00	5709.00
Volatile matter (dmmf %):	8.50	
Hardgrove index:	63.00	
Specific gravity:	1.54	
Carbon dioxide (%):	3.70	
Phosphorous in coal (%):	0.141	
Chlorine in coal (ppm):	2400.00	
Forms of Sulphur (%):	PYRITE 05.00	SULPHATE 00.00 ORGANIC 95.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	66.24	66.90
Hydrogen (%):	1.99	2.01
Nitrogen (%):	0.72	0.73
Oxygen (%):	2.93	2.96

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1208.00	1187.00
Softening temperature (°C):	1219.00	1198.00
Hemispherical temperature (°C):	1230.00	1203.00
Final temperature (°C):	1246.00	1208.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	50.56	TiO2 (%):	1.17
Al2O3 (%):	17.26	Na2O (%):	1.91
Fe2O3 (%):	7.72	K2O (%):	0.63
CaO (%):	9.10	SO3 (%):	3.44
MgO (%):	4.73	P2O5 (%):	1.21

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86008
 Coal zone: PH
 Field sample no.: 05437 Composite sample no.: 24
 Lab sample no.: 29326
 True sample thickness: 2.058 meters Drill core recovery (%): 98.59 %
 Coal/Rock: 1.971 / 0.087 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 18.16 20.93 16.03 33.56
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 7.51 3.81

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.04	
Ash (%):	28.56	28.86
Volatile matter (%):	7.68	7.76
Fixed carbon (%):	62.72	63.38
Total sulphur (%):	0.37	0.37
Combustible sulphur (%):	0.11	
Net calorific value (cal/g):	5750.00	5811.00
Gross calorific value (cal/g):	5750.00	5811.00
Volatile matter (dmmf %):	7.80	
Hardgrove index:	41.00	
Specific gravity:	1.57	
Carbon dioxide (%):	6.29	
Phosphorous in coal (%):	0.084	
Chlorine in coal (ppm):	2436.00	
Forms of Sulphur (%):	PYRITE 05.00	SULPHATE 00.00 ORGANIC 95.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	64.25	64.92
Hydrogen (%):	1.78	1.80
Nitrogen (%):	0.66	0.67
Oxygen (%):	3.34	3.38

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1203.00	1176.00
Softening temperature (°C):	1217.00	1184.00
Hemispherical temperature (°C):	1225.00	1192.00
Final temperature (°C):	1276.00	1241.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	50.79	TiO2 (%):	0.92
Al2O3 (%):	14.53	Na2O (%):	1.80
Fe2O3 (%):	11.79	K2O (%):	0.66
CaO (%):	8.48	SO3 (%):	2.29
MgO (%):	6.48	P2O5 (%):	0.67

gcri coal division ash fusion proj KPN BLK LR DS DSH86008
=====

sample id 00022
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 24/11/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1324.0	initial temp.(C)	1297.0
softening temp.(C)	1375.0	softening temp.(C)	1343.0
hemispherical temp.(C)	1423.0	hemispherical temp.(C)	1386.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DSH86008
=====

sample id 00022
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 24/11/86

silicon dioxide %	(sio2)	54.22
aluminium oxide %	(al2o3)	27.60
ferric oxide %	(fe2o3)	3.17
titanium dioxide %	(tio2)	1.99
phosphorous pentoxide %	(p2o5)	0.63
calcium oxide %	(cao)	3.90
magnesium oxide %	(mgo)	2.56
sulphur trioxide %	(so3)	2.46
sodium oxide %	(na2o)	2.25
potassium oxide %	(k2o)	0.94

90.0 <= total <= 100.0

agri coal division ash fusion proj KPN BLK LR DS DDH86008
=====

sample id 00022
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 24/11/86

oxidizing atmosphere
#####

initial temp.(C) 1396.0
softening temp.(C) 1472.0
hemispherical temp.(C) 1472.0
fluid temp.(C) 1472.0

reducing atmosphere
#####

initial temp.(C) 1354.0
softening temp.(C) 1383.0
hemispherical temp.(C) 1429.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

agri coal division ash mineral proj KPN BLK LR DS DDH86008
=====

sample id 00022
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 24/11/86

silicon dioxide %	(sio2)	54.78
aluminium oxide %	(al2o3)	27.60
ferric oxide %	(fe2o3)	3.37
titanium dioxide %	(tio2)	2.01
phosphorous pentoxide %	(p2o5)	0.61
calcium oxide %	(cao)	3.41
magnesium oxide %	(mgo)	2.45
sulphur trioxide %	(so3)	2.00
sodium oxide %	(na2o)	2.12
potassium oxide %	(k2o)	0.86

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DCH86008
=====

sample id 00023
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 02/12/86

oxidizing atmosphere

initial temp.(C) 1268.0
softening temp.(C) 1278.0
hemispherical temp.(C) 1292.0
fluid temp.(C) 1337.0

reducing atmosphere

initial temp.(C) 1241.0
softening temp.(C) 1251.0
hemispherical temp.(C) 1265.0
fluid temp.(C) 1321.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DCH86008
=====

sample id 00023
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 02/12/86

silicon dioxide %	(sio2)	54.98
aluminium oxide %	(al2o3)	20.79
ferric oxide %	(fe2o3)	3.97
titanium dioxide %	(tio2)	1.65
phosphorous pentoxide %	(p2o5)	1.14
calcium oxide %	(cao)	6.47
magnesium oxide %	(mgo)	3.38
sulphur trioxide %	(so3)	3.19
sodium oxide %	(na2o)	1.85
potassium oxide %	(k2o)	0.78

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86008
=====

sample id 00023
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 02/12/86

oxidizing atmosphere

initial temp.(C) 1278.0
softening temp.(C) 1292.0
hemispherical temp.(C) 1300.0
fluid temp.(C) 1326.0

reducing atmosphere

initial temp.(C) 1262.0
softening temp.(C) 1273.0
hemispherical temp.(C) 1278.0
fluid temp.(C) 1348.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86008
=====

sample id 00023
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 02/12/86

silicon dioxide %	(sio2)	58.22
aluminium oxide %	(al2o3)	20.49
ferric oxide %	(fe2o3)	3.54
titanium dioxide %	(tio2)	1.18
phosphorous pentoxide %	(p2o5)	0.91
calcium oxide %	(cao)	5.60
magnesium oxide %	(mgo)	2.77
sulphur trioxide %	(so3)	2.40
sodium oxide %	(na2o)	1.71
potassium oxide %	(k2o)	0.74

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86008
=====

sample id 00024
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 02/12/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1278.0	initial temp.(C)	1257.0
softening temp.(C)	1337.0	softening temp.(C)	1300.0
hemispherical temp.(C)	1372.0	hemispherical temp.(C)	1351.0
fluid temp.(C)	1472.0	fluid temp.(C)	1461.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86008
=====

sample id 00024
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 02/12/86

silicon dioxide %	(sio2)	52.88
aluminium oxide %	(al2o3)	26.58
ferric oxide %	(fe2o3)	4.00
titanium dioxide %	(tio2)	1.03
phosphorous pentoxide %	(p2o5)	1.02
calcium oxide %	(cao)	4.00
magnesium oxide %	(mgo)	3.02
sulphur trioxide %	(so3)	1.67
sodium oxide %	(na2o)	2.37
potassium oxide %	(k2o)	1.07

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86008
=====

sample id 00024
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 02/12/86

oxidizing atmosphere

initial temp.(C) 1286.0
softening temp.(C) 1329.0
hemispherical temp.(C) 1380.0
fluid temp.(C) 1461.0

reducing atmosphere

initial temp.(C) 1260.0
softening temp.(C) 1286.0
hemispherical temp.(C) 1335.0
fluid temp.(C) 1460.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86008
=====

sample id 00024
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 02/12/86

silicon dioxide %	(sio2)	52.61
aluminium oxide %	(al2o3)	27.16
ferric oxide %	(fe2o3)	4.36
titanium dioxide %	(tio2)	0.93
phosphorous pentoxide %	(p2o5)	0.89
calcium oxide %	(cao)	4.16
magnesium oxide %	(mgo)	3.08
sulphur trioxide %	(so3)	1.39
sodium oxide %	(na2o)	2.28
potassium oxide %	(k2o)	0.98

90.0 <= total <= 100.0

KPNLRDDH86009

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86009

DATE - 04/03/87

- HISTORY -

START DATE - 28/08/86

END DATE - 01/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - LOVE

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE. TWO STAND PIPES
(1") AT 201 M, (1") AT 128 M.

- LOCATION -

PROVINCE - BC

ELEVATION - 1595.68

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6344517.00

EASTING - 507379.69

LATITUDE - 571444

LONGITUDE - 1285240

- ORIENTATION -

LENGTH - 209.40

INCLINATION - 78.0

AZIMUTH - 78.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 18.29

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED		MISSING		TOTAL	
						COAL	ROCK	COAL	ROCK	COAL	ROCK
DDH86009											
	H	5268	193.71	196.08	100.00	2.250	0.079			2.250	0.079
	H	5269	196.08	201.52	95.04	4.327	0.770	0.267		4.594	0.770
		5270	201.52	202.44	100.00		0.910			0.000	0.910
		5443	68.54	70.29	100.00		1.686			0.000	1.686
	K	5444	70.29	74.78	83.96	3.591	0.107	0.707		4.298	0.107
	K	5445	74.78	74.90	100.00		0.119			0.000	0.119
	K	5446	74.90	76.20	100.00	0.785	0.507			0.785	0.507
		5447	76.20	76.82	100.00		0.618			0.000	0.618
		5448	188.53	189.15	100.00		0.606			0.000	0.606
	H	5449	189.15	190.50	100.00	1.320				1.320	0.000
	H	5450	190.50	193.71	100.00	0.813	2.333			0.813	2.333

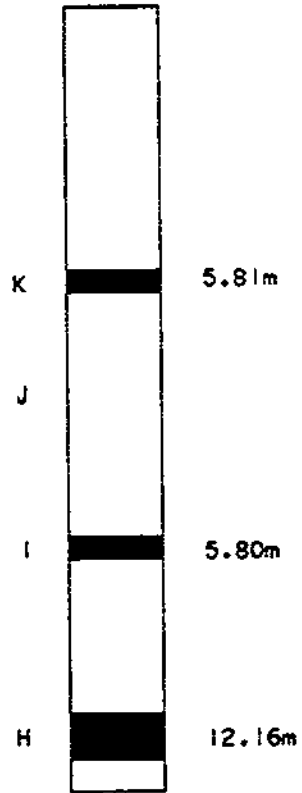
02/APR/87

GULF CANADA CORPORATION - COAL DIVISION
 COMPOSITE SAMPLE SUMMARY
 APPARENT THICKNESS
 KLAPPAN PROJECT

PAGE 1

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
DDHB6009												
	K	25	5444	5444	70.29	74.78	83.96	3.66	0.11	0.72	0.00	4.38- 0.11
	K	26	5445	5446	74.78	76.20	100.00	0.79	0.63	0.00	0.00	0.79- 0.63
	H	27	5450	5450	190.50	193.71	100.00	0.83	2.38	0.00	0.00	0.83- 2.38
	H	28	5268	5268	193.71	196.08	100.00	2.29	0.08	0.00	0.00	2.29- 0.08
	H	29	5269	5269	196.08	201.52	95.03	4.39	0.78	0.27	0.00	4.66- 0.78
	H	30	5449	5449	189.15	190.50	100.00	1.35	0.00	0.00	0.00	1.35- 0.00
	K	213	5444	5446	70.29	76.20	87.81	4.45	0.74	0.72	0.00	5.17- 0.74
		214					0.00					-
	K	313	5444	5446	70.29	76.20	87.81	4.45	0.74	0.72	0.00	5.17- 0.74
		314					0.00					-

SEAM TRUE SEAM THICKNESS
 (COAL & ROCK)



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86009

GULF CANADA CORPORATION
11/03/87
KLAP:(205057)1870063009.LOG



===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86009
 Coal zone: K
 Field sample no.: 05444 Composite sample no.: 25
 Lab sample no.: 29326
 True sample thickness: 4.405 meters Drill core recovery (%): 83.96 %
 Coal/Rock: 4.298 / 0.107 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 23.18 20.83 12.08 31.54
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 8.01 4.36

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.35	
Ash (%):	28.34	28.73
Volatile matter (%):	8.19	8.30
Fixed carbon (%):	62.12	62.97
Total sulphur (%):	0.41	0.42
Combustible sulphur (%):	0.14	
Net calorific value (cal/g):	5774.00	5853.00
Gross calorific value (cal/g):	5774.00	5853.00
Volatile matter (dmmf%):	8.50	
Hardgrove index:	57.00	
Specific gravity:	1.56	
Carbon dioxide (%):	2.95	
Phosphorous in coal (%):	0.067	
Chlorine in coal (ppm):	2380.00	
Forms of Sulphur (%):	PYRITE 07.00	SULPHATE 00.00 ORGANIC 93.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	64.41	65.29
Hydrogen (%):	1.87	1.90
Nitrogen (%):	0.79	0.80
Oxygen (%):	2.83	2.86

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1273.00	1235.00
Softening temperature (°C):	1286.00	1257.00
Hemispherical temperature (°C):	1308.00	1273.00
Final temperature (°C):	1391.00	1354.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	51.93	TiO2 (%):	1.43
Al2O3 (%):	23.73	Na2O (%):	1.94
Fe2O3 (%):	6.64	K2O (%):	1.44
CaO (%):	4.28	SO3 (%):	2.35
MgO (%):	3.45	P2O5 (%):	0.54

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86009
 Coal zone: K
 Field sample no.: 05445 - 05446 Composite sample no.: 26
 Lab sample no.: 29326
 True sample thickness: 1.411 meters Drill core recovery(%): 100.00 %
 Coal/Rock: 0.785 / 0.626 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight(%): 22.47 25.77 14.78 25.76
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight(%): 7.09 4.13

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture(%) :	1.40	
Ash(%) :	60.99	61.86
Volatile matter(%) :	7.97	8.08
Fixed carbon(%) :	29.64	30.06
Total sulphur(%) :	0.51	0.52
Combustible sulphur(%) :	0.35	
Net calorific value(cal/g) :	2749.00	2788.00
Gross calorific value(cal/g) :	2749.00	2788.00
Volatile matter(dmmf%) :	8.90	
Hardgrove index:	58.00	
Specific gravity:	1.81	
Carbon dioxide(%) :	3.64	
Phosphorous in coal(%) :	0.040	
Chlorine in coal(ppm) :	1860.00	
Forms of Sulphur(%) :	PYRITE 18.00	SULPHATE 00.00 ORGANIC 82.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon(%) :	31.54	31.99
Hydrogen(%) :	1.30	1.32
Nitrogen(%) :	0.53	0.54
Oxygen(%) :	3.73	3.77

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C) :	1262.00	1203.00
Softening temperature(°C) :	1378.00	1305.00
Hemispherical temperature(°C) :	1439.00	1386.00
Final temperature(°C) :	1472.00	1453.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2(%) :	56.17	TiO2(%) :	1.18
Al2O3(%) :	24.18	Na2O(%) :	1.91
Fe2O3(%) :	6.01	K2O(%) :	2.89
CaO(%) :	1.37	SO3(%) :	0.67
MgO(%) :	3.14	P2O5(%) :	0.15

gcri coal division ash fusion proj KPN BLK LR DS DDH86009
=====

sample id 00025
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 02/12/86

oxidizing atmosphere

initial temp.(C) 1354.0
softening temp.(C) 1450.0
hemispherical temp.(C) 1466.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1268.0
softening temp.(C) 1340.0
hemispherical temp.(C) 1375.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86009
=====

sample id 00025
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 02/12/86

silicon dioxide %	(sio2)	51.81
aluminium oxide %	(al2o3)	27.74
ferric oxide %	(fe2o3)	4.97
titanium dioxide %	(tio2)	1.57
phosphorous pentoxide %	(p2o5)	1.41
calcium oxide %	(cao)	3.48
magnesium oxide %	(mgo)	2.64
sulphur trioxide %	(so3)	1.29
sodium oxide %	(na2o)	1.88
potassium oxide %	(k2o)	1.03

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86009
=====

sample id 00025
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 02/12/86

oxidizing atmosphere
#####

reducing atmosphere
#####

initial temp.(C)	1391.0	initial temp.(C)	1340.0
softening temp.(C)	1472.0	softening temp.(C)	1413.0
hemispherical temp.(C)	1472.0	hemispherical temp.(C)	1448.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86009
=====

sample id 00025
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 02/12/86

silicon dioxide %	(sio2)	51.56
aluminium oxide %	(al2o3)	29.89
ferric oxide %	(fe2o3)	4.46
titanium dioxide %	(tio2)	1.27
phosphorous pentoxide %	(p2o5)	1.08
calcium oxide %	(cao)	3.08
magnesium oxide %	(mgo)	2.65
sulphur trioxide %	(so3)	1.03
sodium oxide %	(na2o)	1.91
potassium oxide %	(k2o)	0.90

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86009
=====

sample id 00026
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 02/12/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1332.0	initial temp.(C)	1284.0
softening temp.(C)	1472.0	softening temp.(C)	1378.0
hemispherical temp.(C)	1472.0	hemispherical temp.(C)	1423.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86009
=====

sample id 00026
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 02/12/86

silicon dioxide %	(sio2)	53.48
aluminium oxide %	(al2o3)	27.84
ferric oxide %	(fe2o3)	5.52
titanium dioxide %	(tio2)	1.58
phosphorous pentoxide %	(p2o5)	0.24
calcium oxide %	(cao)	1.15
magnesium oxide %	(mgo)	3.40
sulphur trioxide %	(so3)	0.72
sodium oxide %	(na2o)	1.77
potassium oxide %	(k2o)	1.94

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86009
=====

sample id 00026
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 02/12/86

oxidizing atmosphere

initial temp.(C) 1292.0
softening temp.(C) 1472.0
hemispherical temp.(C) 1472.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1278.0
softening temp.(C) 1429.0
hemispherical temp.(C) 1452.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86009
=====

sample id 00026
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 02/12/86

silicon dioxide %	(sio2)	53.22
aluminium oxide %	(al2o3)	28.97
ferric oxide %	(fe2o3)	5.19
titanium dioxide %	(tio2)	1.55
phosphorous pentoxide %	(p2o5)	0.24
calcium oxide %	(cao)	1.48
magnesium oxide %	(mgo)	3.31
sulphur trioxide %	(so3)	0.66
sodium oxide %	(na2o)	1.71
potassium oxide %	(k2o)	1.66

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====

----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86009
 Coal zone: H
 Field sample no.: 05449 Composite sample no.: 30
 Lab sample no.: 29326
 True sample thickness: 1.320 meters Drill core recovery(%): 100.00 %
 Coal/Rock: 1.320 / 0.000 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 10.74 14.54 12.99 42.44
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 12.61 6.68

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.28	
Ash (%):	32.62	33.04
Volatile matter (%):	6.88	6.97
Fixed carbon (%):	59.22	59.99
Total sulphur (%):	0.44	0.45
Combustible sulphur (%):	0.14	
Net calorific value (cal/g):	5325.00	5394.00
Gross calorific value (cal/g):	5325.00	5394.00
Volatile matter (dmmf %):	6.50	
Hardgrove index:	67.00	
Specific gravity:	1.62	
Carbon dioxide (%):	2.27	
Phosphorous in coal (%):	0.023	
Chlorine in coal (ppm):	2680.00	
Forms of Sulphur (%):	PYRITE 30.00	SULPHATE 00.00 ORGANIC 70.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	60.44	61.23
Hydrogen (%):	1.83	1.85
Nitrogen (%):	0.70	0.71
Oxygen (%):	2.69	2.72

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1270.00	1208.00
Softening temperature (°C):	1292.00	1254.00
Hemispherical temperature (°C):	1311.00	1273.00
Final temperature (°C):	1386.00	1340.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	58.12	TiO2 (%):	1.19
Al2O3 (%):	21.19	Na2O (%):	1.69
Fe2O3 (%):	4.99	K2O (%):	1.46
CaO (%):	3.69	SO3 (%):	2.30
MgO (%):	2.86	P2O5 (%):	0.16

gcri coal division ash fusion proj KPN BLK LR DS DDH86009
=====

sample id 00030
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 02/12/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1472.0	initial temp.(C)	1394.0
softening temp.(C)	1472.0	softening temp.(C)	1472.0
hemispherical temp.(C)	1472.0	hemispherical temp.(C)	1472.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86009
=====

sample id 00030
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 02/12/86

silicon dioxide %	(sio2)	59.18
aluminium oxide %	(al2o3)	27.34
ferric oxide %	(fe2o3)	2.40
titanium dioxide %	(tio2)	1.58
phosphorous pentoxide %	(p2o5)	0.20
calcium oxide %	(cao)	1.57
magnesium oxide %	(mgo)	1.81
sulphur trioxide %	(so3)	0.86
sodium oxide %	(na2o)	1.76
potassium oxide %	(k2o)	1.09

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86009
=====

sample id 00030
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 02/12/86

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1472.0	initial temp.(C)	1472.0
softening temp.(C)	1472.0	softening temp.(C)	1472.0
hemispherical temp.(C)	1472.0	hemispherical temp.(C)	1472.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86009
=====

sample id 00030
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 02/12/86

silicon dioxide %	(sio2)	58.74
aluminium oxide %	(al2o3)	28.81
ferric oxide %	(fe2o3)	2.45
titanium dioxide %	(tio2)	1.19
phosphorous pentoxide %	(p2o5)	0.16
calcium oxide %	(cao)	1.29
magnesium oxide %	(mgo)	1.94
sulphur trioxide %	(so3)	0.48
sodium oxide %	(na2o)	1.73
potassium oxide %	(k2o)	0.84

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86009
 Coal zone: H
 Field sample no.: 05268 Composite sample no.: 28
 Lab sample no.: 29264
 True sample thickness: 2.329 meters Drill core recovery(%): 100.00 %
 Coal/Rock: 2.250 / 0.079 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 13.22 14.53 14.40 40.51
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 11.11 6.23

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.95	
Ash (%):	31.70	32.00
Volatile matter (%):	7.21	7.28
Fixed carbon (%):	60.14	60.72
Total sulphur (%):	0.45	0.45
Combustible sulphur (%):	0.23	
Net calorific value (cal/g):	5432.00	5485.00
Gross calorific value (cal/g):	5432.00	5485.00
Volatile matter (dmmf%):	7.00	
Hardgrove index:	68.00	
Specific gravity:	1.58	
Carbon dioxide (%):	1.24	
Phosphorous in coal (%):	0.086	
Chlorine in coal (ppm):	2470.00	
Forms of Sulphur (%):	PYRITE 11.00	SULPHATE 00.00 ORGANIC 89.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	61.62	62.21
Hydrogen (%):	2.04	2.06
Nitrogen (%):	0.76	0.77
Oxygen (%):	2.48	2.51

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1257.00	1225.00
Softening temperature (°C):	1311.00	1306.00
Hemispherical temperature (°C):	1380.00	1343.00
Final temperature (°C):	1472.00	1472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	60.08	TiO2 (%):	1.35
Al2O3 (%):	24.33	Na2O (%):	2.20
Fe2O3 (%):	2.82	K2O (%):	1.07
CaO (%):	3.15	SO3 (%):	1.72
MgO (%):	2.40	P2O5 (%):	0.62

gcri coal division ash fusion proj KPN BLK LR DS DDH86009
=====

sample id 00028
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 24/11/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1268.0	initial temp.(C)	1257.0
softening temp.(C)	1362.0	softening temp.(C)	1345.0
hemispherical temp.(C)	1439.0	hemispherical temp.(C)	1396.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86009
=====

sample id 00028
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 24/11/86

silicon dioxide %	(sio2)	55.86
aluminium oxide %	(al2o3)	26.46
ferric oxide %	(fe2o3)	2.62
titanium dioxide %	(tio2)	1.32
phosphorous pentoxide %	(p2o5)	0.82
calcium oxide %	(cao)	3.29
magnesium oxide %	(mgo)	2.40
sulphur trioxide %	(so3)	1.52
sodium oxide %	(na2o)	2.43
potassium oxide %	(k2o)	0.92

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86009
=====

sample id 00028
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 24/11/86

oxidizing atmosphere
XXXXXXXXXXXXXXXXXXXX

reducing atmosphere
XXXXXXXXXXXXXXXXXXXX

initial temp.(C)	1472.0	initial temp.(C)	1429.0
softening temp.(C)	1472.0	softening temp.(C)	1472.0
hemispherical temp.(C)	1472.0	hemispherical temp.(C)	1472.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86005
=====

sample id 00028
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 24/11/86

silicon dioxide %	(sio2)	55.02
aluminium oxide %	(al2o3)	31.38
ferric oxide %	(fe2o3)	3.44
titanium dioxide %	(tio2)	1.36
phosphorous pentoxide %	(p2o5)	0.90
calcium oxide %	(cao)	2.24
magnesium oxide %	(mgo)	2.14
sulphur trioxide %	(so3)	0.58
sodium oxide %	(na2o)	1.98
potassium oxide %	(k2o)	0.89

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLR00H86009
 Coal zone: H
 Field sample no.: 05269 Composite sample no.: 29
 Lab sample no.: 29264
 True sample thickness: 5.364 meters Drill core recovery (%): 95.03 %
 Coal/Rock: 4.594 / 0.770 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 21.94 19.38 14.10 32.61
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 7.50 4.47

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.05	
Ash (%):	36.45	36.84
Volatile matter (%):	7.33	7.41
Fixed carbon (%):	55.17	55.75
Total sulphur (%):	0.36	0.36
Combustible sulphur (%):	0.01	
Net calorific value (cal/g):	4933.00	4985.00
Gross calorific value (cal/g):	4933.00	4985.00
Volatile matter (dmmf%):	7.20	
Hardgrove index:	52.00	
Specific gravity:	1.66	
Carbon dioxide (%):	2.65	
Phosphorous in coal (%):	0.088	
Chlorine in coal (ppm):	2550.00	
Forms of Sulphur (%):	PYRITE 06.00	SULPHATE 00.00 ORGANIC 94.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	57.03	57.63
Hydrogen (%):	1.98	2.00
Nitrogen (%):	0.71	0.72
Oxygen (%):	2.42	2.45

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C):	1251.00	1214.00
Softening temperature(°C):	1268.00	1233.00
Hemispherical temperature(°C):	1289.00	1254.00
Final temperature(°C):	1348.00	1311.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	60.24	TiO2 (%):	1.08
Al2O3 (%):	20.79	Na2O (%):	2.21
Fe2O3 (%):	4.23	K2O (%):	0.84
CaO (%):	4.48	SO3 (%):	2.37
MgO (%):	3.09	P2O5 (%):	0.55

gcri coal division ash fusion proj KPN BLK LR DS DDH86009
=====

sample id 00029
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 24/11/86

oxidizing atmosphere

initial temp.(C) 1391.0
softening temp.(C) 1472.0
hemispherical temp.(C) 1472.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1354.0
softening temp.(C) 1469.0
hemispherical temp.(C) 1472.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86009
=====

sample id 00029
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 24/11/86

silicon dioxide %	(sio2)	54.96
aluminium oxide %	(al2o3)	29.97
ferric oxide %	(fe2o3)	3.27
titanium dioxide %	(tio2)	1.71
phosphorous pentoxide %	(p2o5)	0.75
calcium oxide %	(cao)	2.57
magnesium oxide %	(mgo)	2.07
sulphur trioxide %	(so3)	0.77
sodium oxide %	(na2o)	2.20
potassium oxide %	(k2o)	1.04

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86009
=====

sample id 00029
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 24/11/86

oxidizing atmosphere oooooooooooooooooooo		reducing atmosphere oooooooooooooooooooo	
initial temp.(C)	1257.0	initial temp.(C)	1243.0
softening temp.(C)	1439.0	softening temp.(C)	1348.0
hemispherical temp.(C)	1472.0	hemispherical temp.(C)	1472.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86009
=====

sample id 00029
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 24/11/86

silicon dioxide %	(sio2)	55.88
aluminium oxide %	(al2o3)	29.97
ferric oxide %	(fe2o3)	2.67
titanium dioxide %	(tio2)	1.03
phosphorous pentoxide %	(p2o5)	0.85
calcium oxide %	(cao)	2.85
magnesium oxide %	(mgo)	2.58
sulphur trioxide %	(so3)	0.95
sodium oxide %	(na2o)	2.35
potassium oxide %	(k2o)	0.81

90.0 <= total <= 100.0

KPNLRDDH86010

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86010

DATE - 04/03/87

- HISTORY -

START DATE - 29/08/86

END DATE - 01/09/86

CONTRACTOR - J.T. THOMAS
GEOLOGIST - BARKER

OPERATOR - G.C.C.
SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC
ELEVATION - 1547.13

ZONE - 9
NORTHING - 6344713.00
EASTING - 507615.75

LICENCE/LEASE NUMBER -

LATITUDE - 571450
LONGITUDE - 1285226

- ORIENTATION -

LENGTH - 181.96

INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N
PLUG - N
PIEZ - N

CASING DEPTH (M) - 30.48
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL - ROCK
DDH86010		5280	55.04	55.21	100.00		0.161			0.000- 0.161
	K	5281	55.21	61.45	55.13	3.175	0.114	2.688		5.863- 0.114
	K	5282	61.45	62.52	100.00		1.041			0.000- 1.041
	K	5283	62.52	65.10	67.44	1.644	0.058	0.825		2.469- 0.058
	K	5284	65.10	66.29	100.00		1.172			0.000- 1.172
	K	5285	66.29	67.03	100.00	0.730				0.730- 0.000
	K	5286	67.03	67.69	100.00		0.653			0.000- 0.653
	K	5287	67.69	69.99	75.65	1.725		0.556		2.281- 0.000
		5288	69.99	70.50	100.00		0.507			0.000- 0.507
		5289	94.36	94.72	100.00		0.348			0.000- 0.348
	J	5290	94.72	95.83	79.28	0.765	0.076	0.221		0.986- 0.076
		5291	95.83	96.79	100.00		0.900			0.000- 0.900
		5292	134.12	134.68	100.00		0.541			0.000- 0.541
	I	5293	134.68	136.75	77.78	1.179	0.377	0.444		1.623- 0.377
	I	5294	136.75	140.01	89.88	2.830		0.319		3.149- 0.000
		5295	140.01	140.49	100.00		0.464			0.000- 0.464
		5296	170.23	171.65	100.00		1.398			0.000- 1.398
	H	5297	171.65	173.90	80.89	1.488	0.306	0.227	0.197	1.715- 0.503
	H	5298	173.90	175.62	86.63	1.200	0.266	0.227		1.427- 0.266
		5299	175.62	176.21	100.00		0.581			0.000- 0.581

02/APR/87

GULF CANADA CORPORATION - COAL DIVISION

COMPOSITE SAMPLE SUMMARY

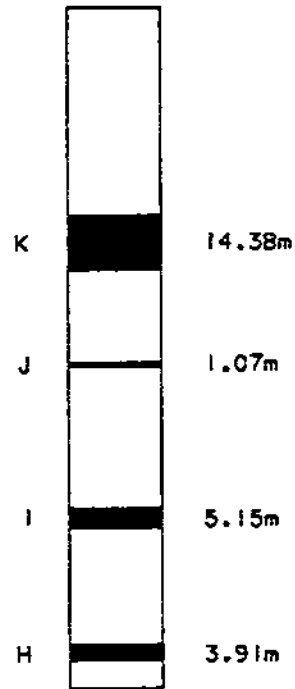
PAGE 1

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
DDH86010												
	I	31	5293	5293	134.68	136.75	77.77	1.22	0.39	0.46	0.00	1.68 - 0.39
	I	32	5294	5294	136.75	140.01	89.87	2.93	0.00	0.33	0.00	3.26 - 0.00
	H	33	5297	5297	171.65	173.90	80.88	1.51	0.31	0.23	0.20	1.74 - 0.51
	H	34	5298	5298	173.90	175.62	86.62	1.22	0.27	0.23	0.00	1.45 - 0.27
	I	215	5293	5293	134.68	136.75	77.77	1.22	0.39	0.46	0.00	1.68 - 0.39
	I	216	5294	5294	136.75	140.01	89.87	2.93	0.00	0.33	0.00	3.26 - 0.00
	H	217	5297	5298	171.65	175.62	83.37	2.73	0.58	0.46	0.20	3.19 - 0.78
	I	315	5293	5293	134.68	136.75	77.77	1.22	0.39	0.46	0.00	1.68 - 0.39
	H	317	5297	5298	171.65	175.62	83.37	2.73	0.58	0.46	0.20	3.19 - 0.78

SEAM TRUE SEAM THICKNESS
 (COAL & ROCK)



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86010

GULF CANADA CORPORATION
11/03/87
KLAP1(205057)870063010.L00



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86010
 Coal zone: 1
 Field sample no.: 05293 Composite sample no.: 31
 Lab sample no.: 29162
 True sample thickness: 2.000 meters Drill core recovery(%): 77.77 %
 Coal/Rock: 1.623 / 0.377 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 31.88 17.18 12.49 26.70
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 6.96 4.79

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.24	
Ash (%):	38.92	39.41
Volatile matter (%):	7.46	7.55
Fixed carbon (%):	52.38	53.04
Total sulphur (%):	0.32	0.32
Combustible sulphur (%):	0.12	
Net calorific value (cal/g):	4680.00	4739.00
Gross calorific value (cal/g):	4680.00	4739.00
Volatile matter (dmmf %):	7.50	
Hardgrove index:	60.00	
Specific gravity:	1.68	
Carbon dioxide (%):	2.60	
Phosphorous in coal (%):	0.024	
Chlorine in coal (ppm):	1520.00	
Forms of Sulphur (%):	PYRITE 06.00	SULPHATE 00.00 ORGANIC 94.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	53.11	53.78
Hydrogen (%):	1.99	2.02
Nitrogen (%):	0.75	0.76
Oxygen (%):	3.67	3.71

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1291.00	1286.00
Softening temperature (°C):	1359.00	1319.00
Hemispherical temperature (°C):	1391.00	1343.00
Final temperature (°C):	1472.00	1472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	56.86	TiO2 (%):	0.92
Al2O3 (%):	24.44	Na2O (%):	2.86
Fe2O3 (%):	4.85	K2O (%):	1.35
CaO (%):	2.02	SO3 (%):	1.26
MgO (%):	2.93	P2O5 (%):	0.14

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86010
 Coal zone: I
 Field sample no.: 05294 Composite sample no.: 32
 Lab sample no.: 29162
 True sample thickness: 3.149 meters Drill core recovery (%): 89.87 %
 Coal/Rock: 3.149 / 0.000 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 27.24 20.60 15.37 26.12
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 6.37 4.30

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.97	
Ash (%):	9.14	9.23
Volatile matter (%):	6.43	6.49
Fixed carbon (%):	83.46	84.28
Total sulphur (%):	0.47	0.47
Combustible sulphur (%):	0.39	
Net calorific value (cal/g):	7592.00	7666.00
Gross calorific value (cal/g):	7593.00	7667.00
Volatile matter (dmmf %):	6.20	
Hardgrove index:	41.00	
Specific gravity:	1.44	
Carbon dioxide (%):	0.90	
Phosphorous in coal (%):	0.199	
Chlorine in coal (ppm):	2240.00	
Forms of Sulphur (%):	PYRITE 04.00	SULPHATE 00.00 ORGANIC 96.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	82.63	83.44
Hydrogen (%):	2.40	2.42
Nitrogen (%):	1.05	1.06
Oxygen (%):	3.34	3.38

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1268.00	1203.00
Softening temperature (°C):	1316.00	1286.00
Hemispherical temperature (°C):	1332.00	1308.00
Final temperature (°C):	1359.00	1343.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	40.84	TiO2 (%):	1.70
Al2O3 (%):	25.33	Na2O (%):	1.97
Fe2O3 (%):	8.27	K2O (%):	1.03
CaO (%):	8.06	SO3 (%):	2.29
MgO (%):	3.24	P2O5 (%):	4.98

gcri coal division ash fusion proj KPN BLK LR DS DCH86010
=====

sample id 00031
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 21/10/86

oxidizing atmosphere

initial temp.(C) 1316.0
softening temp.(C) 1335.0
hemispherical temp.(C) 1364.0
fluid temp.(C) 1446.0

reducing atmosphere

initial temp.(C) 1289.0
softening temp.(C) 1302.0
hemispherical temp.(C) 1332.0
fluid temp.(C) 1437.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DCH86010
=====

sample id 00031
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 21/10/86

silicon dioxide %	(sio2)	57.00
aluminium oxide %	(al2o3)	22.30
ferric oxide %	(fe2o3)	4.46
titanium dioxide %	(tio2)	1.23
phosphorous pentoxide %	(p2o5)	0.31
calcium oxide %	(cao)	3.47
magnesium oxide %	(mgo)	3.18
sulphur trioxide %	(so3)	2.20
sodium oxide %	(na2o)	1.94
potassium oxide %	(k2o)	1.43

90.0 <= total <= 100.0

gcri coal division ash fusion proj .KPN BLK LR DS DDH86010
=====

sample id 00031
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 21/10/86

oxidizing atmosphere

initial temp.(C) 1324.0
softening temp.(C) 1410.0
hemispherical temp.(C) 1434.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1320.0
softening temp.(C) 1383.0
hemispherical temp.(C) 1413.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86010
=====

sample id 00031
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 21/10/86

silicon dioxide %	(sio2)	56.14
aluminium oxide %	(al2o3)	26.08
ferric oxide %	(fe2o3)	3.53
titanium dioxide %	(tio2)	0.43
phosphorous pentoxide %	(p2o5)	0.36
calcium oxide %	(cao)	3.25
magnesium oxide %	(mgo)	2.99
sulphur trioxide %	(so3)	0.69
sodium oxide %	(na2o)	2.05
potassium oxide %	(k2o)	1.99

90.0 <= total <= 100.0

agri coal division ash fusion proj KPN BLK LR DS DDH86010
=====

sample id 00032
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 21/10/86

oxidizing atmosphere

initial temp.(C) 1294.0
softening temp.(C) 1321.0
hemispherical temp.(C) 1335.0
fluid temp.(C) 1356.0

reducing atmosphere

initial temp.(C) 1262.0
softening temp.(C) 1313.0
hemispherical temp.(C) 1327.0
fluid temp.(C) 1348.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

agri coal division ash mineral proj KPN BLK LR DS DDH86010
=====

sample id 00032
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 21/10/86

silicon dioxide %	(sio2)	45.78
aluminium oxide %	(al2o3)	25.71
ferric oxide %	(fe2o3)	4.42
titanium dioxide %	(tio2)	1.40
phosphorous pentoxide %	(p2o5)	4.32
calcium oxide %	(cao)	7.42
magnesium oxide %	(mgo)	3.18
sulphur trioxide %	(so3)	3.04
sodium oxide %	(na2o)	1.91
potassium oxide %	(k2o)	1.02

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DD486010
=====

sample id 00032
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 21/10/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1268.0	initial temp.(C)	1214.0
softening temp.(C)	1294.0	softening temp.(C)	1276.0
hemispherical temp.(C)	1305.0	hemispherical temp.(C)	1281.0
fluid temp.(C)	1372.0	fluid temp.(C)	1363.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DD486010
=====

sample id 00032
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 21/10/86

silicon dioxide %	(sio2)	48.36
aluminium oxide %	(al2o3)	26.33
ferric oxide %	(fe2o3)	5.59
titanium dioxide %	(tio2)	1.09
phosphorous pentoxide %	(p2o5)	2.93
calcium oxide %	(cao)	5.77
magnesium oxide %	(mgo)	2.90
sulphur trioxide %	(so3)	1.57
sodium oxide %	(na2o)	1.97
potassium oxide %	(k2o)	1.20

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

PROJECT: KLAPPAN DATA SOURCE: April 21, 1987.
 Coal zone: H KPNLRDDH86010
 Field sample no.: 05297 Composite sample no.: 33
 Lab sample no.: 29264
 True sample thickness: 2.218 meters Drill core recovery (%): 80.88 %
 Coal/Rock: 1.715 / 0.503 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 22.37 17.37 11.87 33.35
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 9.82 5.22

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.44	
Ash (%):	35.53	35.69
Volatile matter (%):	8.17	8.21
Fixed carbon (%):	55.86	56.10
Total sulphur (%):	0.34	0.34
Combustible sulphur (%):	0.02	
Net calorific value (cal/g):	5002.00	5024.00
Gross calorific value (cal/g):	5002.00	5024.00
Volatile matter (dmmf %):	8.60	
Hardgrove index:	60.00	
Specific gravity:	1.63	
Carbon dioxide (%):	3.12	
Phosphorous in coal (%):	0.199	
Chlorine in coal (ppm):	2620.00	
Forms of Sulphur (%):	PYRITE 06.00	SULPHATE 00.00 ORGANIC 94.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	57.43	57.68
Hydrogen (%):	1.92	1.93
Nitrogen (%):	0.69	0.69
Oxygen (%):	3.65	3.67

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1260.00	1230.00
Softening temperature (°C):	1284.00	1241.00
Hemispherical temperature (°C):	1294.00	1251.00
Final temperature (°C):	1316.00	1273.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	52.52	TiO2 (%):	1.56
Al2O3 (%):	22.48	Na2O (%):	2.78
Fe2O3 (%):	5.25	K2O (%):	0.95
CaO (%):	7.14	SO3 (%):	2.27
MgO (%):	3.67	P2O5 (%):	1.28

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86010
 Coal zone: H
 Field sample no.: 05298 Composite sample no.: 34
 Lab sample no.: 29624
 True sample thickness: 1.693 meters Drill core recovery (%): 86.62 %
 Coal/Rock: 1.427 / 0.266 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 18.24 17.51 14.56 33.96
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 9.66 6.07

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.48	
Ash (%):	39.59	39.78
Volatile matter (%):	9.50	9.55
Fixed carbon (%):	50.43	50.67
Total sulphur (%):	0.59	0.59
Combustible sulphur (%):	0.16	
Net calorific value (cal/g):	4658.00	4680.00
Gross calorific value (cal/g):	4658.00	4680.00
Volatile matter (dmmf %):	10.90	
Hardgrove index:	70.00	
Specific gravity:	1.69	
Carbon dioxide (%):	4.56	
Phosphorous in coal (%):	0.232	
Chlorine in coal (ppm):	2480.00	
Forms of Sulphur (%):	PYRITE 65.00	SULPHATE 02.00 ORGANIC 33.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	52.09	52.34
Hydrogen (%):	1.78	1.79
Nitrogen (%):	0.59	0.59
Oxygen (%):	4.88	4.91

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1235.00	1182.00
Softening temperature (°C):	1257.00	1200.00
Hemispherical temperature (°C):	1273.00	1219.00
Final temperature (°C):	1311.00	1260.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	53.06	TiO2 (%):	1.37
Al2O3 (%):	18.90	Na2O (%):	2.04
Fe2O3 (%):	7.51	K2O (%):	0.93
CaO (%):	7.42	SO3 (%):	2.73
MgO (%):	3.97	P2O5 (%):	1.34

gcri coal division ash fusion proj KPN BLK LR DS DDH86010
=====

sample id 00033
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 24/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1265.0	initial temp.(C)	1233.0
softening temp.(C)	1284.0	softening temp.(C)	1249.0
hemispherical temp.(C)	1294.0	hemispherical temp.(C)	1265.0
fluid temp.(C)	1324.0	fluid temp.(C)	1297.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86010
=====

sample id 00033
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 24/11/86

silicon dioxide %	(sio2)	50.70
aluminium oxide %	(al2o3)	24.82
ferric oxide %	(fe2o3)	5.42
titanium dioxide %	(tio2)	1.40
phosphorous pentoxide %	(p2o5)	2.37
calcium oxide %	(cao)	6.14
magnesium oxide %	(mgo)	3.18
sulphur trioxide %	(so3)	1.91
sodium oxide %	(na2o)	2.08
potassium oxide %	(k2o)	0.84

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86010
=====

sample id 00033
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 24/11/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1268.0	initial temp.(C)	1246.0
softening temp.(C)	1284.0	softening temp.(C)	1257.0
hemispherical temp.(C)	1311.0	hemispherical temp.(C)	1276.0
fluid temp.(C)	1367.0	fluid temp.(C)	1324.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86010
=====

sample id 00033
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 24/11/86

silicon dioxide %	(sio2)	52.30
aluminium oxide %	(al2o3)	26.22
ferric oxide %	(fe2o3)	4.98
titanium dioxide %	(tio2)	1.19
phosphorous pentoxide %	(p2o5)	2.20
calcium oxide %	(cao)	5.60
magnesium oxide %	(mgo)	2.97
sulphur trioxide %	(so3)	1.58
sodium oxide %	(na2o)	1.92
potassium oxide %	(k2o)	0.78

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86010
=====

sample id 00034
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 24/11/86

oxidizing atmosphere

initial temp.(C) 1311.0
softening temp.(C) 1375.0
hemispherical temp.(C) 1394.0
fluid temp.(C) 1456.0

reducing atmosphere

initial temp.(C) 1251.0
softening temp.(C) 1335.0
hemispherical temp.(C) 1354.0
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 LR DS DDH86010
=====

sample id 00034
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 24/11/86

silicon dioxide %	(sio2)	51.14
aluminium oxide %	(al2o3)	28.60
ferric oxide %	(fe2o3)	4.09
titanium dioxide %	(tio2)	1.70
phosphorous pentoxide %	(p2o5)	1.43
calcium oxide %	(cao)	4.41
magnesium oxide %	(mgo)	2.63
sulphur trioxide %	(so3)	1.43
sodium oxide %	(na2o)	2.29
potassium oxide %	(k2o)	1.01

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DCH86010
=====

sample id 00034
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 24/11/86

oxidizing atmosphere

initial temp.(C) 1319.0
softening temp.(C) 1351.0
hemispherical temp.(C) 1402.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1268.0
softening temp.(C) 1297.0
hemispherical temp.(C) 1351.0
fluid temp.(C) 1403.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DCH86010
=====

sample id 00034
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 24/11/86

silicon dioxide %	(sio2)	54.02
aluminium oxide %	(al2o3)	27.11
ferric oxide %	(fe2o3)	4.17
titanium dioxide %	(tio2)	1.50
phosphorous pentoxide %	(p2o5)	1.19
calcium oxide %	(cao)	4.35
magnesium oxide %	(mgo)	2.36
sulphur trioxide %	(so3)	1.41
sodium oxide %	(na2o)	2.18
potassium oxide %	(k2o)	0.95

90.0 <= total <= 100.0

KPNLRDDH86011

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86011

DATE - 04/03/87

- HISTORY -

START DATE - 01/09/86

END DATE - 02/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - LOVE

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1534.42

ZONE - 9

NORTHING - 6344537.00

EASTING - 507835.44

LICENCE/LEASE NUMBER -

LATITUDE - 571445

LONGITUDE - 1285213

- ORIENTATION -

LENGTH - 66.14

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 7.62

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

=====

02/APR/87

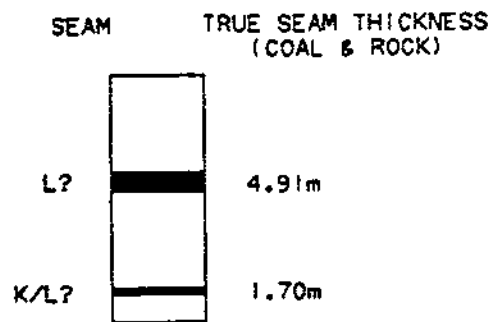
GULF CANADA CORPORATION - COAL DIVISION
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED		MISSING		TOTAL	
						COAL	ROCK	COAL	ROCK	COAL	ROCK
DDH86011		5271	23.69	25.44	100.00		1.586			0.000	1.586
	L?	5272	25.44	30.95	50.64	2.241	0.249	1.500	0.922	3.741	1.171
		5273	30.95	31.20	100.00		0.220			0.000	0.220
		5274	55.85	56.91	100.00		0.960			0.000	0.960
	K/L?	5275	56.91	58.76	72.43	1.035	0.193	0.394	0.074	1.429	0.267
		5276	58.76	59.31	100.00		0.509			0.000	0.509

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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
DDH86011												
	K/L?	35	5275	5275	56.91	58.76	72.43	1.13	0.21	0.43	0.08	1.56- 0.29
	K/L	218	5275	5275	56.91	58.76	72.43	1.13	0.21	0.43	0.08	1.56- 0.29
	K/L	318	5275	5275	56.91	58.76	72.43	1.13	0.21	0.43	0.08	1.56- 0.29



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86011

GULF CANADA CORPORATION
11/03/87
KLAP:(2050571870065011).L00



COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: . KLAPPAN DATA SOURCE: KPMLRDDH86011
 Coal zone: K/L?
 Field sample no.: 05275 Composite sample no.: 35
 Lab sample no.: 29326
 True sample thickness: 1.696 meters Drill core recovery(%): 72.43 %
 Coal/Rock: 1.429 / 0.267 meters

----- RAW HEAD ANALYSIS (H01) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 23.49 16.71 12.61 32.56
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 8.50 6.13

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.94	
Ash (%):	40.92	41.31
Volatile matter (%):	9.45	9.54
Fixed carbon (%):	48.69	49.15
Total sulphur (%):	0.41	0.41
Combustible sulphur (%):	0.14	
Net calorific value (cal/g):	4524.00	4567.00
Gross calorific value (cal/g):	4524.00	4567.00
Volatile matter (dmmf %):	11.10	
Hardgrove index:	52.00	
Specific gravity:	1.71	
Carbon dioxide (%):	4.89	
Phosphorous in coal (%):	0.186	
Chlorine in coal (ppm):	2240.00	
Forms of Sulphur (%):	PYRITE 07.00	SULPHATE 00.00 ORGANIC 93.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	51.71	52.20
Hydrogen (%):	1.71	1.73
Nitrogen (%):	0.66	0.67
Oxygen (%):	3.65	3.68

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1198.00	1157.00
Softening temperature (°C):	1260.00	1166.00
Hemispherical temperature (°C):	1270.00	1176.00
Final temperature (°C):	1354.00	1241.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	51.66	TiO2 (%):	0.92
Al2O3 (%):	17.23	Na2O (%):	1.79
Fe2O3 (%):	15.21	K2O (%):	0.82
CaO (%):	3.34	SO3 (%):	1.66
MgO (%):	3.83	P2O5 (%):	1.04

gcri coal division ash fusion proj KPN BLK LR DS DDH86011
=====

sample id 00035
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 02/12/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1278.0	initial temp.(C)	1225.0
softening temp.(C)	1300.0	softening temp.(C)	1249.0
hemispherical temp.(C)	1324.0	hemispherical temp.(C)	1276.0
fluid temp.(C)	1439.0	fluid temp.(C)	1430.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86011
=====

sample id 00035
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 02/12/86

silicon dioxide %	(sio2)	55.10
aluminium oxide %	(al2o3)	24.44
ferric oxide %	(fe2o3)	5.31
titanium dioxide %	(tio2)	1.23
phosphorous pentoxide %	(p2o5)	1.23
calcium oxide %	(cao)	3.72
magnesium oxide %	(mgo)	2.28
sulphur trioxide %	(so3)	1.52
sodium oxide %	(na2o)	2.08
potassium oxide %	(k2o)	0.83

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86011
=====

sample id 00035
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 02/12/86

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1289.0	initial temp.(C)	1270.0
softening temp.(C)	1324.0	softening temp.(C)	1286.0
hemispherical temp.(C)	1362.0	hemispherical temp.(C)	1319.0
fluid temp.(C)	1445.0	fluid temp.(C)	1443.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86011
=====

sample id 00035
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 02/12/86

silicon dioxide %	(sio2)	53.90
aluminium oxide %	(al2o3)	25.72
ferric oxide %	(fe2o3)	4.37
titanium dioxide %	(tio2)	1.05
phosphorous pentoxide %	(p2o5)	0.77
calcium oxide %	(cao)	4.77
magnesium oxide %	(mgo)	1.87
sulphur trioxide %	(so3)	1.80
sodium oxide %	(na2o)	2.42
potassium oxide %	(k2o)	0.95

90.0 <= total <= 100.0

KPNLRDDH86012

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86012

DATE - 04/03/87

- HISTORY -

START DATE - 02/09/86

END DATE - 04/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - BARKER

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1717.87

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6344327.00

EASTING - 507019.06

LATITUDE - 571438

LONGITUDE - 1285301

- ORIENTATION -

LENGTH - 144.78

CORE SIZE - 0.0

INCLINATION - 90.0

AZIMUTH - 0.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 7.62

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

02/APR/87

GULF CANADA CORPORATION - COAL DIVISION
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

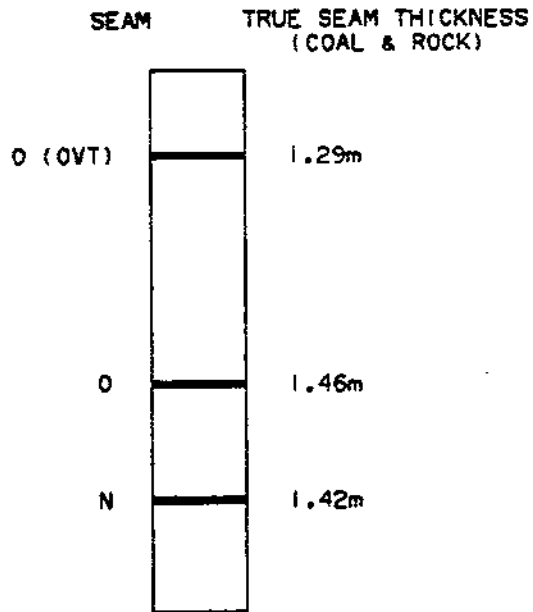
PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED		MISSING		TOTAL	
						COAL	ROCK	COAL	ROCK	COAL	ROCK
DDH86012	O OVT	5154	20.10	22.99	92.39	0.861	0.084	0.038	0.039	0.899	0.123
		5155	23.75	25.09	100.00		0.491			0.000	0.491
		5156	82.41	82.67	100.00		0.238			0.000	0.238
	O	5157	82.67	84.26	55.97	0.782	0.037	0.394	0.248	1.176	0.285
		5158	84.26	86.31	100.00		1.900			0.000	1.900
		5159	112.74	113.42	100.00		0.592			0.000	0.592
	N	5160	113.42	115.06	100.00	1.233	0.191			1.233	0.191
		5161	115.06	115.94	100.00		0.763			0.000	0.763
	O OVT	5190	22.99	23.75	76.32	0.069	0.140	0.065		0.134	0.140
		5300	19.33	20.10	100.00		0.265			0.000	0.265

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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

DDH86012												
	N	36	5160	5160	113.42	115.06	100.00	1.42	0.22	0.00	0.00	1.42- 0.22
	N	219	5160	5160	113.42	115.06	100.00	1.42	0.22	0.00	0.00	1.42- 0.22
	N	319	5160	5160	113.42	115.06	100.00	1.42	0.22	0.00	0.00	1.42- 0.22



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86012

GULF CANADA CORPORATION
11/03/87
KLAP:(205057)870063012.LOG



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86012
 Coal zone: N
 Field sample no.: 05160 Composite sample no.: 36
 Lab sample no.: 29326
 True sample thickness: 1.424 meters Drill core recovery(%): 100.00 %
 Coal/Rock: 1.233 / 0.191 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size(mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight(%): 20.26 19.46 16.39 31.26
 Fraction size(mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight(%): 7.50 5.13

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture(%):	1.12	
Ash(%):	37.62	38.05
Volatile matter(%):	7.87	7.96
Fixed carbon(%):	53.39	53.99
Total sulphur(%):	2.81	2.84
Combustible sulphur(%):	2.17	
Net calorific value(cal/g):	4880.00	4936.00
Gross calorific value(cal/g):	4880.00	4936.00
Volatile matter(dmmf%):	6.60	
Hardgrove index:	79.00	
Specific gravity:	1.66	
Carbon dioxide(%):	2.36	
Phosphorous in coal(%):	0.166	
Chlorine in coal(ppm):	2210.00	
Forms of Sulphur(%):	PYRITE 90.00	SULPHATE 03.00 ORGANIC 07.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon(%):	53.45	54.05
Hydrogen(%):	1.91	1.93
Nitrogen(%):	0.70	0.71
Oxygen(%):	2.39	2.42

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C):	1198.00	1149.00
Softening temperature(°C):	1273.00	1171.00
Hemispherical temperature(°C):	1286.00	1187.00
Final temperature(°C):	1332.00	1246.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2(%):	52.26	TiO2(%):	0.87
Al2O3(%):	15.90	Na2O(%):	1.52
Fe2O3(%):	12.37	K2O(%):	0.82
CaO(%):	5.49	SO3(%):	4.27
MgO(%):	3.11	P2O5(%):	1.01

gcri coal division ash fusion proj KPN BLK LR DS DDH86012
=====

sample id 00036
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 02/12/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1251.0	initial temp.(C)	1176.0
softening temp.(C)	1300.0	softening temp.(C)	1219.0
hemispherical temp.(C)	1332.0	hemispherical temp.(C)	1251.0
fluid temp.(C)	1391.0	fluid temp.(C)	1332.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86012
=====

sample id 00036
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 02/12/86

silicon dioxide %	(sio2)	53.52
aluminium oxide %	(al2o3)	21.55
ferric oxide %	(fe2o3)	10.84
titanium dioxide %	(tio2)	1.23
phosphorous pentoxide %	(p2o5)	1.20
calcium oxide %	(cao)	3.50
magnesium oxide %	(mgo)	2.32
sulphur trioxide %	(so3)	1.93
sodium oxide %	(na2o)	1.94
potassium oxide %	(k2o)	1.11

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDHB6012
=====

sample id 00036
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 02/12/86

oxidizing atmosphere
oooooooooooooooooooo

reducing atmosphere
oooooooooooooooooooo

initial temp.(C)	1246.0	initial temp.(C)	1168.0
softening temp.(C)	1311.0	softening temp.(C)	1251.0
hemispherical temp.(C)	1340.0	hemispherical temp.(C)	1281.0
fluid temp.(C)	1439.0	fluid temp.(C)	1437.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDHB6012
=====

sample id 00036
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 02/12/86

silicon dioxide %	(sio2)	49.47
aluminium oxide %	(al2o3)	25.34
ferric oxide %	(fe2o3)	9.17
titanium dioxide %	(tio2)	1.68
phosphorous pentoxide %	(p2o5)	1.21
calcium oxide %	(cao)	3.54
magnesium oxide %	(mgo)	2.35
sulphur trioxide %	(so3)	1.96
sodium oxide %	(na2o)	1.98
potassium oxide %	(k2o)	0.98

90.0 <= total <= 100.0

KPNLRDDH86013

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRD0H86013

DATE - 04/03/87

- HISTORY -

START DATE - 02/09/86

END DATE - 04/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - LOVE

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1537.42

ZONE - 9

NORTHING - 6344244.00

EASTING - 507847.00

LICENCE/LEASE NUMBER -

LATITUDE - 571435

LONGITUDE - 1285212

- ORIENTATION -

LENGTH - 181.97

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 9.14

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

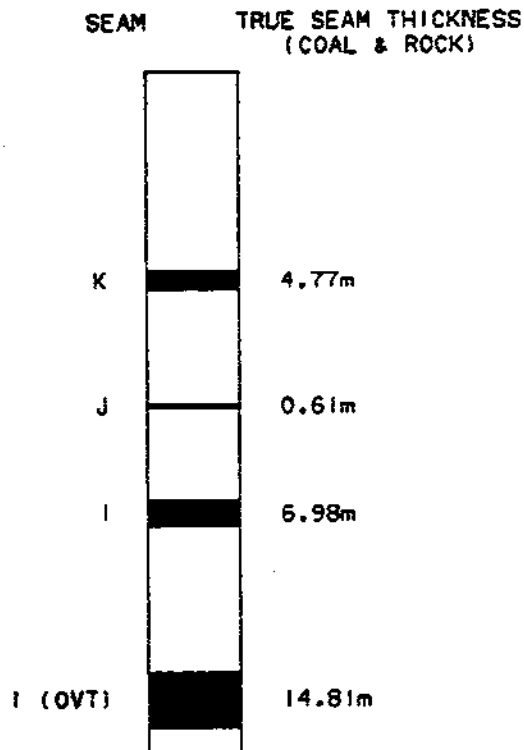
*** NOTE *** 0 INDICATES NO VALUE

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 SIMPLE SAMPLE SUMMARY PAGE 1
 TRUE THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL - ROCK
DDH86013		5173	52.74	53.56	100.00		0.757			0.000- 0.757
	K	5174	53.56	54.98	96.48	1.287		0.047		1.334- 0.000
	K	5175	54.98	57.35	78.90	1.660	0.134	0.386	0.097	2.046- 0.231
	K	5176	57.35	57.92	100.00		0.556			0.000- 0.556
	K	5177	57.92	58.53	81.97	0.490		0.108		0.598- 0.000
		5178	58.67	59.31	100.00		0.631			0.000- 0.631
		5179	88.74	89.14	100.00		0.395			0.000- 0.395
	J	5180	89.14	89.76	80.65	0.434	0.059	0.089	0.030	0.523- 0.089
		5181	89.76	89.94	100.00		0.178			0.000- 0.178
		5182	111.49	112.92	100.00		1.011			0.000- 1.011
	I	5183	112.92	115.58	83.46	1.430	0.234	0.189	0.141	1.619- 0.375
	I	5184	115.58	118.45	87.11	1.865	0.143	0.103	0.191	1.968- 0.334
	I	5185	118.45	121.60	75.56	2.000	0.034	0.561	0.092	2.561- 0.126
		5186	121.60	122.10	100.00		0.440			0.000- 0.440
		5187	158.14	159.00	100.00		0.633			0.000- 0.633
	I OVT	5188	159.00	176.64	93.71	13.780	0.058	0.810	0.167	14.590- 0.225
		5189	176.64	177.27	100.00		0.583			0.000- 0.583

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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
DDH86013												
K		37	5174	5174	53.56	54.98	96.47	1.37	0.00	0.05	0.00	1.42- 0.00
K		38	5175	5175	54.98	57.35	78.90	1.73	0.14	0.40	0.10	2.13- 0.24
K		39	5176	5177	57.35	58.53	90.67	0.50	0.57	0.11	0.00	0.61- 0.57
I		40	5183	5183	112.92	115.58	83.45	1.91	0.31	0.25	0.19	2.16- 0.50
I		41	5184	5184	115.58	118.45	87.10	2.32	0.18	0.13	0.24	2.45- 0.42
I		42	5185	5185	118.45	121.60	75.55	2.34	0.04	0.66	0.11	3.00- 0.15
I	OVT	43	5188	5188	159.00	176.64	93.70	16.46	0.07	0.92	0.19	17.38- 0.26
K		220	5174	5177	53.56	58.53	86.72	3.60	0.71	0.56	0.10	4.16- 0.81
I		221	5183	5184	112.92	118.45	85.35	4.23	0.49	0.38	0.43	4.61- 0.92
I		222	5185	5185	118.45	121.60	75.55	2.34	0.04	0.66	0.11	3.00- 0.15
I		223	5188	5188	159.00	176.64	93.70	16.46	0.07	0.92	0.19	17.38- 0.26
K		320	5174	5177	53.56	58.53	86.72	3.60	0.71	0.56	0.10	4.16- 0.81
I		321	5183	5185	112.92	121.60	81.79	6.57	0.53	1.04	0.54	7.61- 1.07
I		323	5188	5188	159.00	176.64	93.70	16.46	0.07	0.92	0.19	17.38- 0.26



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86013

GULF CANADA CORPORATION
11/03/87
KLAP: (2050571870063013.LOG



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86013
 Coal zone: K
 Field sample no.: 05174 Composite sample no.: 37
 Lab sample no.: 29326
 True sample thickness: 1.334 meters Drill core recovery(%): 96.47 %
 Coal/Rock: 1.334 / 0.000 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 22.24 23.45 13.11 29.44
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 6.91 4.85

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.82	
Ash (%):	27.94	28.17
Volatile matter (%):	10.94	11.03
Fixed carbon (%):	60.30	60.80
Total sulphur (%):	0.39	0.39
Combustible sulphur (%):	0.09	
Net calorific value (cal/g):	5607.00	5653.00
Gross calorific value (cal/g):	5607.00	5653.00
Volatile matter (dmmf %):	12.50	
Hardgrove index:	62.00	
Specific gravity:	1.58	
Carbon dioxide (%):	5.99	
Phosphorous in coal (%):	0.106	
Chlorine in coal (ppm):	1780.00	
Forms of Sulphur (%):	PYRITE 05.00	SULPHATE 00.00 ORGANIC 95.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	65.34	65.88
Hydrogen (%):	1.95	1.97
Nitrogen (%):	0.69	0.70
Oxygen (%):	2.87	2.89

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1206.00	1182.00
Softening temperature (°C):	1217.00	1192.00
Hemispherical temperature (°C):	1227.00	1203.00
Final temperature (°C):	1278.00	1243.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	49.52	TiO2 (%):	0.77
Al2O3 (%):	14.83	Na2O (%):	1.44
Fe2O3 (%):	11.59	K2O (%):	0.74
CaO (%):	9.32	SO3 (%):	2.69
MgO (%):	5.89	P2O5 (%):	0.87

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86013
 Coal zone: K
 Field sample no.: 05175 Composite sample no.: 38
 Lab sample no.: 29326
 True sample thickness: 2.277 meters Drill core recovery (%): 78.90 %
 Coal/Rock: 2.046 / 0.231 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 38.43 20.69 11.44 22.64
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 4.08 2.72

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.05	
Ash (%):	28.68	28.98
Volatile matter (%):	6.88	6.95
Fixed carbon (%):	63.39	64.07
Total sulphur (%):	0.42	0.42
Combustible sulphur (%):	0.19	
Net calorific value (cal/g):	5722.00	5782.00
Gross calorific value (cal/g):	5722.00	5782.00
Volatile matter (dmmf %):	6.60	
Hardgrove index:	50.00	
Specific gravity:	1.59	
Carbon dioxide (%):	1.38	
Phosphorous in coal (%):	0.202	
Chlorine in coal (ppm):	1460.00	
Forms of Sulphur (%):	PYRITE 02.00	SULPHATE 00.00 ORGANIC 98.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	64.27	64.95
Hydrogen (%):	1.79	1.81
Nitrogen (%):	0.86	0.87
Oxygen (%):	2.93	2.97

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1243.00	1241.00
Softening temperature (°C):	1281.00	1273.00
Hemispherical temperature (°C):	1308.00	1300.00
Final temperature (°C):	1359.00	1354.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	56.72	TiO2 (%):	1.17
Al2O3 (%):	20.66	Na2O (%):	1.83
Fe2O3 (%):	4.68	K2O (%):	1.19
CaO (%):	5.04	SO3 (%):	2.03
MgO (%):	2.89	P2O5 (%):	1.61

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86013
 Coal zone: K
 Field sample no.: 05176 - 05177 Composite sample no.: 39
 Lab sample no.: 29326
 True sample thickness: 1.154 meters Drill core recovery(%): 90.67 %
 Coal/Rock: 0.598 / 0.556 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 38.29 22.74 9.99 21.01
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 4.77 3.20

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.06	
Ash (%):	67.56	68.28
Volatile matter (%):	8.10	8.19
Fixed carbon (%):	23.28	23.53
Total sulphur (%):	0.30	0.30
Combustible sulphur (%):	0.05	
Net calorific value (cal/g):	1757.00	1775.00
Gross calorific value (cal/g):	1757.00	1775.00
Volatile matter (dmmf %):	10.00	
Hardgrove index:	32.00	
Specific gravity:	1.93	
Carbon dioxide (%):	3.90	
Phosphorous in coal (%):	0.032	
Chlorine in coal (ppm):	2480.00	
Forms of Sulphur (%):	PYRITE 27.00	SULPHATE 00.00 ORGANIC 73.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	25.18	25.45
Hydrogen (%):	0.98	0.99
Nitrogen (%):	0.41	0.41
Oxygen (%):	4.51	4.57

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1281.00	1262.00
Softening temperature (°C):	1311.00	1289.00
Hemispherical temperature (°C):	1337.00	1305.00
Final temperature (°C):	1383.00	1354.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	61.20	TiO2 (%):	0.93
Al2O3 (%):	20.66	Na2O (%):	1.88
Fe2O3 (%):	4.78	K2O (%):	2.22
CaO (%):	2.32	SO3 (%):	0.94
MgO (%):	3.11	P2O5 (%):	0.11

gcri coal division ash fusion proj KPN BLK LR DS DCH86013
=====

sample id 00037
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 02/12/86

oxidizing atmosphere

initial temp.(C) 1308.0
softening temp.(C) 1313.0
hemispherical temp.(C) 1321.0
fluid temp.(C) 1376.0

reducing atmosphere

initial temp.(C) 1254.0
softening temp.(C) 1257.0
hemispherical temp.(C) 1276.0
fluid temp.(C) 1370.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DCH86013
=====

sample id 00037
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 02/12/86

silicon dioxide %	(sio2)	47.96
aluminium oxide %	(al2o3)	23.81
ferric oxide %	(fe2o3)	6.48
titanium dioxide %	(tio2)	1.38
phosphorous pentoxide %	(p2o5)	1.71
calcium oxide %	(cao)	7.17
magnesium oxide %	(mgo)	3.56
sulphur trioxide %	(so3)	4.29
sodium oxide %	(na2o)	1.91
potassium oxide %	(k2o)	0.84

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86013
=====

sample id 00037
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 02/12/86

oxidizing atmosphere
oooooooooooooooooooo

reducing atmosphere
oooooooooooooooooooo

initial temp.(C)	1332.0	initial temp.(C)	1278.0
softening temp.(C)	1380.0	softening temp.(C)	1319.0
hemispherical temp.(C)	1415.0	hemispherical temp.(C)	1345.0
fluid temp.(C)	1453.0	fluid temp.(C)	1434.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86013
=====

sample id 00037
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 02/12/86

silicon dioxide %	(sio2)	48.06
aluminium oxide %	(al2o3)	28.60
ferric oxide %	(fe2o3)	5.68
titanium dioxide %	(tio2)	1.41
phosphorous pentoxide %	(p2o5)	1.33
calcium oxide %	(cao)	5.15
magnesium oxide %	(mgo)	3.05
sulphur trioxide %	(so3)	2.57
sodium oxide %	(na2o)	1.86
potassium oxide %	(k2o)	0.87

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86013
=====

sample id 00038
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 02/12/86

oxidizing atmosphere

initial temp.(C) 1302.0
softening temp.(C) 1313.0
hemispherical temp.(C) 1335.0
fluid temp.(C) 1386.0

reducing atmosphere

initial temp.(C) 1262.0
softening temp.(C) 1278.0
hemispherical temp.(C) 1300.0
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 LR DS DDH86013
=====

sample id 00038
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 02/12/86

silicon dioxide %	(sio2)	50.80
aluminium oxide %	(al2o3)	24.19
ferric oxide %	(fe2o3)	5.61
titanium dioxide %	(tio2)	1.17
phosphorous pentoxide %	(p2o5)	2.89
calcium oxide %	(cao)	5.68
magnesium oxide %	(mgo)	3.11
sulphur trioxide %	(so3)	1.50
sodium oxide %	(na2o)	1.86
potassium oxide %	(k2o)	1.03

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86013
=====

sample id 00038
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 02/12/86

oxidizing atmosphere
#####

initial temp.(C) 1327.0
softening temp.(C) 1370.0
hemispherical temp.(C) 1399.0
fluid temp.(C) 1456.0

reducing atmosphere
#####

initial temp.(C) 1265.0
softening temp.(C) 1297.0
hemispherical temp.(C) 1329.0
fluid temp.(C) 1423.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86013
=====

sample id 00038
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 02/12/86

silicon dioxide %	(sio2)	52.32
aluminium oxide %	(al2o3)	25.33
ferric oxide %	(fe2o3)	5.32
titanium dioxide %	(tio2)	0.97
phosphorous pentoxide %	(p2o5)	1.89
calcium oxide %	(cao)	4.67
magnesium oxide %	(mgo)	2.92
sulphur trioxide %	(so3)	1.22
sodium oxide %	(na2o)	1.94
potassium oxide %	(k2o)	1.04

90.0 <= total <= 100.0

gcr: coal division ash fusion proj KPN BLK LR DS DDH86013
=====

sample id 00039
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 02/12/86

oxidizing atmosphere
#####

initial temp.(C) 1332.0
softening temp.(C) 1439.0
hemispherical temp.(C) 1466.0
fluid temp.(C) 1472.0

reducing atmosphere
#####

initial temp.(C) 1284.0
softening temp.(C) 1356.0
hemispherical temp.(C) 1380.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcr: coal division ash mineral proj KPN BLK LR DS DDH86013
=====

sample id 00039
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 02/12/86

silicon dioxide %	(sio2)	57.84
aluminium oxide %	(al2o3)	25.33
ferric oxide %	(fe2o3)	4.90
titanium dioxide %	(tio2)	1.23
phosphorous pentoxide %	(p2o5)	0.22
calcium oxide %	(cao)	1.68
magnesium oxide %	(mgo)	3.57
sulphur trioxide %	(so3)	0.84
sodium oxide %	(na2o)	1.67
potassium oxide %	(k2o)	1.63

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86013
=====

sample id 00039
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 02/12/86

oxidizing atmosphere

initial temp.(C) 1335.0
softening temp.(C) 1472.0
hemispherical temp.(C) 1472.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1268.0
softening temp.(C) 1407.0
hemispherical temp.(C) 1445.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86013
=====

sample id 00039
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 02/12/86

silicon dioxide %	(sio2)	55.10
aluminium oxide %	(al2o3)	27.60
ferric oxide %	(fe2o3)	4.78
titanium dioxide %	(tio2)	1.17
phosphorous pentoxide %	(p2o5)	0.21
calcium oxide %	(cao)	1.54
magnesium oxide %	(mgo)	3.52
sulphur trioxide %	(so3)	0.91
sodium oxide %	(na2o)	1.60
potassium oxide %	(k2o)	1.45

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86013
 Coal zone: I
 Field sample no.: 05183 Composite sample no.: 40
 Lab sample no.: 29238
 True sample thickness: 1.994 meters Drill core recovery (%): 83.45 %
 Coal/Rock: 1.619 / 0.375 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 20.37 10.41 8.62 42.37
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 10.58 7.65

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.53	
Ash (%):	35.38	35.93
Volatile matter (%):	6.85	6.96
Fixed carbon (%):	56.24	57.11
Total sulphur (%):	0.31	0.31
Combustible sulphur (%):	0.15	
Net calorific value (cal/g):	4895.00	4971.00
Gross calorific value (cal/g):	4895.00	4971.00
Volatile matter (dmmf%):	6.50	
Hardgrove index:	62.00	
Specific gravity:	1.65	
Carbon dioxide (%):	3.37	
Phosphorous in coal (%):	0.043	
Chlorine in coal (ppm):	2280.00	
Forms of Sulphur (%):	PYRITE 06.00	SULPHATE 00.00 ORGANIC 94.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	56.28	57.15
Hydrogen (%):	1.83	1.86
Nitrogen (%):	0.65	0.66
Oxygen (%):	4.02	4.09

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1243.00	1155.00
Softening temperature (°C):	1281.00	1251.00
Hemispherical temperature (°C):	1294.00	1265.00
Final temperature (°C):	1375.00	1335.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	60.34	TiO2 (%):	0.88
Al2O3 (%):	19.96	Na2O (%):	2.40
Fe2O3 (%):	5.15	K2O (%):	1.29
CaO (%):	1.71	SO3 (%):	1.13
MgO (%):	4.39	P2O5 (%):	0.28

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86013
 Coal zone: I
 Field sample no.: 05184 Composite sample no.: 41
 Lab sample no.: 29238
 True sample thickness: 2.302 meters Drill core recovery (%): 87.10 %
 Coal/Rock: 1.968 / 0.334 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 22.10 20.19 12.03 32.43
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 8.26 4.99

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.52	
Ash (%):	34.58	35.11
Volatile matter (%):	7.85	7.97
Fixed carbon (%):	56.05	56.92
Total sulphur (%):	0.29	0.29
Combustible sulphur (%):	0.10	
Net calorific value (cal/g):	4986.00	5062.00
Gross calorific value (cal/g):	4986.00	5062.00
Volatile matter (dmmf %):	8.20	
Hardgrove index:	66.00	
Specific gravity:	1.63	
Carbon dioxide (%):	4.65	
Phosphorous in coal (%):	0.047	
Chlorine in coal (ppm):	1840.00	
Forms of Sulphur (%):	PYRITE 14.00	SULPHATE 00.00 ORGANIC 86.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	57.01	57.89
Hydrogen (%):	1.97	2.00
Nitrogen (%):	0.64	0.65
Oxygen (%):	3.99	4.06

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1246.00	1195.00
Softening temperature (°C):	1270.00	1206.00
Hemispherical temperature (°C):	1300.00	1235.00
Final temperature (°C):	1378.00	1340.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	51.58	TiO2 (%):	1.31
Al2O3 (%):	22.75	Na2O (%):	3.26
Fe2O3 (%):	8.87	K2O (%):	1.21
CaO (%):	2.22	SO3 (%):	1.34
MgO (%):	4.85	P2O5 (%):	0.31

gcri coal division ash fusion proj KPN BLK LR DS DDH86013
=====

sample id 00040
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 03/11/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1260.0	initial temp.(C)	1157.0
softening temp.(C)	1302.0	softening temp.(C)	1243.0
hemispherical temp.(C)	1321.0	hemispherical temp.(C)	1262.0
fluid temp.(C)	1429.0	fluid temp.(C)	1418.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86013
=====

sample id 00040
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 03/11/86

silicon dioxide %	(sio2)	60.36
aluminium oxide %	(al2o3)	20.79
ferric oxide %	(fe2o3)	4.10
titanium dioxide %	(tio2)	0.70
phosphorous pentoxide %	(p2o5)	0.67
calcium oxide %	(cao)	3.13
magnesium oxide %	(mgo)	3.36
sulphur trioxide %	(so3)	1.29
sodium oxide %	(na2o)	2.08
potassium oxide %	(k2o)	1.25

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86013
=====

sample id 00040
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 03/11/86

oxidizing atmosphere

initial temp.(C) 1305.0
softening temp.(C) 1340.0
hemispherical temp.(C) 1354.0
fluid temp.(C) 1457.0

reducing atmosphere

initial temp.(C) 1289.0
softening temp.(C) 1321.0
hemispherical temp.(C) 1327.0
fluid temp.(C) 1448.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86013
=====

sample id 00040
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 03/11/86

silicon dioxide %	(sio2)	62.93
aluminium oxide %	(al2o3)	18.92
ferric oxide %	(fe2o3)	3.68
titanium dioxide %	(tio2)	0.34
phosphorous pentoxide %	(p2o5)	0.72
calcium oxide %	(cao)	3.25
magnesium oxide %	(mgo)	3.07
sulphur trioxide %	(so3)	2.18
sodium oxide %	(na2o)	1.50
potassium oxide %	(k2o)	1.12

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86013
=====

sample id 00041
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 03/11/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1294.0	initial temp.(C)	1238.0
softening temp.(C)	1313.0	softening temp.(C)	1257.0
hemispherical temp.(C)	1340.0	hemispherical temp.(C)	1278.0
fluid temp.(C)	1436.0	fluid temp.(C)	1431.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86013
=====

sample id 00041
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 03/11/86

silicon dioxide %	(sio2)	58.34
aluminium oxide %	(al2o3)	22.30
ferric oxide %	(fe2o3)	4.70
titanium dioxide %	(tio2)	1.10
phosphorous pentoxide %	(p2o5)	0.57
calcium oxide %	(cao)	3.33
magnesium oxide %	(mgo)	3.38
sulphur trioxide %	(so3)	1.51
sodium oxide %	(na2o)	2.13
potassium oxide %	(k2o)	1.14

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86013
=====

sample id 00041
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 03/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1284.0	initial temp.(C)	1273.0
softening temp.(C)	1308.0	softening temp.(C)	1284.0
hemispherical temp.(C)	1327.0	hemispherical temp.(C)	1294.0
fluid temp.(C)	1454.0	fluid temp.(C)	1449.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86013
=====

sample id 00041
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 03/11/86

silicon dioxide %	(sio2)	61.53
aluminium oxide %	(al2o3)	21.68
ferric oxide %	(fe2o3)	3.88
titanium dioxide %	(tio2)	0.67
phosphorous pentoxide %	(p2o5)	0.71
calcium oxide %	(cao)	3.53
magnesium oxide %	(mgo)	2.90
sulphur trioxide %	(so3)	1.82
sodium oxide %	(na2o)	1.73
potassium oxide %	(k2o)	1.17

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86013
 Coal zone: 1
 Field sample no.: 05185 Composite sample no.: 42
 Lab sample no.: 29238
 True sample thickness: 2.687 meters Drill core recovery (%): 75.55 %
 Coal/Rock: 2.561 / 0.126 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 6.06 9.89 12.95 47.25
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 14.82 9.03

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	1.58	
Ash (%) :	20.52	20.85
Volatile matter (%) :	6.55	6.66
Fixed carbon (%) :	71.35	72.49
Total sulphur (%) :	0.43	0.44
Combustible sulphur (%) :	0.33	
Net calorific value (cal/g) :	6472.00	6576.00
Gross calorific value (cal/g) :	6472.00	6576.00
Volatile matter (dmmf%) :	6.30	
Hardgrove index:	62.00	
Specific gravity:	1.49	
Carbon dioxide (%) :	1.10	
Phosphorous in coal (%) :	0.134	
Chlorine in coal (ppm) :	2400.00	
Forms of Sulphur (%) :	PYRITE 02.00	SULPHATE 00.00 ORGANIC 98.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%) :	70.78	71.92
Hydrogen (%) :	2.23	2.27
Nitrogen (%) :	0.89	0.90
Oxygen (%) :	3.57	3.62

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C) :	1243.00	1160.00
Softening temperature (°C) :	1343.00	1270.00
Hemispherical temperature (°C) :	1418.00	1327.00
Final temperature (°C) :	1472.00	1472.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%) :	52.62	TiO2 (%) :	1.46
Al2O3 (%) :	26.46	Na2O (%) :	2.29
Fe2O3 (%) :	4.49	K2O (%) :	1.78
CaO (%) :	2.88	SO3 (%) :	1.20
MgO (%) :	2.83	P2O5 (%) :	1.50

gcri coal division ash fusion proj KPN BLK LR DS DDH86013
=====

sample id 00042
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 03/11/86

oxidizing atmosphere

initial temp.(C) 1343.0
softening temp.(C) 1375.0
hemispherical temp.(C) 1413.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1299.0
softening temp.(C) 1321.0
hemispherical temp.(C) 1358.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86013
=====

sample id 00042
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 03/11/86

silicon dioxide %	(sio2)	53.20
aluminium oxide %	(al2o3)	26.72
ferric oxide %	(fe2o3)	3.99
titanium dioxide %	(tio2)	1.10
phosphorous pentoxide %	(p2o5)	2.57
calcium oxide %	(cao)	4.25
magnesium oxide %	(mgo)	2.79
sulphur trioxide %	(so3)	1.80
sodium oxide %	(na2o)	2.13
potassium oxide %	(k2o)	1.40

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86013
=====

sample id 00042
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 03/11/86

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1311.0	initial temp.(C)	1302.0
softening temp.(C)	1345.0	softening temp.(C)	1337.0
hemispherical temp.(C)	1367.0	hemispherical temp.(C)	1359.0
fluid temp.(C)	1461.0	fluid temp.(C)	1451.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86013
=====

sample id 00042
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 03/11/86

silicon dioxide %	(sio2)	53.60
aluminium oxide %	(al2o3)	25.46
ferric oxide %	(fe2o3)	4.03
titanium dioxide %	(tio2)	0.49
phosphorous pentoxide %	(p2o5)	3.83
calcium oxide %	(cao)	5.07
magnesium oxide %	(mgo)	2.86
sulphur trioxide %	(so3)	1.44
sodium oxide %	(na2o)	1.89
potassium oxide %	(k2o)	1.29

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86013
 Coal zone: I OVT
 Field sample no.: 05188 Composite sample no.: 43
 Lab sample no.: 29238
 True sample thickness: 14.815 meters Drill core recovery (%): 93.70 %
 Coal/Rock: 14.590 / 0.225 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 12.88 13.50 13.39 40.07
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 12.17 7.99

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.86	
Ash (%):	10.81	11.02
Volatile matter (%):	6.12	6.24
Fixed carbon (%):	81.21	82.74
Total sulphur (%):	0.44	0.45
Combustible sulphur (%):	0.32	
Net calorific value (cal/g):	7409.00	7550.00
Gross calorific value (cal/g):	7409.00	7550.00
Volatile matter (dmmf %):	5.90	
Hardgrove index:	46.00	
Specific gravity:	1.39	
Carbon dioxide (%):	0.95	
Phosphorous in coal (%):	0.273	
Chlorine in coal (ppm):	1680.00	
Forms of Sulphur (%):	PYRITE 02.00	SULPHATE 00.00 ORGANIC 98.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	81.50	83.05
Hydrogen (%):	2.04	2.08
Nitrogen (%):	0.95	0.97
Oxygen (%):	2.40	2.43

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1241.00	1198.00
Softening temperature (°C):	1278.00	1254.00
Hemispherical temperature (°C):	1284.00	1259.00
Final temperature (°C):	1308.00	1294.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	42.06	TiO2 (%):	1.39
Al2O3 (%):	23.41	Na2O (%):	1.83
Fe2O3 (%):	7.29	K2O (%):	1.16
CaO (%):	8.58	SO3 (%):	2.83
MgO (%):	3.57	P2O5 (%):	5.78

scri coal division ash fusion proj KPN BLK LR DS DDH86013
=====

sample id 00043
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 03/11/86

oxidizing atmosphere

initial temp.(C) 1270.0
softening temp.(C) 1321.0
hemispherical temp.(C) 1332.0
fluid temp.(C) 1382.0

reducing atmosphere

initial temp.(C) 1268.0
softening temp.(C) 1297.0
hemispherical temp.(C) 1302.0
fluid temp.(C) 1364.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

scri coal division ash mineral proj KPN BLK LR DS DDH86013
=====

sample id 00043
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 03/11/86

silicon dioxide %	(sio2)	43.05
aluminium oxide %	(al2o3)	26.24
ferric oxide %	(fe2o3)	5.78
titanium dioxide %	(tio2)	0.67
phosphorous pentoxide %	(p2o5)	5.31
calcium oxide %	(cao)	7.75
magnesium oxide %	(mgo)	3.49
sulphur trioxide %	(so3)	2.71
sodium oxide %	(na2o)	1.76
potassium oxide %	(k2o)	1.11

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86013
=====

sample id 00043
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 03/11/86

oxidizing atmosphere XXXXXXXXXXXXXXXXXXXX		reducing atmosphere XXXXXXXXXXXXXXXXXXXX	
initial temp.(C)	1300.0	initial temp.(C)	1284.0
softening temp.(C)	1332.0	softening temp.(C)	1316.0
hemispherical temp.(C)	1343.0	hemispherical temp.(C)	1327.0
fluid temp.(C)	1429.0	fluid temp.(C)	1419.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86013
=====

sample id 00043
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 03/11/86

silicon dioxide %	(sio2)	47.76
aluminium oxide %	(al2o3)	24.57
ferric oxide %	(fe2o3)	5.49
titanium dioxide %	(tio2)	0.49
phosphorous pentoxide %	(p2o5)	4.85
calcium oxide %	(cao)	7.59
magnesium oxide %	(mgo)	3.27
sulphur trioxide %	(so3)	1.67
sodium oxide %	(na2o)	1.64
potassium oxide %	(k2o)	1.08

90.0 <= total <= 100.0

KPNLRDDH86014

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86014

DATE - 04/03/87

- HISTORY -

START DATE - 04/09/86

END DATE - 06/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - BARKER

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - CORE BOXES WERE MISNUMBERED AFTER BOX 45. BOX 46 W
AS OMITTED, NO CORE IS MISSING. THERMISTOR 75 M.

- LOCATION -

PROVINCE - BC

ELEVATION - 1705.90

ZONE - 9

NORTHING - 6344042.00

EASTING - 506891.62

LICENCE/LEASE NUMBER -

LATITUDE - 571429

LONGITUDE - 1285309

- ORIENTATION -

LENGTH - 163.67

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 7.62

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

=====

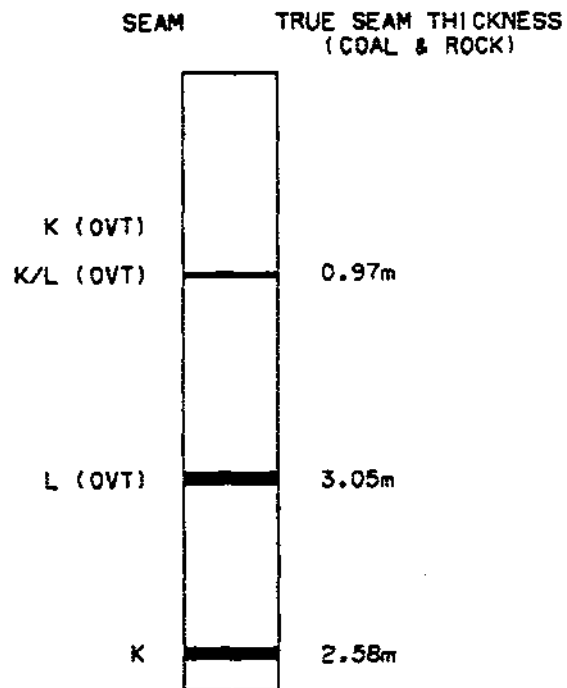
02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

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

DDH86014		10017	105.15	105.59	100.00		0.311			0.000- 0.311
	L OVT	10018	105.59	106.83	100.00	0.848	0.028			0.848- 0.028
	L OVT	10019	106.83	108.25	90.14	0.748	0.156	0.099		0.847- 0.156
	L OVT	10020	108.25	109.91	83.73	0.969	0.014	0.149	0.042	1.118- 0.056
		10021	109.91	110.34	100.00		0.304			0.000- 0.304
		10022	154.08	154.29	100.00		0.203			0.000- 0.203
	K	10023	154.29	155.64	84.44	0.944	0.165	0.058	0.146	1.002- 0.311
	K	10024	155.64	156.94	100.00	1.271				1.271- 0.000
		10025	156.94	157.77	100.00		0.814			0.000- 0.814

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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
DDH86014												
L	DVT	44	10018	10020	105.59	109.91	90.50	3.63	0.28	0.35	0.06	3.98- 0.34
K		45	10023	10024	154.29	156.94	92.07	2.27	0.17	0.06	0.15	2.33- 0.32
L		224	10018	10020	105.59	109.91	90.50	3.63	0.28	0.35	0.06	3.98- 0.34
K		225	10024	10025	155.64	157.77	100.00	1.30	0.83	0.00	0.00	1.30- 0.83
L		324	10018	10020	105.59	109.91	90.50	3.63	0.28	0.35	0.06	3.98- 0.34
K		325	10024	10025	155.64	157.77	100.00	1.30	0.83	0.00	0.00	1.30- 0.83



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86014

GULF CANADA CORPORATION
11/03/87
KLAP:(205057)870063014.LOG



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86014
 Coal zone: L OVT
 Field sample no.: 10018 - 10020 Composite sample no.: 44
 Lab sample no.: 29348
 True sample thickness: 3.053 meters Drill core recovery(%): 90.50 %
 Coal/Rock: 2.813 / 0.240 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 31.44 16.66 13.36 27.85
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 6.68 4.01

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.60	
Ash (%):	38.07	38.30
Volatile matter (%):	7.42	7.46
Fixed carbon (%):	53.91	54.24
Total sulphur (%):	0.38	0.38
Combustible sulphur (%):	0.06	
Net calorific value (cal/g):	4749.00	4777.00
Gross calorific value (cal/g):	4749.00	4777.00
Volatile matter (dmmf %):	7.30	
Hardgrove index:	45.00	
Specific gravity:	1.64	
Carbon dioxide (%):	1.85	
Phosphorous in coal (%):	0.170	
Chlorine in coal (ppm):	2390.00	
Forms of Sulphur (%):	PYRITE 05.00	SULPHATE 00.00 ORGANIC 95.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	55.14	55.47
Hydrogen (%):	1.78	1.79
Nitrogen (%):	0.68	0.68
Oxygen (%):	3.35	3.38

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1305.00	1257.00
Softening temperature (°C):	1327.00	1289.00
Hemispherical temperature (°C):	1356.00	1319.00
Final temperature (°C):	1472.00	1472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	55.92	TiO2 (%):	1.29
Al2O3 (%):	24.19	Na2O (%):	2.59
Fe2O3 (%):	3.12	K2O (%):	1.14
CaO (%):	4.14	SO3 (%):	2.07
MgO (%):	2.23	P2O5 (%):	1.02

gcri coal division ash fusion proj KPN BLK LR DS DDH86014
=====

sample id 00044
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 12/12/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1284.0	initial temp.(C)	1241.0
softening temp.(C)	1308.0	softening temp.(C)	1262.0
hemispherical temp.(C)	1324.0	hemispherical temp.(C)	1284.0
fluid temp.(C)	1396.0	fluid temp.(C)	1386.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86014
=====

sample id 00044
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 12/12/86

silicon dioxide %	(sio2)	50.76
aluminium oxide %	(al2o3)	25.95
ferric oxide %	(fe2o3)	4.59
titanium dioxide %	(tio2)	1.68
phosphorous pentoxide %	(p2o5)	1.88
calcium oxide %	(cao)	5.32
magnesium oxide %	(mgo)	2.70
sulphur trioxide %	(so3)	1.92
sodium oxide %	(na2o)	2.10
potassium oxide %	(k2o)	1.22

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86014
=====

sample id 00044
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 12/12/86

oxidizing atmosphere
#####

reducing atmosphere
#####

initial temp.(C)	1305.0	initial temp.(C)	1250.0
softening temp.(C)	1335.0	softening temp.(C)	1300.0
hemispherical temp.(C)	1362.0	hemispherical temp.(C)	1327.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86014
=====

sample id 00044
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 12/12/86

silicon dioxide %	(sio2)	55.80
aluminium oxide %	(al2o3)	26.84
ferric oxide %	(fe2o3)	3.60
titanium dioxide %	(tio2)	0.97
phosphorous pentoxide %	(p2o5)	1.73
calcium oxide %	(cao)	4.62
magnesium oxide %	(mgo)	2.16
sulphur trioxide %	(so3)	1.34
sodium oxide %	(na2o)	1.73
potassium oxide %	(k2o)	1.13

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86014
 Coal zone: K
 Field sample no.: 10023 - 10024 Composite sample no.: 45
 Lab sample no.: 29348
 True sample thickness: 2.584 meters Drill core recovery(%): 92.07 %
 Coal/Rock: 2.273 / 0.311 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size(mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight(%): 40.82 25.51 13.12 16.99
 Fraction size(mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight(%): 2.36 1.20

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture(%) :	0.56	
Ash(%) :	40.93	41.16
Volatile matter(%) :	8.80	8.85
Fixed carbon(%) :	49.71	49.99
Total sulphur(%) :	0.36	0.36
Combustible sulphur(%) :	0.03	
Net calorific value(cal/g) :	4529.00	4554.00
Gross calorific value(cal/g) :	4529.00	4554.00
Volatile matter(dmmf%) :	9.80	
Hardgrove index:	49.00	
Specific gravity:	1.70	
Carbon dioxide(%) :	5.36	
Phosphorous in coal(%) :	0.147	
Chlorine in coal(ppm) :	2380.00	
Forms of Sulphur(%) :	PYRITE 08.00	SULPHATE 00.00 ORGANIC 92.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon(%) :	52.00	52.29
Hydrogen(%) :	1.72	1.73
Nitrogen(%) :	0.61	0.61
Oxygen(%) :	3.82	3.85

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C) :	1251.00	1187.00
Softening temperature(°C) :	1268.00	1198.00
Hemispherical temperature(°C) :	1278.00	1208.00
Final temperature(°C) :	1308.00	1300.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2(%) :	54.66	TiO2(%) :	0.94
Al2O3(%) :	16.88	Na2O(%) :	1.70
Fe2O3(%) :	8.69	K2O(%) :	0.84
CaO(%) :	6.75	SO3(%) :	2.40
MgO(%) :	4.52	P2O5(%) :	0.82

gcri coal division ash fusion proj KPN BLK LR DS DDH86014
=====

sample id 00045
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 12/12/86

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1273.0	initial temp.(C)	1230.0
softening temp.(C)	1311.0	softening temp.(C)	1251.0
hemispherical temp.(C)	1340.0	hemispherical temp.(C)	1276.0
fluid temp.(C)	1429.0	fluid temp.(C)	1421.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86014
=====

sample id 00045
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 12/12/86

silicon dioxide %	(sio2)	51.75
aluminium oxide %	(al2o3)	25.97
ferric oxide %	(fe2o3)	6.51
titanium dioxide %	(tio2)	1.32
phosphorous pentoxide %	(p2o5)	0.61
calcium oxide %	(cao)	3.49
magnesium oxide %	(mgo)	3.32
sulphur trioxide %	(so3)	1.55
sodium oxide %	(na2o)	2.36
potassium oxide %	(k2o)	1.05

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86014
=====

sample id 00045
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 12/12/86

oxidizing atmosphere #####		reducing atmosphere #####	
initial temp.(C)	1251.0	initial temp.(C)	1233.0
softening temp.(C)	1327.0	softening temp.(C)	1300.0
hemispherical temp.(C)	1394.0	hemispherical temp.(C)	1340.0
fluid temp.(C)	1472.0	fluid temp.(C)	1470.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86014
=====

sample id 00045
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 12/12/86

silicon dioxide %	(sio2)	55.08
aluminium oxide %	(al2o3)	26.46
ferric oxide %	(fe2o3)	5.62
titanium dioxide %	(tio2)	0.85
phosphorous pentoxide %	(p2o5)	0.56
calcium oxide %	(cao)	2.69
magnesium oxide %	(mgo)	2.82
sulphur trioxide %	(so3)	0.95
sodium oxide %	(na2o)	2.05
potassium oxide %	(k2o)	1.05

90.0 <= total <= 100.0

KPNLRDDH86015

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86015

DATE - 04/03/87

- HISTORY -

START DATE - 04/09/86

END DATE - 06/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - LOVE

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1562.52

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6344290.00

EASTING - 507601.81

LATITUDE - 571437

LONGITUDE - 1285227

- ORIENTATION -

LENGTH - 105.92

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

INCLINATION - 90.0

AZIMUTH - 0.0

CASING DEPTH (M) - 10.67

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

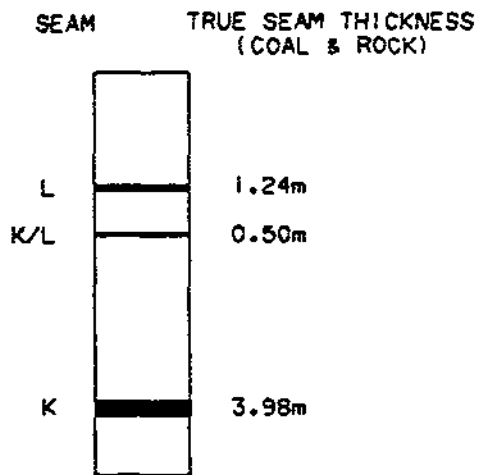
*** NOTE *** 0 INDICATES NO VALUE

02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
SIMPLE SAMPLE SUMMARY
TRUE 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
DDH86015		5162	28.77	29.21	100.00		0.425			0.000- 0.425
	L	5163	29.21	30.51	57.69	0.637	0.076	0.527		1.164- 0.076
		5164	30.51	30.99	100.00		0.451			0.000- 0.451
		5165	41.23	42.68	100.00		1.401			0.000- 1.401
	K/L	5166	42.68	43.19	94.12	0.468		0.029		0.497- 0.000
		5167	43.19	43.70	100.00		0.501			0.000- 0.501
		5168	85.13	86.55	100.00		1.413			0.000- 1.413
	K?	5169	86.55	87.50	100.00	0.945				0.945- 0.000
	K?	5170	87.50	90.04	77.56	1.918	0.040	0.418	0.149	2.336- 0.189
	K?	5171	90.04	90.55	100.00	0.436	0.070			0.436- 0.070
		5172	90.55	91.18	100.00		0.625			0.000- 0.625

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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
DDH86015												
	K	46	5169	5171	86.55	90.55	85.75	3.32	0.11	0.42	0.15	3.74 - 0.26
	K	226	5169	5171	86.55	90.55	85.75	3.32	0.11	0.42	0.15	3.74 - 0.26
	K	326	5169	5171	86.55	90.55	85.75	3.32	0.11	0.42	0.15	3.74 - 0.26



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86015

GULF CANADA CORPORATION
11/03/87
KLAPP\2050571870063015.L00



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86015
 Coal zone: K
 Field sample no.: 05169 - 05171 Composite sample no.: 46
 Lab sample no.: 29348
 True sample thickness: 3.976 meters Drill core recovery(%): 85.75 %
 Coal/Rock: 3.717 / 0.259 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 35.56 24.15 15.25 20.27
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 3.01 1.76

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.67	
Ash (%):	25.81	25.98
Volatile matter (%):	7.25	7.30
Fixed carbon (%):	66.27	66.72
Total sulphur (%):	0.40	0.40
Combustible sulphur (%):	0.12	
Net calorific value (cal/g):	6008.00	6049.00
Gross calorific value (cal/g):	6008.00	6049.00
Volatile matter (dmmf %):	7.10	
Hardgrove index:	52.00	
Specific gravity:	1.53	
Carbon dioxide (%):	1.57	
Phosphorous in coal (%):	0.477	
Chlorine in coal (ppm):	2320.00	
Forms of Sulphur (%):	PYRITE 05.00	SULPHATE 00.00 ORGANIC 95.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	67.36	67.81
Hydrogen (%):	1.91	1.92
Nitrogen (%):	0.88	0.89
Oxygen (%):	2.97	3.00

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1284.00	1241.00
Softening temperature (°C):	1289.00	1257.00
Hemispherical temperature (°C):	1294.00	1265.00
Final temperature (°C):	1316.00	1312.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	46.54	TiO2 (%):	1.21
Al2O3 (%):	23.30	Na2O (%):	2.16
Fe2O3 (%):	5.25	K2O (%):	1.14
CaO (%):	8.34	SO3 (%):	2.70
MgO (%):	2.73	P2O5 (%):	4.23

gcri coal division ash fusion proj KPN BLK LR DS DDH86015
=====

sample id 00046
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 12/12/86

oxidizing atmosphere
oooooooooooooooooooo

initial temp.(C) 1270.0
softening temp.(C) 1286.0
hemispherical temp.(C) 1300.0
fluid temp.(C) 1335.0

reducing atmosphere
oooooooooooooooooooo

initial temp.(C) 1219.0
softening temp.(C) 1241.0
hemispherical temp.(C) 1257.0
fluid temp.(C) 1332.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86015
=====

sample id 00046
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 12/12/86

silicon dioxide %	(sio2)	43.35
aluminium oxide %	(al2o3)	26.77
ferric oxide %	(fe2o3)	8.29
titanium dioxide %	(tio2)	1.31
phosphorous pentoxide %	(p2o5)	2.89
calcium oxide %	(cao)	6.39
magnesium oxide %	(mgo)	4.12
sulphur trioxide %	(so3)	1.66
sodium oxide %	(na2o)	1.95
potassium oxide %	(k2o)	0.99

90.0 <= total <= 100.0

agri coal division ash fusion proj KPN BLK LR DS DDH86015
=====

sample id 00046
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 12/12/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1278.0
softening temp.(C) 1294.0
hemispherical temp.(C) 1305.0
fluid temp.(C) 1340.0

initial temp.(C) 1230.0
softening temp.(C) 1246.0
hemispherical temp.(C) 1260.0
fluid temp.(C) 1337.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

agri coal division ash mineral proj KPN BLK LR DS DDH86017
=====

sample id 00046
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 12/12/86

silicon dioxide %	(sio2)	52.52
aluminium oxide %	(al2o3)	24.95
ferric oxide %	(fe2o3)	6.16
titanium dioxide %	(tio2)	0.86
phosphorous pentoxide %	(p2o5)	1.54
calcium oxide %	(cao)	5.71
magnesium oxide %	(mgo)	3.07
sulphur trioxide %	(so3)	2.05
sodium oxide %	(na2o)	2.00
potassium oxide %	(k2o)	1.11

90.0 <= total <= 100.0

KPNLRDDH86016

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86016

DATE - 04/03/87

- HISTORY -

START DATE - 06/09/86

END DATE - 09/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - LOVE

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE. &y

- LOCATION -

PROVINCE - BC

ELEVATION - 1647.09

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6343292.00

EASTING - 506636.25

LATITUDE - 571405

LONGITUDE - 1285324

- ORIENTATION -

LENGTH - 189.46

CORE SIZE - 0.0

INCLINATION - 90.0

AZIMUTH - 0.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 3.05

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE



02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

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

DDH86016.		10026	75.13	75.66	100.00		0.459			0.000	0.459
	L	10027	75.66	78.30	89.77	2.052		0.234		2.286	0.000
		10028	78.30	79.20	100.00		0.779			0.000	0.779
		10029	143.81	144.00	100.00		0.189			0.000	0.189
	K/L	10030	144.00	145.47	53.74	0.733	0.050	0.675		1.408	0.050
	K/L	10031	145.47	146.77	92.31	0.908	0.276	0.099		1.007	0.276
		10032	146.77	148.18	100.00		1.387			0.000	1.387
		10033	156.00	157.12	100.00		1.092			0.000	1.092
	K	10034	157.12	158.65	64.71	0.948	0.020	0.527		1.475	0.020
	K	10035	158.65	159.80	90.43	0.732	0.283	0.107		0.839	0.283
		10036	159.80	160.44	100.00		0.626			0.000	0.626

02/APR/87

GULF CANADA CORPORATION - COAL DIVISION

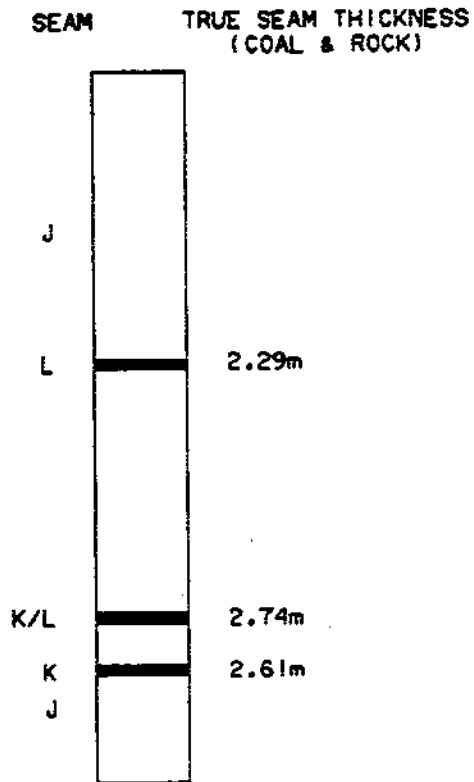
COMPOSITE SAMPLE SUMMARY

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
DDH86016												
	L	47	10027	10027	75.66	78.30	89.77	2.37	0.00	0.27	0.00	2.64 - 0.00
	K/L	48	10030	10031	144.00	146.77	71.84	1.66	0.33	0.78	0.00	2.44 - 0.33
	K	49	10034	10035	157.12	159.80	75.74	1.72	0.31	0.65	0.00	2.37 - 0.31
	L	227	10027	10027	75.66	78.30	89.77	2.37	0.00	0.27	0.00	2.64 - 0.00
	L	327	10027	10027	75.66	78.30	89.77	2.37	0.00	0.27	0.00	2.64 - 0.00



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86016

GULF CANADA CORPORATION
11/03/87
KLAP1(205057)870063016.LOG



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86016
 Coal zone: L
 Field sample no.: 10027 Composite sample no.: 47
 Lab sample no.: 29348
 True sample thickness: 2.286 meters Drill core recovery (%): 89.77 %
 Coal/Rock: 2.286 / 0.000 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 17.59 15.13 15.10 34.38
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 11.14 6.66

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.50	
Ash (%):	32.36	32.52
Volatile matter (%):	7.48	7.52
Fixed carbon (%):	59.66	59.96
Total sulphur (%):	0.42	0.42
Combustible sulphur (%):	0.08	
Net calorific value (cal/g):	5411.00	5438.00
Gross calorific value (cal/g):	5411.00	5438.00
Volatile matter (dmmf%):	7.40	
Hardgrove index:	82.00	
Specific gravity:	1.59	
Carbon dioxide (%):	2.73	
Phosphorous in coal (%):	0.089	
Chlorine in coal (ppm):	2340.00	
Forms of Sulphur (%):	PYRITE 05.00	SULPHATE 00.00 ORGANIC 95.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	61.42	61.73
Hydrogen (%):	2.06	2.07
Nitrogen (%):	0.68	0.68
Oxygen (%):	2.56	2.58

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1284.00	1203.00
Softening temperature (°C):	1294.00	1222.00
Hemispherical temperature (°C):	1302.00	1238.00
Final temperature (°C):	1375.00	1311.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	56.72	TiO2 (%):	1.13
Al2O3 (%):	18.65	Na2O (%):	1.39
Fe2O3 (%):	7.56	K2O (%):	1.08
CaO (%):	4.00	SO3 (%):	2.61
MgO (%):	4.14	P2O5 (%):	0.63

gcri coal division ash fusion proj KPN BLK LR DS DDHS6016
=====

sample id 00047
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 12/12/86

oxidizing atmosphere

initial temp.(C) 1281.0
softening temp.(C) 1311.0
hemispherical temp.(C) 1337.0
fluid temp.(C) 1394.0

reducing atmosphere

initial temp.(C) 1233.0
softening temp.(C) 1260.0
hemispherical temp.(C) 1281.0
fluid temp.(C) 1354.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDHS6016
=====

sample id 00047
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 12/12/86

silicon dioxide %	(sio2)	57.90
aluminium oxide %	(al2o3)	21.93
ferric oxide %	(fe2o3)	6.41
titanium dioxide %	(tio2)	1.33
phosphorous pentoxide %	(p2o5)	0.69
calcium oxide %	(cao)	2.66
magnesium oxide %	(mgo)	3.60
sulphur trioxide %	(so3)	1.06
sodium oxide %	(na2o)	1.23
potassium oxide %	(k2o)	1.04

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86016
=====

sample id 00047
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 12/12/86

oxidizing atmosphere

initial temp.(C) 1375.0
softening temp.(C) 1396.0
hemispherical temp.(C) 1405.0
fluid temp.(C) 1448.0

reducing atmosphere

initial temp.(C) 1300.0
softening temp.(C) 1324.0
hemispherical temp.(C) 1383.0
fluid temp.(C) 1423.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86016
=====

sample id 00047
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 12/12/86

silicon dioxide %	(sio2)	57.54
aluminium oxide %	(al2o3)	23.82
ferric oxide %	(fe2o3)	6.23
titanium dioxide %	(tio2)	0.84
phosphorous pentoxide %	(p2o5)	0.62
calcium oxide %	(cao)	2.10
magnesium oxide %	(mgo)	3.59
sulphur trioxide %	(so3)	0.69
sodium oxide %	(na2o)	1.20
potassium oxide %	(k2o)	0.95

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86016
 Coal zone: K/L
 Field sample no.: 10030 - 10031 Composite sample no.: 48
 Lab sample no.: 29348
 True sample thickness: 2.741 meters Drill core recovery (%): 71.84 %
 Coal/Rock: 2.415 / 0.326 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 34.80 17.51 13.73 23.65
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 6.42 3.89

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.64	
Ash (%):	45.61	45.90
Volatile matter (%):	9.77	9.83
Fixed carbon (%):	43.98	44.27
Total sulphur (%):	0.56	0.56
Combustible sulphur (%):	0.10	
Net calorific value (cal/g):	4041.00	4067.00
Gross calorific value (cal/g):	4041.00	4067.00
Volatile matter (dmmf%):	11.90	
Hardgrove index:	54.00	
Specific gravity:	1.76	
Carbon dioxide (%):	4.95	
Phosphorous in coal (%):	0.133	
Chlorine in coal (ppm):	1860.00	
Forms of Sulphur (%):	PYRITE 39.00	SULPHATE 00.00 ORGANIC 61.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	48.26	48.57
Hydrogen (%):	1.18	1.19
Nitrogen (%):	0.56	0.56
Oxygen (%):	3.19	3.22

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1268.00	1187.00
Softening temperature (°C):	1278.00	1203.00
Hemispherical temperature (°C):	1294.00	1211.00
Final temperature (°C):	1345.00	1284.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	56.30	TiO2 (%):	0.86
Al2O3 (%):	17.39	Na2O (%):	1.57
Fe2O3 (%):	8.51	K2O (%):	1.19
CaO (%):	4.81	SO3 (%):	2.50
MgO (%):	3.73	P2O5 (%):	0.67

scri coal division ash fusion proj KPN BLK LR DS DDH86016
=====

sample id 00048
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 12/12/86

oxidizing atmosphere

initial temp.(C) 1268.0
softening temp.(C) 1294.0
hemispherical temp.(C) 1316.0
fluid temp.(C) 1367.0

reducing atmosphere

initial temp.(C) 1200.0
softening temp.(C) 1230.0
hemispherical temp.(C) 1257.0
fluid temp.(C) 1362.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

scri coal division ash mineral proj KPN BLK LR DS DDH86016
=====

sample id 00048
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 12/12/86

silicon dioxide %	(sio2)	60.18
aluminium oxide %	(al2o3)	20.04
ferric oxide %	(fe2o3)	5.03
titanium dioxide %	(tio2)	1.01
phosphorous pentoxide %	(p2o5)	0.83
calcium oxide %	(cao)	3.55
magnesium oxide %	(mgo)	2.72
sulphur trioxide %	(so3)	1.66
sodium oxide %	(na2o)	1.66
potassium oxide %	(k2o)	1.22

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86016
=====

sample id 00048
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 12/12/86

oxidizing atmosphere

initial temp.(C) 1294.0
softening temp.(C) 1327.0
hemispherical temp.(C) 1356.0
fluid temp.(C) 1431.0

reducing atmosphere

initial temp.(C) 1233.0
softening temp.(C) 1279.0
hemispherical temp.(C) 1327.0
fluid temp.(C) 1429.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86016
=====

sample id 00048
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 12/12/86

silicon dioxide %	(sio2)	60.44
aluminium oxide %	(al2o3)	22.30
ferric oxide %	(fe2o3)	4.60
titanium dioxide %	(tio2)	0.83
phosphorous pentoxide %	(p2o5)	0.88
calcium oxide %	(cao)	2.98
magnesium oxide %	(mgo)	2.39
sulphur trioxide %	(so3)	1.01
sodium oxide %	(na2o)	1.65
potassium oxide %	(k2o)	1.25

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86016
 Coal zone: K
 Field sample no.: 10034 - 10035 Composite sample no.: 49
 Lab sample no.: 29348
 True sample thickness: 2.617 meters Drill core recovery (%): 75.74 %
 Coal/Rock: 2.314 / 0.303 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 19.95 17.39 14.68 33.20
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 8.88 5.90

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.58	
Ash (%):	44.43	44.69
Volatile matter (%):	9.86	9.92
Fixed carbon (%):	45.13	45.39
Total sulphur (%):	1.91	1.92
Combustible sulphur (%):	1.30	
Net calorific value (cal/g):	4063.00	4087.00
Gross calorific value (cal/g):	4063.00	4087.00
Volatile matter (dmmf %):	11.00	
Hardgrove index:	74.00	
Specific gravity:	1.74	
Carbon dioxide (%):	5.85	
Phosphorous in coal (%):	0.145	
Chlorine in coal (ppm):	2020.00	
Forms of Sulphur (%):	PYRITE 57.00	SULPHATE 00.00 ORGANIC 42.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	48.67	48.95
Hydrogen (%):	1.39	1.40
Nitrogen (%):	0.51	0.51
Oxygen (%):	2.51	2.53

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1276.00	1203.00
Softening temperature (°C):	1284.00	1208.00
Hemispherical temperature (°C):	1292.00	1217.00
Final temperature (°C):	1356.00	1321.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	49.32	TiO2 (%):	1.04
Al2O3 (%):	18.39	Na2O (%):	1.79
Fe2O3 (%):	8.98	K2O (%):	1.15
CaO (%):	7.89	SO3 (%):	3.46
MgO (%):	5.32	P2O5 (%):	0.75

gcri coal division ash fusion proj KPN BLK LR DS DDH26016
=====

sample id 00049
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 12/12/86

oxidizing atmosphere

initial temp.(C) 1273.0
softening temp.(C) 1294.0
hemispherical temp.(C) 1308.0
fluid temp.(C) 1362.0

reducing atmosphere

initial temp.(C) 1219.0
softening temp.(C) 1230.0
hemispherical temp.(C) 1243.0
fluid temp.(C) 1354.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH26016
=====

sample id 00049
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 12/12/86

silicon dioxide %	(sio2)	52.71
aluminium oxide %	(al2o3)	23.78
ferric oxide %	(fe2o3)	7.29
titanium dioxide %	(tio2)	1.44
phosphorous pentoxide %	(p2o5)	1.41
calcium oxide %	(cao)	3.77
magnesium oxide %	(mgo)	3.17
sulphur trioxide %	(so3)	1.57
sodium oxide %	(na2o)	1.82
potassium oxide %	(k2o)	1.18

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86016
=====

sample id 00049
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 12/12/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1251.0	initial temp.(C)	1200.0
softening temp.(C)	1289.0	softening temp.(C)	1219.0
hemispherical temp.(C)	1305.0	hemispherical temp.(C)	1235.0
fluid temp.(C)	1386.0	fluid temp.(C)	1362.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86016
=====

sample id 00049
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 12/12/86

silicon dioxide %	(sio2)	56.01
aluminium oxide %	(al2o3)	23.09
ferric oxide %	(fe2o3)	7.71
titanium dioxide %	(tio2)	0.77
phosphorous pentoxide %	(p2o5)	1.45
calcium oxide %	(cao)	3.44
magnesium oxide %	(mgo)	3.43
sulphur trioxide %	(so3)	1.04
sodium oxide %	(na2o)	1.85
potassium oxide %	(k2o)	1.11

90.0 <= total <= 100.0

KPNLRDDH86017

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86017

DATE - 04/03/87

- HISTORY -

START DATE - 06/09/86

END DATE - 08/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - BARKER

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE. STAND PIPE (1")
AT 100 M.

- LOCATION -

PROVINCE - BC

ELEVATION - 1702.67

ZONE - 9

NORTHING - 6343722.00

EASTING - 506526.62

LICENCE/LEASE NUMBER -

LATITUDE - 571418

LONGITUDE - 1285331

- ORIENTATION -

LENGTH - 126.79

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

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



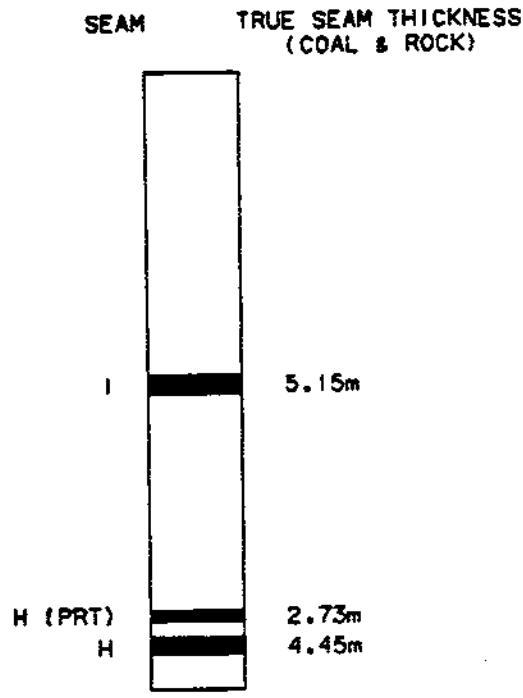
02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
SIMPLE SAMPLE SUMMARY
TRUE THICKNESS
KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL	TOTAL ROCK
DDH86017		10006	60.30	60.71	100.00		0.397			0.000	0.397
	I	10007	60.71	62.28	83.44	1.158	0.117	0.252		1.410	0.117
	I	10008	62.28	63.57	97.67	1.097	0.138		0.029	1.097	0.167
	I	10009	63.57	65.97	97.08	2.299		0.069		2.368	0.000
		10010	65.97	66.39	100.00		0.416			0.000	0.416
	H PART	10011	110.00	113.00	76.00	1.278	0.789	0.661		1.939	0.789
		10012	113.87	114.28	100.00		0.356			0.000	0.356
	H	10013	114.35	115.97	100.00	1.374				1.374	0.000
	H	10014	115.97	117.19	62.30	0.353	0.271	0.375		0.728	0.271
	H	10015	117.19	119.86	86.52	1.711	0.083	0.079	0.204	1.790	0.287
		10016	119.86	120.91	100.00		0.772			0.000	0.772
		10112	114.28	114.35	0.00				0.060	0.000	0.060

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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

DDH86017												
I		50	10007	10007	60.71	62.28	83.43	1.19	0.12	0.26	0.00	1.45- 0.12
I		51	10008	10008	62.28	63.57	97.67	1.12	0.14	0.00	0.03	1.12- 0.17
I		52	10009	10009	63.57	65.97	97.08	2.33	0.00	0.07	0.00	2.40- 0.00
H PART		53	10011	10011	110.00	113.00	76.00	1.41	0.87	0.72	0.00	2.13- 0.87
H		54	10013	10015	114.35	119.86	85.11	4.25	0.44	0.56	0.26	4.81- 0.70
I		228	10007	10008	60.71	63.57	89.86	2.31	0.26	0.26	0.03	2.57- 0.29
I		229	10009	10009	63.57	65.97	97.08	2.33	0.00	0.07	0.00	2.40- 0.00
H		230	10013	10015	114.35	119.86	85.11	4.25	0.44	0.56	0.26	4.81- 0.70
I		328	10007	10009	60.71	65.97	93.15	4.64	0.26	0.33	0.03	4.97- 0.29
H		330	10013	10015	114.35	119.86	85.11	4.25	0.44	0.56	0.26	4.81- 0.70



NOTE:

SCHMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86017

GULF CANADA CORPORATION
11/03/87
KLAP1(205057)870083017.L00



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPnlRDDH86017
 Coal zone: I
 Field sample no.: 10007 Composite sample no.: 50
 Lab sample no.: 29238
 True sample thickness: 1.527 meters Drill core recovery (%): 83.43 %
 Coal/Rock: 1.410 / 0.117 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 33.97 18.87 16.56 24.46
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 4.20 1.94

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.90	
Ash (%):	25.44	25.93
Volatile matter (%):	6.56	6.69
Fixed carbon (%):	66.10	67.38
Total sulphur (%):	0.40	0.41
Combustible sulphur (%):	0.04	
Net calorific value (cal/g):	5970.00	6086.00
Gross calorific value (cal/g):	5970.00	6086.00
Volatile matter (dmmf %):	6.20	
Hardgrove index:	47.00	
Specific gravity:	1.53	
Carbon dioxide (%):	3.42	
Phosphorous in coal (%):	0.018	
Chlorine in coal (ppm):	1400.00	
Forms of Sulphur (%):	PYRITE 05.00	SULPHATE 00.00 ORGANIC 95.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	66.05	67.33
Hydrogen (%):	2.01	2.05
Nitrogen (%):	0.72	0.73
Oxygen (%):	3.48	3.55

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1276.00	1203.00
Softening temperature (°C):	1281.00	1251.00
Hemispherical temperature (°C):	1289.00	1262.00
Final temperature (°C):	1316.00	1311.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	58.96	TiO2 (%):	0.95
Al2O3 (%):	17.63	Na2O (%):	1.27
Fe2O3 (%):	5.26	K2O (%):	1.17
CaO (%):	4.73	SO3 (%):	3.57
MgO (%):	4.16	P2O5 (%):	0.16

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86017
 Coal zone: I
 Field sample no.: 10008 Composite sample no.: 51
 Lab sample no.: 29238
 True sample thickness: 1.264 meters Drill core recovery(%): 97.67 %
 Coal/Rock: 1.097 / 0.167 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 37.97 21.94 14.24 21.90
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 2.69 1.26

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	2.36	
Ash (%):	30.02	30.75
Volatile matter (%):	5.40	5.53
Fixed carbon (%):	62.22	63.72
Total sulphur (%):	0.35	0.36
Combustible sulphur (%):	0.29	
Net calorific value (cal/g):	5511.00	5644.00
Gross calorific value (cal/g):	5511.00	5645.00
Volatile matter (dmmf%):	4.40	
Hardgrove index:	47.00	
Specific gravity:	1.59	
Carbon dioxide (%):	1.03	
Phosphorous in coal (%):	0.021	
Chlorine in coal (ppm):	2200.00	
Forms of Sulphur (%):	PYRITE 03.00	SULPHATE 03.00 ORGANIC 94.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	61.74	63.23
Hydrogen (%):	2.29	2.35
Nitrogen (%):	0.72	0.74
Oxygen (%):	2.52	2.57

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1466.00	1388.00
Softening temperature (°C):	1472.00	1461.00
Hemispherical temperature (°C):	1472.00	1472.00
Final temperature (°C):	1472.00	1472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	57.08	TiO2 (%):	1.51
Al2O3 (%):	26.46	Na2O (%):	3.07
Fe2O3 (%):	3.29	K2O (%):	1.34
CaO (%):	1.06	SO3 (%):	0.50
MgO (%):	3.27	P2O5 (%):	0.16

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

PROJECT: KLAPPAN DATA SOURCE: April 21, 1987.
 Coal zone: I KPNLRDDH86017
 Field sample no.: 10009 Composite sample no.: 52
 Lab sample no.: 29238
 True sample thickness: 2.368 meters Drill core recovery (%): 97.08 %
 Coal/Rock: 2.368 / 0.000 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 36.53 22.89 14.82 21.59
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 2.34 1.83

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	2.11	
Ash (%):	9.28	9.48
Volatile matter (%):	5.23	5.34
Fixed carbon (%):	83.38	85.18
Total sulphur (%):	0.46	0.47
Combustible sulphur (%):	0.36	
Net calorific value (cal/g):	7495.00	7657.00
Gross calorific value (cal/g):	7495.00	7657.00
Volatile matter (dmmf %):	5.00	
Hardgrove index:	40.00	
Specific gravity:	1.42	
Carbon dioxide (%):	2.00	
Phosphorous in coal (%):	0.149	
Chlorine in coal (ppm):	2420.00	
Forms of Sulphur (%):	PYRITE 04.00	SULPHATE 00.00 ORGANIC 96.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	82.17	83.94
Hydrogen (%):	1.88	1.92
Nitrogen (%):	0.86	0.88
Oxygen (%):	3.24	3.31

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1249.00	1149.00
Softening temperature (°C):	1278.00	1184.00
Hemispherical temperature (°C):	1286.00	1195.00
Final temperature (°C):	1316.00	1268.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	38.36	TiO2 (%):	1.31
Al2O3 (%):	21.41	Na2O (%):	1.58
Fe2O3 (%):	14.61	K2O (%):	1.10
CaO (%):	7.05	SO3 (%):	2.58
MgO (%):	5.89	P2O5 (%):	3.68

gcri coal division ash fusion proj KPN BLK LR DS DDH86017
=====

sample id 00050
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 03/11/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1257.0	initial temp.(C)	1157.0
softening temp.(C)	1375.0	softening temp.(C)	1319.0
hemispherical temp.(C)	1431.0	hemispherical temp.(C)	1383.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86017
=====

sample id 00050
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 03/11/86

silicon dioxide %	(sio2)	56.90
aluminium oxide %	(al2o3)	26.46
ferric oxide %	(fe2o3)	3.67
titanium dioxide %	(tio2)	0.99
phosphorous pentoxide %	(p2o5)	0.22
calcium oxide %	(cao)	3.27
magnesium oxide %	(mgo)	3.36
sulphur trioxide %	(so3)	1.65
sodium oxide %	(na2o)	1.56
potassium oxide %	(k2o)	1.74

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86017
=====

sample id 00050
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 03/11/86

oxidizing atmosphere

initial temp.(C) 1305.0
softening temp.(C) 1375.0
hemispherical temp.(C) 1448.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1273.0
softening temp.(C) 1321.0
hemispherical temp.(C) 1383.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86017
=====

sample id 00050
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 03/11/86

silicon dioxide %	(sio2)	59.36
aluminium oxide %	(al2o3)	25.21
ferric oxide %	(fe2o3)	3.68
titanium dioxide %	(tio2)	0.67
phosphorous pentoxide %	(p2o5)	0.24
calcium oxide %	(cao)	2.88
magnesium oxide %	(mgo)	3.08
sulphur trioxide %	(so3)	1.72
sodium oxide %	(na2o)	1.45
potassium oxide %	(k2o)	1.60

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86017
=====

sample id 00051
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 03/11/86

oxidizing atmosphere

initial temp.(C) 1308.0
softening temp.(C) 1372.0
hemispherical temp.(C) 1413.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1262.0
softening temp.(C) 1316.0
hemispherical temp.(C) 1343.0
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 LR DS DDH86017
=====

sample id 00051
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 03/11/86

silicon dioxide %	(sio2)	55.50
aluminium oxide %	(al2o3)	26.08
ferric oxide %	(fe2o3)	6.91
titanium dioxide %	(tio2)	0.81
phosphorous pentoxide %	(p2o5)	0.31
calcium oxide %	(cao)	2.10
magnesium oxide %	(mgo)	4.29
sulphur trioxide %	(so3)	0.82
sodium oxide %	(na2o)	1.97
potassium oxide %	(k2o)	1.17

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86017
=====

sample id 00051
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 03/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1308.0	initial temp.(C)	1278.0
softening temp.(C)	1439.0	softening temp.(C)	1383.0
hemispherical temp.(C)	1472.0	hemispherical temp.(C)	1421.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86017
=====

sample id 00051
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 03/11/86

silicon dioxide %	(sio2)	59.25
aluminium oxide %	(al2o3)	25.84
ferric oxide %	(fe2o3)	4.88
titanium dioxide %	(tio2)	0.34
phosphorous pentoxide %	(p2o5)	0.34
calcium oxide %	(cao)	2.13
magnesium oxide %	(mgo)	3.16
sulphur trioxide %	(so3)	0.97
sodium oxide %	(na2o)	1.79
potassium oxide %	(k2o)	1.20

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86017
=====

sample id 00052
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 03/11/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1311.0	initial temp.(C)	1279.0
softening temp.(C)	1316.0	softening temp.(C)	1292.0
hemispherical temp.(C)	1324.0	hemispherical temp.(C)	1300.0
fluid temp.(C)	1386.0	fluid temp.(C)	1362.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86017
=====

sample id 00052
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 03/11/86

silicon dioxide %	(sio2)	40.38
aluminium oxide %	(al2o3)	29.11
ferric oxide %	(fe2o3)	6.09
titanium dioxide %	(tio2)	1.36
phosphorous pentoxide %	(p2o5)	4.43
calcium oxide %	(cao)	8.26
magnesium oxide %	(mgo)	4.06
sulphur trioxide %	(so3)	2.41
sodium oxide %	(na2o)	1.56
potassium oxide %	(k2o)	1.22

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86017
=====

sample id 00052
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 03/11/86

oxidizing atmosphere

initial temp.(C) 1297.0
softening temp.(C) 1316.0
hemispherical temp.(C) 1321.0
fluid temp.(C) 1386.0

reducing atmosphere

initial temp.(C) 1294.0
softening temp.(C) 1294.0
hemispherical temp.(C) 1300.0
fluid temp.(C) 1359.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86017
=====

sample id 00052
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 03/11/86

silicon dioxide % (sio2) 45.60
aluminium oxide % (al2o3) 28.87
ferric oxide % (fe2o3) 4.99
titanium dioxide % (tio2) 0.34
phosphorous pentoxide % (p2o5) 4.29
calcium oxide % (cao) 7.56
magnesium oxide % (mgo) 3.66
sulphur trioxide % (so3) 1.95
sodium oxide % (na2o) 1.44
potassium oxide % (k2o) 1.20

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86017
 Coal zone: H PART
 Field sample no.: 10011 Composite sample no.: 53
 Lab sample no.: 29264
 True sample thickness: 2.728 meters Drill core recovery (%): 76.00 %
 Coal/Rock: 1.939 / 0.789 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 35.73 26.37 13.48 19.76
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 3.12 1.54

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.64	
Ash (%):	61.25	61.64
Volatile matter (%):	9.70	9.76
Fixed carbon (%):	28.41	28.60
Total sulphur (%):	1.57	1.58
Combustible sulphur (%):	0.98	
Net calorific value (cal/g):	2419.00	2434.00
Gross calorific value (cal/g):	2419.00	2434.00
Volatile matter (dmmf %):	12.90	
Hardgrove index:	63.00	
Specific gravity:	1.93	
Carbon dioxide (%):	6.26	
Phosphorous in coal (%):	0.123	
Chlorine in coal (ppm):	2320.00	
Forms of Sulphur (%):	PYRITE 88.00	SULPHATE 01.00 ORGANIC 11.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	33.05	33.26
Hydrogen (%):	1.08	1.09
Nitrogen (%):	0.36	0.36
Oxygen (%):	2.05	2.07

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1225.00	1171.00
Softening temperature (°C):	1251.00	1192.00
Hemispherical temperature (°C):	1268.00	1203.00
Final temperature (°C):	1316.00	1251.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	57.22	TiO2 (%):	0.82
Al2O3 (%):	14.37	Na2O (%):	1.50
Fe2O3 (%):	9.47	K2O (%):	1.23
CaO (%):	5.93	SO3 (%):	2.41
MgO (%):	4.29	P2O5 (%):	0.46

gcri coal division ash fusion proj KPN BLK LR DS DDH86017
=====

sample id 00053
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 24/11/86

oxidizing atmosphere

initial temp.(C) 1262.0
softening temp.(C) 1308.0
hemispherical temp.(C) 1335.0
fluid temp.(C) 1386.0

reducing atmosphere

initial temp.(C) 1214.0
softening temp.(C) 1230.0
hemispherical temp.(C) 1257.0
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 LR DS DDH86017
=====

sample id 00053
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 24/11/86

silicon dioxide %	(sio2)	57.14
aluminium oxide %	(al2o3)	23.06
ferric oxide %	(fe2o3)	6.56
titanium dioxide %	(tio2)	1.24
phosphorous pentoxide %	(p2o5)	0.36
calcium oxide %	(cao)	3.16
magnesium oxide %	(mgo)	3.01
sulphur trioxide %	(so3)	1.97
sodium oxide %	(na2o)	1.66
potassium oxide %	(k2o)	1.52

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86017
=====

sample id 00053
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 24/11/86

oxidizing atmosphere #####		reducing atmosphere #####	
initial temp.(C)	1257.0	initial temp.(C)	1223.0
softening temp.(C)	1300.0	softening temp.(C)	1246.0
hemispherical temp.(C)	1324.0	hemispherical temp.(C)	1265.0
fluid temp.(C)	1399.0	fluid temp.(C)	1354.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86017
=====

sample id 00053
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 24/11/86

silicon dioxide %	(sio2)	56.14
aluminium oxide %	(al2o3)	24.07
ferric oxide %	(fe2o3)	6.64
titanium dioxide %	(tio2)	1.05
phosphorous pentoxide %	(p2o5)	0.35
calcium oxide %	(cao)	3.27
magnesium oxide %	(mgo)	3.30
sulphur trioxide %	(so3)	1.77
sodium oxide %	(na2o)	1.68
potassium oxide %	(k2o)	1.50

90.0 <= total <= 100.0

GULF CANADA CORPORATION - COAL DIVISION

MAR 30/87

WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRDDHB6017 SEAM - H PART

SAMPLE ID - 53

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 75.58		ASH % - 66.74									
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	VOL.	VOL.	MOIST	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST	
1.40	0.06	4.00	0.06	4.00	99.94	67.29								0.60	0.60
1.45	0.27	4.45	0.33	4.37	99.67	67.46								0.64	0.63
1.50	0.35	9.31	0.68	6.91	99.32	67.67								0.71	0.67
1.55	2.60	16.78	3.28	14.73	96.72	69.04								0.54	0.57
1.60	2.94	19.91	6.22	17.18	93.78	70.58								0.71	0.63
1.70	2.82	23.04	9.04	19.01	90.96	72.05								0.83	0.70
1.80	5.32	29.29	14.36	22.82	85.64	74.71								0.82	0.74
2.00	12.34	40.77	26.70	31.11	73.30	80.42								1.11	0.91
2.60	73.30	80.42	100.00	67.26										0.74	0.79

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 19.76		ASH % - 48.56									
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	VOL.	VOL.	MOIST	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST	
1.40	0.20	4.86	0.20	4.86	99.80	48.05								0.92	0.92
1.45	7.17	3.36	7.37	3.40	92.63	51.51								0.94	0.94
1.50	4.08	7.92	11.45	5.01	88.55	53.51								1.06	0.98
1.55	7.26	12.97	18.71	8.10	81.29	57.13								1.21	1.07
1.60	5.67	16.73	24.38	10.11	75.62	60.16								1.31	1.13
1.70	9.78	22.58	34.16	13.68	65.84	65.75								1.95	1.36
1.80	9.56	29.12	43.72	17.05	56.28	71.97								1.85	1.47
2.00	11.84	38.67	55.56	21.66	44.44	80.84								1.92	1.56
2.60	44.44	80.84	100.00	47.96										1.43	1.50

GULF CANADA CORPORATION - COAL DIVISION

MAR 30/87

WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRDDH86017 SEAM - H PART

SAMPLE ID - 53

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X		0.15		CUM. SINKS		RELATIVE WEIGHT % -			3.12 ASH % - 40.30		CUM. C.V. CUM.		CUM. C.V. CUM.	
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.34	4.22		0.34	4.22	99.66	39.48								1.70	1.70
1.45	12.56	3.63		12.90	3.65	87.10	44.65								1.15	1.16
1.50	7.82	5.76		20.72	4.44	79.28	48.49								1.47	1.28
1.55	8.99	9.75		29.71	6.05	70.29	53.44								1.62	1.38
1.60	4.59	13.72		34.30	7.08	65.70	56.22								1.92	1.45
1.70	7.58	18.48		41.88	9.14	58.12	61.14								1.93	1.54
1.80	10.22	24.71		52.10	12.19	47.90	68.91								1.99	1.63
2.00	11.24	35.23		63.34	16.28	36.66	79.24								1.82	1.66
2.60	36.66	79.24		100.00	39.36										1.45	1.58

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X		0.00		CUM. SINKS		RELATIVE WEIGHT % -			1.54 ASH % - 47.97		CUM. C.V. CUM.		CUM. C.V. CUM.	
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	47.97		100.00	47.97			15.94	15.94	1.19	1.19	1.19	7.92	7.92	0.56	0.56

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86017
 Coal zone: H
 Field sample no.: 10013 - 10015 Composite sample no.: 54
 Lab sample no.: 29264
 True sample thickness: 4.450 meters Drill core recovery (%): 85.11 %
 Coal/Rock: 3.892 / 0.558 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 25.16 36.94 12.33 20.66
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 3.23 1.68

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.50	
Ash (%):	34.00	34.17
Volatile matter (%):	8.10	8.14
Fixed carbon (%):	57.40	57.69
Total sulphur (%):	0.34	0.34
Combustible sulphur (%):	0.05	
Net calorific value (cal/g):	5036.00	5061.00
Gross calorific value (cal/g):	5036.00	5061.00
Volatile matter (dmmf%):	8.40	
Hardgrove index:	61.00	
Specific gravity:	1.63	
Carbon dioxide (%):	4.35	
Phosphorous in coal (%):	0.036	
Chlorine in coal (ppm):	2640.00	
Forms of Sulphur (%):	PYRITE 06.00	SULPHATE 00.00 ORGANIC 94.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	58.53	58.82
Hydrogen (%):	1.61	1.62
Nitrogen (%):	0.57	0.57
Oxygen (%):	4.45	4.48

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1246.00	1214.00
Softening temperature (°C):	1260.00	1225.00
Hemispherical temperature (°C):	1270.00	1235.00
Final temperature (°C):	1321.00	1276.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	62.62	TiO2 (%):	0.96
Al2O3 (%):	12.85	Na2O (%):	1.36
Fe2O3 (%):	4.29	K2O (%):	0.99
CaO (%):	8.47	SO3 (%):	2.15
MgO (%):	4.66	P2O5 (%):	0.24

agri coal division ash fusion proj KPN BLK LR DS DDH86017
=====

sample id 00054
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 24/11/86

oxidizing atmosphere

initial temp.(C) 1268.0
softening temp.(C) 1278.0
hemispherical temp.(C) 1294.0
fluid temp.(C) 1364.0

reducing atmosphere

initial temp.(C) 1235.0
softening temp.(C) 1249.0
hemispherical temp.(C) 1268.0
fluid temp.(C) 1337.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

agri coal division ash mineral proj KPN BLK LR DS DDH86017
=====

sample id 00054
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 24/11/86

silicon dioxide %	(sio2)	61.28
aluminium oxide %	(al2o3)	18.52
ferric oxide %	(fe2o3)	4.22
titanium dioxide %	(tio2)	0.98
phosphorous pentoxide %	(p2o5)	0.30
calcium oxide %	(cao)	4.69
magnesium oxide %	(mgo)	3.58
sulphur trioxide %	(so3)	2.63
sodium oxide %	(na2o)	1.39
potassium oxide %	(k2o)	1.14

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDHS6017
=====

sample id 00054
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 24/11/86

oxidizing atmosphere

initial temp.(C) 1286.0
softening temp.(C) 1302.0
hemispherical temp.(C) 1321.0
fluid temp.(C) 1394.0

reducing atmosphere

initial temp.(C) 1249.0
softening temp.(C) 1265.0
hemispherical temp.(C) 1284.0
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 LR DS DDHS6017
=====

sample id 00054
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 24/11/86

silicon dioxide %	(sio2)	61.40
aluminium oxide %	(al2o3)	21.17
ferric oxide %	(fe2o3)	4.08
titanium dioxide %	(tio2)	0.75
phosphorous pentoxide %	(p2o5)	0.28
calcium oxide %	(cao)	4.04
magnesium oxide %	(mgo)	3.36
sulphur trioxide %	(so3)	1.74
sodium oxide %	(na2o)	1.56
potassium oxide %	(k2o)	1.06

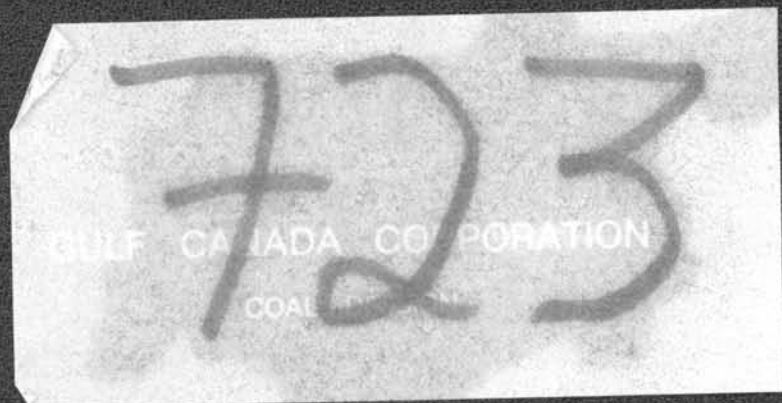
90.0 <= total <= 100.0

MOUNT KLAPPAN ANTHRACITE PROJECT
LOST - FOX AREA
GEOLOGICAL REPORT
1986

APPENDIX V

DIAMOND DRILL HOLE COAL QUALITY
VOLUME II

KPNLRDDH 86018
TO
KPNLRDDH 86038



KPNLRDDH86018

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86018

DATE - 04/03/87

- HISTORY -

START DATE - 09/09/86

END DATE - 10/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - SAVOIE

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - SITE T, SEAMS I, H, PH? STAND PIPE (1") AT 75 M, P
IEZ AT 40 M. COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1696.27

ZONE - 9

NORTHING - 6343398.00

EASTING - 506220.25

LICENCE/LEASE NUMBER -

LATITUDE - 571408

LONGITUDE - 1285349

- ORIENTATION -

LENGTH - 127.10

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - Y

CASING DEPTH (M) - 6.10

AQUIFER DEPTHS (M) - 0.00

0.00

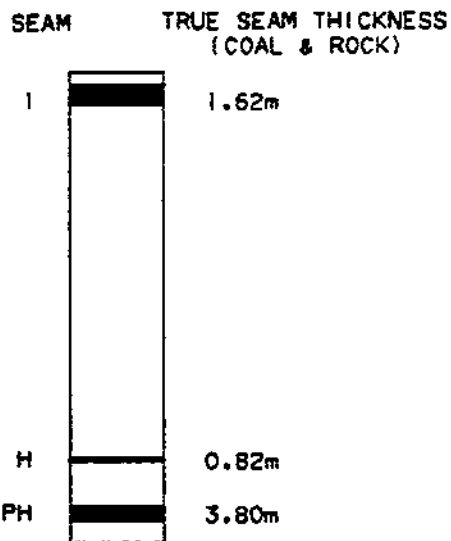
LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL - ROCK
DDH86018		5277	102.10	103.00	100.00		0.707			0.000- 0.707
	H	5278	103.00	104.11	100.00	0.575	0.250			0.575- 0.250
		5279	104.11	105.47	100.00		0.933			0.000- 0.933



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86018

GULF CANADA CORPORATION
11/03/87
KLAP: (205057) 1870063018.L06



KPNLRDDH86019

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86019

DATE - 04/03/87

- HISTORY -

START DATE - 09/09/86

END DATE - 11/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - LOVE

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE. STAND PIPE (1")
AT 150 M, PIEZ AT 80 M.

- LOCATION -

PROVINCE - BC
ELEVATION - 1622.17

ZONE - 9
NORTHING - 6343215.00
EASTING - 506835.25

LICENCE/LEASE NUMBER -

LATITUDE - 571402
LONGITUDE - 1285312

- ORIENTATION -

LENGTH - 199.93

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - Y

CASING DEPTH (M) - 15.24

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

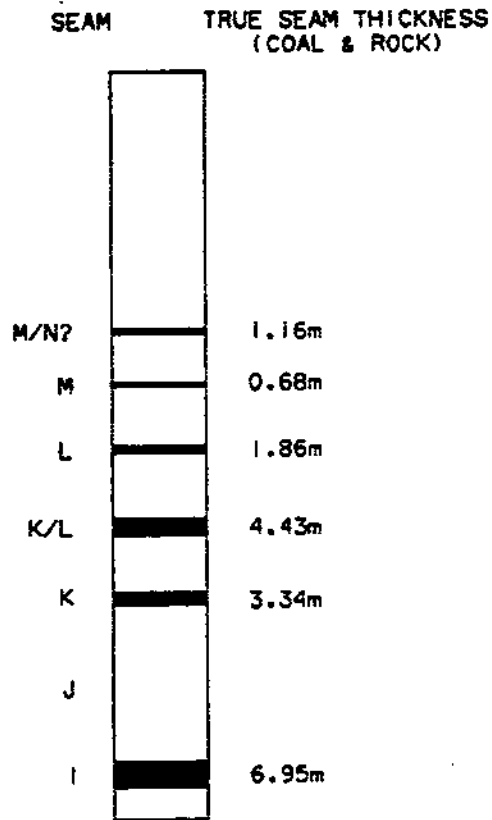
*** NOTE *** 0 INDICATES NO VALUE

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 SIMPLE SAMPLE SUMMARY PAGE 1
 TRUE THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL - ROCK
DDH86019										
		5191	68.86	69.31	100.00		0.331			0.000- 0.331
	M/N?	5192	69.31	70.84	71.24	0.777	0.053	0.337		1.114- 0.053
		5193	70.84	71.05	100.00		0.165			0.000- 0.165
		5194	81.10	82.70	100.00		1.541			0.000- 1.541
	M	5195	82.70	83.40	90.00	0.503	0.106	0.068		0.571- 0.106
		5196	83.40	84.12	100.00		0.668			0.000- 0.668
		5197	99.46	100.07	100.00		0.599			0.000- 0.599
	L	5198	100.07	101.96	88.89	1.483	0.167	0.206		1.689- 0.167
		5199	102.31	102.68	100.00		0.364			0.000- 0.364
		5200	119.93	120.18	100.00		0.246			0.000- 0.246
	K/L	10041	120.18	121.95	96.05	1.640	0.029		0.069	1.640- 0.098
	K/L	10042	121.95	124.70	85.09	2.107	0.187	0.215	0.186	2.322- 0.373
		10043	124.70	124.97	100.00		0.264			0.000- 0.264
		10044	138.64	139.68	100.00		1.005			0.000- 1.005
	K	10045	139.68	141.29	82.61	1.286		0.270		1.556- 0.000
	K	10046	141.29	142.03	89.19	0.541	0.097	0.077		0.618- 0.097
	K	10047	142.03	143.13	68.18	0.492	0.232	0.290	0.048	0.782- 0.280
		10048	143.13	144.31	100.00		1.140			0.000- 1.140
		10049	184.87	185.15	100.00		0.269			0.000- 0.269
	I	10050	185.15	186.87	100.00	1.461	0.192			1.461- 0.192
	I	10051	186.87	190.11	69.44	1.914	0.250	0.951		2.865- 0.250
	I	10052	190.11	192.38	100.00	2.182				2.182- 0.000
		10053	192.38	193.33	100.00		0.913			0.000- 0.913

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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
DDH86Q19												
M/N		55	5192	5192	69.31	70.84	71.24	1.02	0.07	0.44	0.00	1.46- 0.07
L		56	5198	5198	100.07	101.96	88.88	1.51	0.17	0.21	0.00	1.72- 0.17
K/L		57	10041	10042	120.18	124.70	89.38	3.82	0.22	0.22	0.26	4.04- 0.48
K		58	10045	10045	139.68	141.29	82.60	1.33	0.00	0.28	0.00	1.61- 0.00
K		59	10046	10046	141.29	142.03	89.18	0.56	0.10	0.08	0.00	0.64- 0.10
K		60	10047	10047	142.03	143.13	68.18	0.51	0.24	0.30	0.05	0.81- 0.29
I		61	10050	10050	185.15	186.87	100.00	1.52	0.20	0.00	0.00	1.52- 0.20
I		62	10051	10051	186.87	190.11	69.44	1.99	0.26	0.99	0.00	2.98- 0.26
I		63	10052	10052	190.11	192.38	100.00	2.27	0.00	0.00	0.00	2.27- 0.00
M/N		231	5192	5192	69.31	70.84	71.24	1.02	0.07	0.44	0.00	1.46- 0.07
L		232	5198	5198	100.07	101.96	88.88	1.51	0.17	0.21	0.00	1.72- 0.17
K/L		233	10041	10042	120.18	124.70	89.38	3.82	0.22	0.22	0.26	4.04- 0.48
K		234	10045	10047	139.68	143.13	79.42	2.40	0.34	0.66	0.05	3.06- 0.39
I		235	10050	10051	185.15	190.11	80.04	3.51	0.46	0.99	0.00	4.50- 0.46
I		236	10052	10052	190.11	192.38	100.00	2.27	0.00	0.00	0.00	2.27- 0.00
M/N		331	5192	5192	69.31	70.84	71.24	1.02	0.07	0.44	0.00	1.46- 0.07
L		332	5198	5198	100.07	101.96	88.88	1.51	0.17	0.21	0.00	1.72- 0.17
K/L		333	10041	10042	120.18	124.70	89.38	3.82	0.22	0.22	0.26	4.04- 0.48
K		334	10045	10047	139.68	143.13	79.42	2.40	0.34	0.66	0.05	3.06- 0.39
I		335	10050	10052	185.15	192.38	86.30	5.78	0.46	0.99	0.00	6.77- 0.46



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86019

GULF CANADA CORPORATION
11/03/87
KLAP: (205057)870063019.L00



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN . DATA SOURCE: KPNLRDDH86019
 Coal zone: M/N
 Field sample no.: 05192 Composite sample no.: 55
 Lab sample no.: 29348
 True sample thickness: 1.167 meters Drill core recovery(%): 71.24 %
 Coal/Rock: 1.114 / 0.053 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 28.65 21.54 14.14 26.99
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 5.59 3.09

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.40	
Ash (%):	40.48	40.64
Volatile matter (%):	8.48	8.51
Fixed carbon (%):	50.64	50.85
Total sulphur (%):	0.37	0.37
Combustible sulphur (%):	0.02	
Net calorific value(cal/g):	4560.00	4578.00
Gross calorific value(cal/g):	4560.00	4578.00
Volatile matter (dmmf%):	9.20	
Hardgrove index:	72.00	
Specific gravity:	1.69	
Carbon dioxide (%):	4.44	
Phosphorous in coal (%):	0.224	
Chlorine in coal (ppm):	2430.00	
Forms of Sulphur (%):	PYRITE 08.00	SULPHATE 00.00 ORGANIC 92.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	53.80	54.02
Hydrogen (%):	1.43	1.44
Nitrogen (%):	0.62	0.62
Oxygen (%):	2.90	2.91

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C):	1254.00	1206.00
Softening temperature(°C):	1278.00	1211.00
Hemispherical temperature(°C):	1294.00	1222.00
Final temperature(°C):	1405.00	1364.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	56.20	TiO2 (%):	1.15
Al2O3 (%):	17.01	Na2O (%):	1.52
Fe2O3 (%):	5.73	K2O (%):	1.16
CaO (%):	7.53	SO3 (%):	2.39
MgO (%):	4.31	P2O5 (%):	1.27

gcri coal division ash fusion proj KFN BLK LR DS DDH86019
=====

sample id 00055
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 12/12/86

oxidizing atmosphere oooooooooooooooooooo		reducing atmosphere oooooooooooooooooooo	
initial temp.(C)	1276.0	initial temp.(C)	1233.0
softening temp.(C)	1292.0	softening temp.(C)	1246.0
hemispherical temp.(C)	1305.0	hemispherical temp.(C)	1260.0
fluid temp.(C)	1375.0	fluid temp.(C)	1372.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KFN BLK LR DS DDH86019
=====

sample id 00055
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 12/12/86

silicon dioxide %	(sio2)	53.56
aluminium oxide %	(al2o3)	23.82
ferric oxide %	(fe2o3)	5.22
titanium dioxide %	(tio2)	1.34
phosphorous pentoxide %	(p2o5)	1.89
calcium oxide %	(cao)	5.21
magnesium oxide %	(mgo)	3.22
sulphur trioxide %	(so3)	2.39
sodium oxide %	(na2o)	1.49
potassium oxide %	(k2o)	1.06

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86019
=====

sample id 00055
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 12/12/86

oxidizing atmosphere

initial temp.(C) 1292.0
softening temp.(C) 1311.0
hemispherical temp.(C) 1329.0
fluid temp.(C) 1413.0

reducing atmosphere

initial temp.(C) 1362.0
softening temp.(C) 1291.0
hemispherical temp.(C) 1297.0
fluid temp.(C) 1405.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86019
=====

sample id 00055
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 12/12/86

silicon dioxide %	(sio2)	56.84
aluminium oxide %	(al2o3)	23.52
ferric oxide %	(fe2o3)	4.19
titanium dioxide %	(tio2)	0.88
phosphorous pentoxide %	(p2o5)	1.92
calcium oxide %	(cao)	5.09
magnesium oxide %	(mgo)	2.74
sulphur trioxide %	(so3)	2.20
sodium oxide %	(na2o)	1.44
potassium oxide %	(k2o)	1.04

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: L
 Field sample no.: 05198 Composite sample no.: 56
 Lab sample no.: 29348
 True sample thickness: 1.856 meters Drill core recovery(%): 88.88 %
 Coal/Rock: 1.689 / 0.167 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 34.95 21.37 13.22 23.89
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 4.40 2.17

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.37	
Ash (%):	39.95	40.10
Volatile matter (%):	9.60	9.64
Fixed carbon (%):	50.08	50.26
Total sulphur (%):	0.34	0.34
Combustible sulphur (%):	0.04	
Net calorific value (cal/g):	4589.00	4606.00
Gross calorific value (cal/g):	4589.00	4606.00
Volatile matter (dmmf %):	11.20	
Hardgrove index:	58.00	
Specific gravity:	1.68	
Carbon dioxide (%):	4.92	
Phosphorous in coal (%):	0.117	
Chlorine in coal (ppm):	2410.00	
Forms of Sulphur (%):	PYRITE 06.00	SULPHATE 00.00 ORGANIC 94.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	52.32	52.51
Hydrogen (%):	1.81	1.82
Nitrogen (%):	0.58	0.58
Oxygen (%):	4.63	4.65

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1278.00	1214.00
Softening temperature (°C):	1300.00	1230.00
Hemispherical temperature (°C):	1313.00	1241.00
Final temperature (°C):	1407.00	1386.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	52.62	TiO2 (%):	1.14
Al2O3 (%):	18.52	Na2O (%):	2.10
Fe2O3 (%):	6.46	K2O (%):	1.04
CaO (%):	8.17	SO3 (%):	2.40
MgO (%):	4.56	P2O5 (%):	0.67

gcri coal division ash fusion proj KPN BLK LR DS DDH86019
=====

sample id 00056
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 12/12/86

oxidizing atmosphere

initial temp.(C) 1292.0
softening temp.(C) 1308.0
hemispherical temp.(C) 1316.0
fluid temp.(C) 1362.0

reducing atmosphere

initial temp.(C) 1241.0
softening temp.(C) 1254.0
hemispherical temp.(C) 1278.0
fluid temp.(C) 1361.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86019
=====

sample id 00056
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 12/12/86

silicon dioxide %	(sio2)	55.30
aluminium oxide %	(al2o3)	22.68
ferric oxide %	(fe2o3)	4.98
titanium dioxide %	(tio2)	1.29
phosphorous pentoxide %	(p2o5)	1.12
calcium oxide %	(cao)	5.18
magnesium oxide %	(mgo)	2.97
sulphur trioxide %	(so3)	2.03
sodium oxide %	(na2o)	1.83
potassium oxide %	(k2o)	1.05

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86019
=====

sample id 00056
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 12/12/86

oxidizing atmosphere

initial temp.(C) 1289.0
softening temp.(C) 1305.0
hemispherical temp.(C) 1316.0
fluid temp.(C) 1356.0

reducing atmosphere

initial temp.(C) 1260.0
softening temp.(C) 1276.0
hemispherical temp.(C) 1299.0
fluid temp.(C) 1351.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86019
=====

sample id 00056
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 12/12/86

silicon dioxide %	(sio2)	61.08
aluminium oxide %	(al2o3)	20.01
ferric oxide %	(fe2o3)	4.13
titanium dioxide %	(tio2)	0.66
phosphorous pentoxide %	(p2o5)	1.52
calcium oxide %	(cao)	5.18
magnesium oxide %	(mgo)	2.60
sulphur trioxide %	(so3)	1.57
sodium oxide %	(na2o)	1.91
potassium oxide %	(k2o)	0.98

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: K/L
 Field sample no.: 10041 - 10042 Composite sample no.: 57
 Lab sample no.: 29348
 True sample thickness: 4.433 meters Drill core recovery (%): 89.38 %
 Coal/Rock: 3.962 / 0.471 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZI
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 30.06 23.27 11.77 27.44
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 4.62 2.84

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.56	
Ash (%):	37.06	37.27
Volatile matter (%):	7.50	7.54
Fixed carbon (%):	54.88	55.19
Total sulphur (%):	0.44	0.44
Combustible sulphur (%):	0.11	
Net calorific value (cal/g):	4988.00	5016.00
Gross calorific value (cal/g):	4988.00	5016.00
Volatile matter (dmmf%):	7.40	
Hardgrove index:	56.00	
Specific gravity:	1.62	
Carbon dioxide (%):	2.19	
Phosphorous in coal (%):	0.121	
Chlorine in coal (ppm):	2420.00	
Forms of Sulphur (%):	PYRITE 43.00	SULPHATE 00.00 ORGANIC 57.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	56.58	56.90
Hydrogen (%):	1.43	1.44
Nitrogen (%):	0.67	0.67
Oxygen (%):	3.26	3.28

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1321.00	1249.00
Softening temperature (°C):	1337.00	1257.00
Hemispherical temperature (°C):	1351.00	1270.00
Final temperature (°C):	1429.00	1424.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	59.74	TiO2 (%):	1.09
Al2O3 (%):	18.52	Na2O (%):	2.02
Fe2O3 (%):	5.48	K2O (%):	1.19
CaO (%):	4.20	SO3 (%):	2.24
MgO (%):	2.65	P2O5 (%):	0.75

gcri coal division ash fusion proj KPN BLK LR DS DDH86019
=====

sample id 00057
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 12/12/86

oxidizing atmosphere
oooooooooooooooooooo

reducing atmosphere
oooooooooooooooooooo

initial temp.(C) 1316.0
softening temp.(C) 1335.0
hemispherical temp.(C) 1354.0
fluid temp.(C) 1421.0

initial temp.(C) 1243.0
softening temp.(C) 1270.0
hemispherical temp.(C) 1292.0
fluid temp.(C) 1419.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86019
=====

sample id 00057
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 12/12/86

silicon dioxide %	(sio2)	61.94
aluminium oxide %	(al2o3)	19.79
ferric oxide %	(fe2o3)	5.53
titanium dioxide %	(tio2)	0.93
phosphorous pentoxide %	(p2o5)	0.78
calcium oxide %	(cao)	3.53
magnesium oxide %	(mgo)	2.52
sulphur trioxide %	(so3)	1.68
sodium oxide %	(na2o)	1.78
potassium oxide %	(k2o)	1.18

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86019
=====

sample id 00057
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 12/12/86

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1316.0	initial temp.(C)	1238.0
softening temp.(C)	1337.0	softening temp.(C)	1284.0
hemispherical temp.(C)	1367.0	hemispherical temp.(C)	1313.0
fluid temp.(C)	1456.0	fluid temp.(C)	1448.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86019
=====

sample id 00057
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 12/12/86

silicon dioxide %	(sio2)	62.74
aluminium oxide %	(al2o3)	20.55
ferric oxide %	(fe2o3)	5.25
titanium dioxide %	(tio2)	0.83
phosphorous pentoxide %	(p2o5)	0.85
calcium oxide %	(cao)	3.25
magnesium oxide %	(mgo)	2.25
sulphur trioxide %	(so3)	1.06
sodium oxide %	(na2o)	1.83
potassium oxide %	(k2o)	1.25

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: K
 Field sample no.: 10045 Composite sample no.: 58
 Lab sample no.: 29348
 True sample thickness: 1.556 meters Drill core recovery(%): 82.60 %
 Coal/Rock: 1.556 / 0.000 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 34.89 20.91 15.78 22.40
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 4.01 2.01

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.45	
Ash (%):	31.82	31.96
Volatile matter (%):	9.92	9.96
Fixed carbon (%):	57.81	58.08
Total sulphur (%):	4.16	4.18
Combustible sulphur (%):	2.99	
Net calorific value (cal/g):	5277.00	5301.00
Gross calorific value (cal/g):	5277.00	5301.00
Volatile matter (dmmf%):	9.10	
Hardgrove index:	67.00	
Specific gravity:	1.60	
Carbon dioxide (%):	5.08	
Phosphorous in coal (%):	0.356	
Chlorine in coal (ppm):	2510.00	
Forms of Sulphur (%):	PYRITE 70.50	SULPHATE 01.00 ORGANIC 28.50

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	59.37	59.64
Hydrogen (%):	1.81	1.82
Nitrogen (%):	0.62	0.62
Oxygen (%):	1.77	1.78

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1289.00	1187.00
Softening temperature (°C):	1302.00	1203.00
Hemispherical temperature (°C):	1321.00	1225.00
Final temperature (°C):	1356.00	1268.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	32.08	TiO2 (%):	0.85
Al2O3 (%):	12.85	Na2O (%):	1.61
Fe2O3 (%):	19.85	K2O (%):	0.84
CaO (%):	11.70	SO3 (%):	9.18
MgO (%):	6.32	P2O5 (%):	2.56

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: K
 Field sample no.: 10046 Composite sample no.: 59
 Lab sample no.: 29374
 True sample thickness: 0.715 meters Drill core recovery (%): 89.18 %
 Coal/Rock: 0.618 / 0.097 meters

----- RAW HEAD ANALYSIS (HBI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 34.07 19.95 14.14 25.89
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 3.88 2.07

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.55	
Ash (%):	49.72	49.99
Volatile matter (%):	6.67	6.71
Fixed carbon (%):	43.06	43.30
Total sulphur (%):	0.31	0.31
Combustible sulphur (%):	0.10	
Net calorific value (cal/g):	3509.00	3528.00
Gross calorific value (cal/g):	3509.00	3528.00
Volatile matter (dmmf %):	5.70	
Hardgrove index:	55.00	
Specific gravity:	1.81	
Carbon dioxide (%):	1.40	
Phosphorous in coal (%):	0.033	
Chlorine in coal (ppm):	2340.00	
Forms of Sulphur (%):	PYRITE 16.00	SULPHATE 00.00 ORGANIC 84.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	44.80	45.05
Hydrogen (%):	1.63	1.64
Nitrogen (%):	0.57	0.57
Oxygen (%):	2.42	2.44

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1225.00	1208.00
Softening temperature (°C):	1313.00	1292.00
Hemispherical temperature (°C):	1340.00	1327.00
Final temperature (°C):	1434.00	1429.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	65.70	TiO2 (%):	0.82
Al2O3 (%):	18.58	Na2O (%):	2.12
Fe2O3 (%):	3.24	K2O (%):	1.24
CaO (%):	1.82	SO3 (%):	1.07
MgO (%):	2.61	P2O5 (%):	0.15

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: K
 Field sample no.: 10047 Composite sample no.: 60
 Lab sample no.: 29374
 True sample thickness: 1.062 meters Drill core recovery(%): 68.18 %
 Coal/Rock: 0.782 / 0.280 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 35.71 23.21 14.48 21.58
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 3.34 1.68

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.58	
Ash (%):	57.06	57.39
Volatile matter (%):	10.52	10.58
Fixed carbon (%):	31.84	32.03
Total sulphur (%):	0.28	0.28
Combustible sulphur (%):	0.04	
Net calorific value (cal/g):	2815.00	2832.00
Gross calorific value (cal/g):	2815.00	2832.00
Volatile matter (dmmf%):	15.60	
Hardgrove index:	50.00	
Specific gravity:	1.86	
Carbon dioxide (%):	5.38	
Phosphorous in coal (%):	0.022	
Chlorine in coal (ppm):	2160.00	
Forms of Sulphur (%):	PYRITE 21.00	SULPHATE 00.00 ORGANIC 79.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	35.80	36.01
Hydrogen (%):	1.20	1.21
Nitrogen (%):	0.43	0.43
Oxygen (%):	4.65	4.68

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1214.00	1171.00
Softening temperature (°C):	1278.00	1203.00
Hemispherical temperature (°C):	1289.00	1211.00
Final temperature (°C):	1335.00	1327.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	58.48	TiO2 (%):	0.78
Al2O3 (%):	17.23	Na2O (%):	1.87
Fe2O3 (%):	9.08	K2O (%):	1.51
CaO (%):	2.49	SO3 (%):	1.06
MgO (%):	4.99	P2O5 (%):	0.09

gcri coal division ash fusion proj KPN BLK LR DS DDH86019
=====

sample id 00058
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 12/12/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1273.0	initial temp.(C)	1198.0
softening temp.(C)	1305.0	softening temp.(C)	1208.0
hemispherical temp.(C)	1316.0	hemispherical temp.(C)	1230.0
fluid temp.(C)	1337.0	fluid temp.(C)	1286.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86019
=====

sample id 00058
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 12/12/86

silicon dioxide %	(sio2)	41.70
aluminium oxide %	(al2o3)	18.52
ferric oxide %	(fe2o3)	13.21
titanium dioxide %	(tio2)	0.97
phosphorous pentoxide %	(p2o5)	3.79
calcium oxide %	(cao)	9.40
magnesium oxide %	(mgo)	3.25
sulphur trioxide %	(so3)	4.64
sodium oxide %	(na2o)	1.37
potassium oxide %	(k2o)	1.05

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86019
=====

sample id 00058
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 12/12/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1286.0	initial temp.(C)	1211.0
softening temp.(C)	1297.0	softening temp.(C)	1219.0
hemispherical temp.(C)	1308.0	hemispherical temp.(C)	1230.0
fluid temp.(C)	1340.0	fluid temp.(C)	1284.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86019
=====

sample id 00058
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 12/12/86

silicon dioxide %	(sio2)	46.90
aluminium oxide %	(al2o3)	17.77
ferric oxide %	(fe2o3)	11.38
titanium dioxide %	(tio2)	0.77
phosphorous pentoxide %	(p2o5)	3.44
calcium oxide %	(cao)	7.84
magnesium oxide %	(mgo)	3.22
sulphur trioxide %	(so3)	3.88
sodium oxide %	(na2o)	1.37
potassium oxide %	(k2o)	1.10

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86019
=====

sample id 00059
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 19/12/86

oxidizing atmosphere

initial temp.(C) 1294.0
softening temp.(C) 1388.0
hemispherical temp.(C) 1405.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1192.0
softening temp.(C) 1348.0
hemispherical temp.(C) 1360.0
fluid temp.(C) 1461.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86019
=====

sample id 00059
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 19/12/86

silicon dioxide %	(sio2)	59.00
aluminium oxide %	(al2o3)	24.44
ferric oxide %	(fe2o3)	3.74
titanium dioxide %	(tio2)	0.96
phosphorous pentoxide %	(p2o5)	0.41
calcium oxide %	(cao)	1.82
magnesium oxide %	(mgo)	2.83
sulphur trioxide %	(so3)	0.75
sodium oxide %	(na2o)	2.05
potassium oxide %	(k2o)	1.31

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DPH86019
=====

sample id 00059
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 19/12/86

oxidizing atmosphere

initial temp.(C) 1340.0
softening temp.(C) 1395.0
hemispherical temp.(C) 1423.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1265.0
softening temp.(C) 1337.0
hemispherical temp.(C) 1380.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DPH86019
=====

sample id 00059
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 19/12/86

silicon dioxide %	(sio2)	61.32
aluminium oxide %	(al2o3)	22.25
ferric oxide %	(fe2o3)	3.99
titanium dioxide %	(tio2)	0.92
phosphorous pentoxide %	(p2o5)	0.46
calcium oxide %	(cao)	2.00
magnesium oxide %	(mgo)	2.94
sulphur trioxide %	(so3)	0.76
sodium oxide %	(na2o)	1.90
potassium oxide %	(k2o)	1.14

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86019
=====

sample id 00060
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 19/12/86

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1254.0	initial temp.(C)	1214.0
softening temp.(C)	1337.0	softening temp.(C)	1257.0
hemispherical temp.(C)	1364.0	hemispherical temp.(C)	1308.0
fluid temp.(C)	1372.0	fluid temp.(C)	1356.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86019
=====

sample id 00060
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 19/12/86

silicon dioxide %	(sio2)	55.17
aluminium oxide %	(al2o3)	23.26
ferric oxide %	(fe2o3)	5.80
titanium dioxide %	(tio2)	1.02
phosphorous pentoxide %	(p2o5)	0.04
calcium oxide %	(cao)	2.71
magnesium oxide %	(mgo)	4.80
sulphur trioxide %	(so3)	1.52
sodium oxide %	(na2o)	1.87
potassium oxide %	(k2o)	1.59

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DCH86019
=====

sample id 00060
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 19/12/86

oxidizing atmosphere

initial temp.(C) 1281.0
softening temp.(C) 1292.0
hemispherical temp.(C) 1319.0
fluid temp.(C) 1402.0

reducing atmosphere

initial temp.(C) 1233.0
softening temp.(C) 1252.0
hemispherical temp.(C) 1284.0
fluid temp.(C) 1351.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DCH86019
=====

sample id 00060
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 19/12/86

silicon dioxide %	(sio2)	54.90
aluminium oxide %	(al2o3)	24.06
ferric oxide %	(fe2o3)	5.53
titanium dioxide %	(tio2)	0.60
phosphorous pentoxide %	(p2o5)	0.15
calcium oxide %	(cao)	3.25
magnesium oxide %	(mgo)	4.31
sulphur trioxide %	(so3)	1.23
sodium oxide %	(na2o)	1.83
potassium oxide %	(k2o)	1.31

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: 1
 Field sample no.: 10050 Composite sample no.: 61
 Lab sample no.: 29238
 True sample thickness: 1.653 meters Drill core recovery (%): 100.00 %
 Coal/Rock: 1.461 / 0.192 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 21.09 8.14 11.91 39.11
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 11.13 8.62

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.45	
Ash (%):	26.98	27.38
Volatile matter (%):	7.11	7.21
Fixed carbon (%):	64.46	65.41
Total sulphur (%):	0.31	0.31
Combustible sulphur (%):	0.12	
Net calorific value (cal/g):	5660.00	5743.00
Gross calorific value (cal/g):	5660.00	5743.00
Volatile matter (dmmf %):	7.00	
Hardgrove index:	58.00	
Specific gravity:	1.55	
Carbon dioxide (%):	3.42	
Phosphorous in coal (%):	0.057	
Chlorine in coal (ppm):	2960.00	
Forms of Sulphur (%):	PYRITE 13.00	SULPHATE 00.00 ORGANIC 87.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	65.59	66.55
Hydrogen (%):	1.87	1.90
Nitrogen (%):	0.59	0.60
Oxygen (%):	3.21	3.26

----- ASH FUSION ANALYSIS (AFT) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1278.00	1222.00
Softening temperature (°C):	1289.00	1233.00
Hemispherical temperature (°C):	1300.00	1243.00
Final temperature (°C):	1340.00	1305.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	53.29	TiO2 (%):	0.95
Al2O3 (%):	20.38	Na2O (%):	3.69
Fe2O3 (%):	7.90	K2O (%):	1.05
CaO (%):	3.37	SO3 (%):	1.80
MgO (%):	4.81	P2O5 (%):	0.48

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLR00DH86019
 Coal zone: 1
 Field sample no.: 10051 Composite sample no.: 62
 Lab sample no.: 29238
 True sample thickness: 3.115 meters Drill core recovery(%): 69.44 %
 Coal/Rock: 2.865 / 0.250 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size(mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight(%): 23.30 13.77 13.45 32.74
 Fraction size(mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight(%): 10.58 6.16

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture(%) :	1.69	
Ash(%) :	34.72	35.32
Volatile matter(%) :	6.96	7.08
Fixed carbon(%) :	56.63	57.60
Total sulphur(%) :	0.32	0.33
Combustible sulphur(%) :	0.14	
Net calorific value(cal/g) :	5084.00	5171.00
Gross calorific value(cal/g) :	5084.00	5171.00
Volatile matter(dmmf%) :	6.70	
Hardgrove index:	68.00	
Specific gravity:	1.61	
Carbon dioxide(%) :	2.52	
Phosphorous in coal(%) :	0.023	
Chlorine in coal(ppm) :	2160.00	
Forms of Sulphur(%) :	PYRITE 09.00	SULPHATE 00.00 ORGANIC 91.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon(%) :	58.22	59.22
Hydrogen(%) :	2.11	2.15
Nitrogen(%) :	0.67	0.68
Oxygen(%) :	2.27	2.30

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C) :	1300.00	1238.00
Softening temperature(°C) :	1316.00	1289.00
Hemispherical temperature(°C) :	1340.00	1311.00
Final temperature(°C) :	1439.00	1431.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2(%) :	54.40	TiO2(%) :	1.31
Al2O3(%) :	24.05	Na2O(%) :	3.53
Fe2O3(%) :	5.60	K2O(%) :	1.18
CaO(%) :	1.96	SO3(%) :	1.27
MgO(%) :	4.06	P2O5(%) :	0.15

gcri coal division ash fusion proj KFN BLK LR DS DDH86019
=====

sample id 00061
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 03/11/86

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1262.0	initial temp.(C)	1217.0
softening temp.(C)	1268.0	softening temp.(C)	1225.0
hemispherical temp.(C)	1276.0	hemispherical temp.(C)	1233.0
fluid temp.(C)	1380.0	fluid temp.(C)	1354.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KFN BLK LR DS DDH86019
=====

sample id 00061
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 03/11/86

silicon dioxide %	(sio2)	60.88
aluminium oxide %	(al2o3)	15.37
ferric oxide %	(fe2o3)	4.20
titanium dioxide %	(tio2)	1.01
phosphorous pentoxide %	(p2o5)	0.37
calcium oxide %	(cao)	5.85
magnesium oxide %	(mgo)	4.35
sulphur trioxide %	(so3)	3.61
sodium oxide %	(na2o)	1.44
potassium oxide %	(k2o)	0.89

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR IS DDH86019
=====

sample id 00061
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 03/11/86

oxidizing atmosphere

xxxxxxxxxxxxxxxxxxxxxxxx

initial temp.(C) 1235.0
softening temp.(C) 1262.0
hemispherical temp.(C) 1286.0
fluid temp.(C) 1327.0

reducing atmosphere

xxxxxxxxxxxxxxxxxxxxxxxx

initial temp.(C) 1230.0
softening temp.(C) 1240.0
hemispherical temp.(C) 1268.0
fluid temp.(C) 1311.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR IS DDH86019
=====

sample id 00061
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 03/11/86

silicon dioxide %	(sio2)	63.04
aluminium oxide %	(al2o3)	17.01
ferric oxide %	(fe2o3)	4.65
titanium dioxide %	(tio2)	0.70
phosphorous pentoxide %	(p2o5)	0.38
calcium oxide %	(cao)	4.39
magnesium oxide %	(mgo)	3.87
sulphur trioxide %	(so3)	3.47
sodium oxide %	(na2o)	1.36
potassium oxide %	(k2o)	0.93

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86019
=====

sample id 00062
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 03/11/86

oxidizing atmosphere

initial temp.(C) 1268.0
softening temp.(C) 1294.0
hemispherical temp.(C) 1311.0
fluid temp.(C) 1370.0

reducing atmosphere

initial temp.(C) 1179.0
softening temp.(C) 1241.0
hemispherical temp.(C) 1262.0
fluid temp.(C) 1343.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86019
=====

sample id 00062
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 03/11/86

silicon dioxide %	(sio2)	57.68
aluminium oxide %	(al2o3)	20.04
ferric oxide %	(fe2o3)	4.83
titanium dioxide %	(tio2)	1.44
phosphorous pentoxide %	(p2o5)	0.33
calcium oxide %	(cao)	4.48
magnesium oxide %	(mgo)	4.06
sulphur trioxide %	(so3)	1.77
sodium oxide %	(na2o)	2.10
potassium oxide %	(k2o)	1.06

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86019
=====

sample id 00062
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 03/11/86

oxidizing atmosphere

#####

initial temp.(C) 1265.0
softening temp.(C) 1289.0
hemispherical temp.(C) 1308.0
fluid temp.(C) 1383.0

reducing atmosphere

#####

initial temp.(C) 1246.0
softening temp.(C) 1270.0
hemispherical temp.(C) 1281.0
fluid temp.(C) 1337.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86019
=====

sample id 00062
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 03/11/86

silicon dioxide %	(sio2)	59.98
aluminium oxide %	(al2o3)	20.41
ferric oxide %	(fe2o3)	4.48
titanium dioxide %	(tio2)	0.87
phosphorous pentoxide %	(p2o5)	0.23
calcium oxide %	(cao)	3.64
magnesium oxide %	(mgo)	3.65
sulphur trioxide %	(so3)	2.54
sodium oxide %	(na2o)	1.66
potassium oxide %	(k2o)	1.10

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: 1
 Field sample no.: 10052 Composite sample no.: 63
 Lab sample no.: 29238
 True sample thickness: 2.182 meters Drill core recovery(%): 100.00 %
 Coal/Rock: 2.182 / 0.000 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 37.81 18.48 13.93 23.36
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 4.16 2.26

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.56	
Ash (%):	15.39	15.63
Volatile matter (%):	5.65	5.74
Fixed carbon (%):	77.40	78.63
Total sulphur (%):	0.43	0.44
Combustible sulphur (%):	0.19	
Net calorific value (cal/g):	6840.00	6948.00
Gross calorific value (cal/g):	6840.00	6948.00
Volatile matter (dmmf%):	5.30	
Hardgrove index:	42.00	
Specific gravity:	1.46	
Carbon dioxide (%):	1.63	
Phosphorous in coal (%):	0.181	
Chlorine in coal (ppm):	2320.00	
Forms of Sulphur (%):	PYRITE 02.00	SULPHATE 00.00 ORGANIC 98.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	76.76	77.97
Hydrogen (%):	1.91	1.94
Nitrogen (%):	0.80	0.81
Oxygen (%):	3.15	3.21

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1276.00	1214.00
Softening temperature (°C):	1308.00	1254.00
Hemispherical temperature (°C):	1316.00	1268.00
Final temperature (°C):	1337.00	1308.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	45.97	TiO2 (%):	0.87
Al2O3 (%):	21.09	Na2O (%):	2.53
Fe2O3 (%):	7.44	K2O (%):	1.34
CaO (%):	7.15	SO3 (%):	3.98
MgO (%):	4.57	P2O5 (%):	2.69

gcri coal division ash fusion proj KPN BLK LR DS DDH86019
=====

sample id 00063
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 03/11/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1270.0	initial temp.(C)	1233.0
softening temp.(C)	1276.0	softening temp.(C)	1238.0
hemispherical temp.(C)	1284.0	hemispherical temp.(C)	1243.0
fluid temp.(C)	1335.0	fluid temp.(C)	1332.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86019
=====

sample id 00063
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 03/11/86

silicon dioxide %	(sio2)	41.73
aluminium oxide %	(al2o3)	20.49
ferric oxide %	(fe2o3)	5.42
titanium dioxide %	(tio2)	0.94
phosphorous pentoxide %	(p2o5)	5.34
calcium oxide %	(cao)	11.71
magnesium oxide %	(mgo)	5.95
sulphur trioxide %	(so3)	3.18
sodium oxide %	(na2o)	1.62
potassium oxide %	(k2o)	1.51

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86019
=====

sample id 00063
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 03/11/86

oxidizing atmosphere

initial temp.(C) 1268.0
softening temp.(C) 1284.0
hemispherical temp.(C) 1292.0
fluid temp.(C) 1324.0

reducing atmosphere

initial temp.(C) 1249.0
softening temp.(C) 1268.0
hemispherical temp.(C) 1276.0
fluid temp.(C) 1305.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86019
=====

sample id 00063
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 03/11/86

silicon dioxide %	(sio2)	44.02
aluminium oxide %	(al2o3)	20.79
ferric oxide %	(fe2o3)	4.45
titanium dioxide %	(tio2)	0.70
phosphorous pentoxide %	(p2o5)	4.85
calcium oxide %	(cao)	14.00
magnesium oxide %	(mgo)	4.31
sulphur trioxide %	(so3)	3.25
sodium oxide %	(na2o)	1.54
potassium oxide %	(k2o)	1.70

90.0 <= total <= 100.0

KPNLRDDH86020

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86020

DATE - 04/03/87

- HISTORY -

START DATE - 12/09/86
END DATE - 14/09/86

CONTRACTOR - J.T. THOMAS
GEOLOGIST - SAVOIE

OPERATOR - G.C.C.
SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE. COMPUTER INPUT
BY RAMONA QUOCK.

- LOCATION -

PROVINCE - BC
ELEVATION - 1434.61

ZONE - 9
NORTHING - 6345278.00
EASTING - 504613.56

LICENCE/LEASE NUMBER -

LATITUDE - 571509
LONGITUDE - 1285525

- ORIENTATION -

LENGTH - 139.29
CORE SIZE - 0.0

INCLINATION - 60.0
AZIMUTH - 290.0

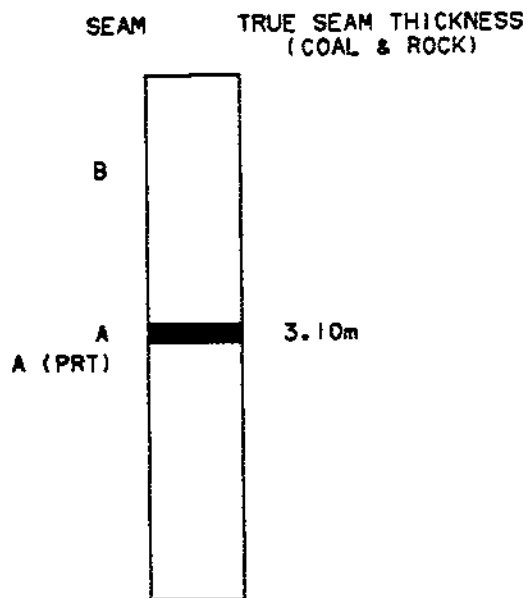
CEMENT - N
PLUG - N
PIEZ - N

CASING DEPTH (M) - 15.24
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL - ROCK
DDH86020		10037	66.98	67.77	100.00	0.716				0.000- 0.716
	A PART	10038	67.77	68.68	59.34	0.458		0.324		0.782- 0.000
	A PART	10039	68.68	71.29	71.26	1.023	0.653	0.469	0.177	1.492- 0.830
		10040	71.29	71.64	100.00	0.316				0.000- 0.316



NOTE:

SCHEMATIC PROFILE.
 NO THICKNESSES SHOWN
 FOR SEAMS CONTAINING
 LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
 DDH86020

GULF CANADA CORPORATION
 11/03/87
 KLAP:[205057]870063020.LOG



KPNLRDDH86021

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86021

DATE - 04/03/87

- HISTORY -

START DATE - 12/09/86

END DATE - 13/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - MCKENZIE

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1642.65

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6343068.00

EASTING - 506427.81

LATITUDE - 571357

LONGITUDE - 1285337

- ORIENTATION -

LENGTH - 117.95

CORE SIZE - 0.0

INCLINATION - 90.0

AZIMUTH - 0.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 3.05

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

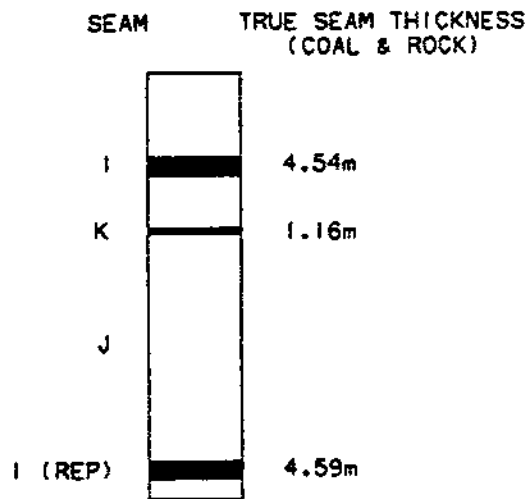
02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL - ROCK
DDH86021		10001	106.13	106.79	100.00		0.622			0.000- 0.622
	I REP	10002	106.79	107.94	86.09	0.872	0.056	0.075	0.075	0.947- 0.131
	I REP	10003	107.94	109.97	78.33	1.252	0.224	0.287	0.120	1.539- 0.344
	I REP	10004	109.97	111.76	100.00	1.637				1.637- 0.000
		10005	111.76	112.36	100.00		0.544			0.000- 0.544
		10054	23.07	23.82	100.00		0.728			0.000- 0.728
	I	10055	23.82	28.55	37.00	1.477	0.203	2.617	0.249	4.094- 0.452
		10056	28.55	29.17	100.00		0.590			0.000- 0.590
		10057	42.64	42.80	100.00		0.132			0.000- 0.132
	K	10058	42.80	44.20	30.71	0.321	0.033	0.675	0.124	0.996- 0.157
		10059	44.20	44.88	100.00		0.556			0.000- 0.556

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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

DDH86021												
I REP		64	10002	10002	106.79	107.94	86.08	0.93	0.06	0.08	0.08	1.01- 0.14
I REP		65	10003	10003	107.94	109.97	78.32	1.35	0.24	0.31	0.13	1.66- 0.37
I REP		66	10004	10004	109.97	111.76	100.00	1.79	0.00	0.00	0.00	1.79- 0.00
I		138	10004	10004	109.97	111.76	100.00	1.79	0.00	0.00	0.00	1.79- 0.00
I		237	10002	10003	106.79	109.97	81.13	2.28	0.30	0.39	0.21	2.67- 0.51
I		238	10004	10004	109.97	111.76	100.00	1.79	0.00	0.00	0.00	1.79- 0.00
I		337	10002	10004	106.79	111.76	87.92	4.07	0.30	0.39	0.21	4.46- 0.51



NOTE:

SCHMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86021

GULF CANADA CORPORATION
11/03/87
KLAP: [205057]870063021.LGG



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86021
 Coal zone: I REP
 Field sample no.: 10002 Composite sample no.: 64
 Lab sample no.: 29132
 True sample thickness: 1.078 meters Drill core recovery(%): 86.08 %
 Coal/Rock: 0.947 / 0.131 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 33.94 20.20 10.86 25.71
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 5.78 3.51

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.85	
Ash (%):	35.44	35.74
Volatile matter (%):	7.11	7.17
Fixed carbon (%):	56.60	57.09
Total sulphur (%):	0.32	0.32
Combustible sulphur (%):	0.06	
Net calorific value (cal/g):	5000.00	5043.00
Gross calorific value (cal/g):	5000.00	5043.00
Volatile matter (dmmf %):	6.90	
Hardgrove index:	60.00	
Specific gravity:	1.64	
Carbon dioxide (%):	2.58	
Phosphorous in coal (%):	0.019	
Chlorine in coal (ppm):	2016.00	
Forms of Sulphur (%):	PYRITE 06.00	SULPHATE 00.00 ORGANIC 94.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	55.93	56.41
Hydrogen (%):	1.80	1.82
Nitrogen (%):	0.59	0.60
Oxygen (%):	5.07	5.11

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1278.00	1233.00
Softening temperature (°C):	1302.00	1249.00
Hemispherical temperature (°C):	1335.00	1284.00
Final temperature (°C):	1348.00	1343.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	63.86	TiO2 (%):	0.84
Al2O3 (%):	17.63	Na2O (%):	1.33
Fe2O3 (%):	4.48	K2O (%):	1.68
CaO (%):	3.25	SO3 (%):	1.81
MgO (%):	3.30	P2O5 (%):	0.12

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86021
 Coal zone: I REP
 Field sample no.: 10003 Composite sample no.: 65
 Lab sample no.: 29132
 True sample thickness: 1.883 meters Drill core recovery(%): 78.32 %
 Coal/Rock: 1.539 / 0.344 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 30.31 20.63 14.65 27.69
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 4.48 2.24

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.09	
Ash (%):	41.16	41.61
Volatile matter (%):	6.90	6.98
Fixed carbon (%):	50.85	51.41
Total sulphur (%):	0.29	0.29
Combustible sulphur (%):	0.10	
Net calorific value(cal/g):	4254.00	4301.00
Gross calorific value(cal/g):	4254.00	4301.00
Volatile matter(dmmf%):	6.50	
Hardgrove index:	63.00	
Specific gravity:	1.72	
Carbon dioxide (%):	2.21	
Phosphorous in coal (%):	0.025	
Chlorine in coal(ppm):	2256.00	
Forms of Sulphur (%):	PYRITE 10.00	SULPHATE 00.00 ORGANIC 90.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	49.39	49.93
Hydrogen (%):	1.73	1.75
Nitrogen (%):	0.60	0.61
Oxygen (%):	5.74	5.81

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C):	1316.00	1286.00
Softening temperature(°C):	1332.00	1321.00
Hemispherical temperature(°C):	1378.00	1354.00
Final temperature(°C):	1472.00	1456.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	58.50	TiO2 (%):	1.07
Al2O3 (%):	24.06	Na2O (%):	2.48
Fe2O3 (%):	3.73	K2O (%):	1.48
CaO (%):	2.16	SO3 (%):	1.17
MgO (%):	3.15	P2O5 (%):	0.14

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86021
 Coal zone: I REP
 Field sample no.: 10004 Composite sample no.: 66
 Lab sample no.: 29132
 True sample thickness: 1.637 meters Drill core recovery (%): 100.00 %
 Coal/Rock: 1.637 / 0.000 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 36.95 24.67 14.64 21.46
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 1.05 1.23

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.84	
Ash (%):	9.31	9.39
Volatile matter (%):	5.86	5.91
Fixed carbon (%):	83.99	84.70
Total sulphur (%):	0.48	0.48
Combustible sulphur (%):	0.34	
Net calorific value (cal/g):	7532.00	7596.00
Gross calorific value (cal/g):	7533.00	7597.00
Volatile matter (dmmf %):	5.60	
Hardgrove index:	39.00	
Specific gravity:	1.45	
Carbon dioxide (%):	1.19	
Phosphorous in coal (%):	0.194	
Chlorine in coal (ppm):	1696.00	
Forms of Sulphur (%):	PYRITE 02.00	SULPHATE 00.00 ORGANIC 98.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	83.04	83.75
Hydrogen (%):	2.40	2.42
Nitrogen (%):	0.88	0.89
Oxygen (%):	3.05	3.07

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1302.00	1249.00
Softening temperature (°C):	1316.00	1273.00
Hemispherical temperature (°C):	1329.00	1286.00
Final temperature (°C):	1348.00	1345.00

----- ASH MINERAL ANALYSIS (AM3) -----

SiO2 (%):	40.66	TiO2 (%):	0.73
Al2O3 (%):	18.68	Na2O (%):	1.66
Fe2O3 (%):	4.27	K2O (%):	1.04
CaO (%):	14.73	SO3 (%):	3.80
MgO (%):	6.57	P2O5 (%):	4.77

scri coal division ash fusion proj KPN BLK LR DS DDH86021
=====

sample id 00064
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 05/10/86

oxidizing atmosphere

initial temp.(C) 1278.0
softening temp.(C) 1308.0
hemispherical temp.(C) 1324.0
fluid temp.(C) 1394.0

reducing atmosphere

initial temp.(C) 1225.0
softening temp.(C) 1254.0
hemispherical temp.(C) 1270.0
fluid temp.(C) 1327.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

scri coal division ash mineral proj KPN BLK LR DS DDH86021
=====

sample id 00064
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 05/10/86

silicon dioxide %	(sio2)	61.22
aluminium oxide %	(al2o3)	19.52
ferric oxide %	(fe2o3)	2.90
titanium dioxide %	(tio2)	1.14
phosphorous pentoxide %	(p2o5)	0.11
calcium oxide %	(cao)	4.10
magnesium oxide %	(mgo)	3.52
sulphur trioxide %	(so3)	2.32
sodium oxide %	(na2o)	1.44
potassium oxide %	(k2o)	1.29

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86021
=====

sample id 00064
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 05/10/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1289.0	initial temp.(C)	1241.0
softening temp.(C)	1332.0	softening temp.(C)	1279.0
hemispherical temp.(C)	1394.0	hemispherical temp.(C)	1299.0
fluid temp.(C)	1415.0	fluid temp.(C)	1354.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86021
=====

sample id 00064
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 05/10/86

silicon dioxide %	(sio2)	64.70
aluminium oxide %	(al2o3)	19.15
ferric oxide %	(fe2o3)	2.49
titanium dioxide %	(tio2)	0.85
phosphorous pentoxide %	(p2o5)	0.12
calcium oxide %	(cao)	3.30
magnesium oxide %	(mgo)	3.00
sulphur trioxide %	(so3)	1.44
sodium oxide %	(na2o)	1.42
potassium oxide %	(k2o)	1.16

90.0 (= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86021
=====

sample id 00065
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 05/10/86

oxidizing atmosphere

initial temp.(C) 1319.0
softening temp.(C) 1364.0
hemispherical temp.(C) 1407.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1273.0
softening temp.(C) 1319.0
hemispherical temp.(C) 1348.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86021
=====

sample id 00065
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 05/10/86

silicon dioxide %	(sio2)	57.94
aluminium oxide %	(al2o3)	24.95
ferric oxide %	(fe2o3)	2.53
titanium dioxide %	(tio2)	1.06
phosphorous pentoxide %	(p2o5)	0.32
calcium oxide %	(cao)	2.55
magnesium oxide %	(mgo)	3.66
sulphur trioxide %	(so3)	1.42
sodium oxide %	(na2o)	2.40
potassium oxide %	(k2o)	1.60

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86024
=====

sample id 00065
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 05/10/86

oxidizing atmosphere
#####

reducing atmosphere
#####

initial temp.(C)	1319.0	initial temp.(C)	1273.0
softening temp.(C)	1364.0	softening temp.(C)	1319.0
hemispherical temp.(C)	1410.0	hemispherical temp.(C)	1348.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86024
=====

sample id 00065
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 05/10/86

silicon dioxide %	(sio2)	60.20
aluminium oxide %	(al2o3)	24.57
ferric oxide %	(fe2o3)	2.47
titanium dioxide %	(tio2)	0.97
phosphorous pentoxide %	(p2o5)	0.36
calcium oxide %	(cao)	2.63
magnesium oxide %	(mgo)	3.43
sulphur trioxide %	(so3)	1.26
sodium oxide %	(na2o)	2.08
potassium oxide %	(k2o)	1.52

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86021
=====

sample id 00066
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 05/10/86

oxidizing atmosphere

initial temp.(C) 1278.0
softening temp.(C) 1284.0
hemispherical temp.(C) 1292.0
fluid temp.(C) 1324.0

reducing atmosphere

initial temp.(C) 1225.0
softening temp.(C) 1233.0
hemispherical temp.(C) 1241.0
fluid temp.(C) 1270.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86021
=====

sample id 00066
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 05/10/86

silicon dioxide %	(sio2)	40.66
aluminium oxide %	(al2o3)	18.68
ferric oxide %	(fe2o3)	4.27
titanium dioxide %	(tio2)	0.73
phosphorous pentoxide %	(p2o5)	4.77
calcium oxide %	(cao)	14.73
magnesium oxide %	(mgo)	6.57
sulphur trioxide %	(so3)	3.80
sodium oxide %	(na2o)	1.66
potassium oxide %	(k2o)	1.04

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86021
=====

sample id 00066
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 05/10/86

oxidizing atmosphere

initial temp.(C) 1313.0
softening temp.(C) 1319.0
hemispherical temp.(C) 1327.0
fluid temp.(C) 1359.0

reducing atmosphere

initial temp.(C) 1270.0
softening temp.(C) 1276.0
hemispherical temp.(C) 1281.0
fluid temp.(C) 1319.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86021
=====

sample id 00066
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 05/10/86

silicon dioxide %	(sio2)	49.98
aluminium oxide %	(al2o3)	20.70
ferric oxide %	(fe2o3)	3.33
titanium dioxide %	(tio2)	0.48
phosphorous pentoxide %	(p2o5)	3.89
calcium oxide %	(cao)	9.83
magnesium oxide %	(mgo)	4.57
sulphur trioxide %	(so3)	1.97
sodium oxide %	(na2o)	1.91
potassium oxide %	(k2o)	1.21

90.0 <= total <= 100.0

KPNLRDDH86022

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86022

DATE - 04/03/87

- HISTORY -

START DATE - 13/09/86

END DATE - 16/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - MACLEOD

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1634.91

ZONE - 9

NORTHING - 6343008.00

EASTING - 506732.87

LICENCE/LEASE NUMBER -

LATITUDE - 571355

LONGITUDE - 1285319

- ORIENTATION -

LENGTH - 201.77

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

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

02/APR/87

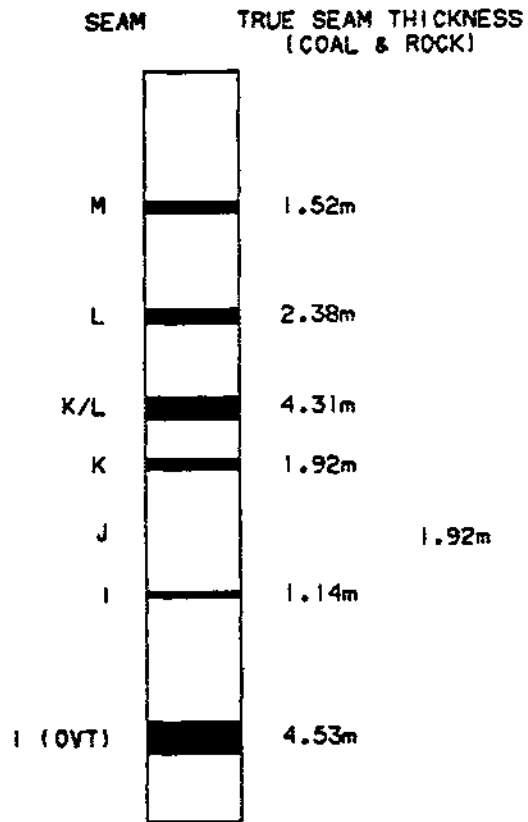
GULF CANADA CORPORATION - COAL DIVISION
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL	TOTAL ROCK
DDH86022		5351	35.40	36.20	100.00		0.443			0.000	0.443
	M	5352	36.20	38.80	28.08	0.208	0.222	0.870	0.218	1.078	0.440
		5353	38.80	39.84	100.00		0.639			0.000	0.639
		5354	64.23	64.78	100.00		0.360			0.000	0.360
	L	5355	64.78	66.57	55.31	0.670		0.440	0.100	1.110	0.100
	L	5356	66.57	68.24	77.25	0.761	0.147	0.133	0.135	0.894	0.282
		5357	68.24	68.71	100.00		0.339			0.000	0.339
		5358	87.28	88.20	100.00		0.744			0.000	0.744
	K/L	5359	88.20	89.88	94.06	1.254			0.080	1.254	0.080
	K/L	5360	89.88	91.75	53.48	0.693	0.077	0.510	0.164	1.203	0.241
	K/L	5361	91.75	93.80	70.73	0.912	0.172	0.179	0.271	1.091	0.443
		5362	93.80	95.43	100.00		1.179			0.000	1.179
		5363	103.69	104.90	100.00		1.203			0.000	1.203
	K	5364	104.90	106.87	32.99	0.314	0.321	1.157	0.127	1.471	0.448
		5365	106.87	108.49	100.00		1.515			0.000	1.515
		5366	138.83	140.41	100.00		1.541			0.000	1.541
	I	5367	140.41	141.56	88.70	1.009		0.129		1.138	0.000
		5368	141.56	142.05	100.00		0.488			0.000	0.488
		5369	175.80	175.95	100.00		0.130			0.000	0.130
	I OVT	5370	175.95	179.80	74.03	2.214		0.551	0.084	2.765	0.084
	I OVT	5371	179.80	182.50	46.67	0.456	0.149	0.611	0.051	1.067	0.200
	I OVT	5372	182.50	184.17	100.00	0.422				0.422	0.000
		5373	184.17	184.63	100.00		0.065			0.000	0.065

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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
DDH86022												
	L	67	5355	5356	64.78	68.24	65.89	2.07	0.21	0.84	0.34	2.91- 0.55
	L	239	5355	5356	64.78	68.24	65.89	2.07	0.21	0.84	0.34	2.91- 0.55
	L	339	5355	5356	64.78	68.24	65.89	2.07	0.21	0.84	0.34	2.91- 0.55



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86022

GULF CANADA CORPORATION
11/03/87
KLAP:(205057)870063022.L09



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86022
 Coal zone: L
 Field sample no.: 05355 - 05356 Composite sample no.: 67
 Lab sample no.: 29374
 True sample thickness: 2.386 meters Drill core recovery (%): 65.89 %
 Coal/Rock: 2.004 / 0.382 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 29.07 23.58 13.16 26.43
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 5.11 2.65

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.57	
Ash (%):	38.00	38.22
Volatile matter (%):	8.72	8.77
Fixed carbon (%):	52.71	53.01
Total sulphur (%):	0.44	0.44
Combustible sulphur (%):	0.04	
Net calorific value (cal/g):	4840.00	4867.00
Gross calorific value (cal/g):	4840.00	4867.00
Volatile matter (dmmf%):	9.50	
Hardgrove index:	55.00	
Specific gravity:	1.72	
Carbon dioxide (%):	3.15	
Phosphorous in coal (%):	0.116	
Chlorine in coal (ppm):	2380.00	
Forms of Sulphur (%):	PYRITE 16.00	SULPHATE 00.00 ORGANIC 84.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	54.64	54.95
Hydrogen (%):	1.74	1.75
Nitrogen (%):	0.63	0.63
Oxygen (%):	3.98	4.01

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1270.00	1219.00
Softening temperature (°C):	1281.00	1230.00
Hemispherical temperature (°C):	1289.00	1241.00
Final temperature (°C):	1340.00	1334.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	55.59	TiO2 (%):	1.04
Al2O3 (%):	19.72	Na2O (%):	2.34
Fe2O3 (%):	6.73	K2O (%):	1.03
CaO (%):	4.67	SO3 (%):	2.65
MgO (%):	3.15	P2O5 (%):	0.70

gcri coal division ash fusion proj KPN BLK LR DS DCH86022
=====

sample id 00067
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 19/12/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1257.0	initial temp.(C)	1230.0
softening temp.(C)	1332.0	softening temp.(C)	1273.0
hemispherical temp.(C)	1375.0	hemispherical temp.(C)	1327.0
fluid temp.(C)	1445.0	fluid temp.(C)	1433.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DCH86022
=====

sample id 00067
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 19/12/86

silicon dioxide %	(sio2)	54.97
aluminium oxide %	(al2o3)	24.82
ferric oxide %	(fe2o3)	5.21
titanium dioxide %	(tio2)	1.35
phosphorous pentoxide %	(p2o5)	0.57
calcium oxide %	(cao)	3.52
magnesium oxide %	(mgo)	2.53
sulphur trioxide %	(so3)	1.46
sodium oxide %	(na2o)	2.25
potassium oxide %	(k2o)	1.01

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86022
=====

sample id 00067
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 19/12/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1313.0	initial temp.(C)	1362.0
softening temp.(C)	1395.0	softening temp.(C)	1340.0
hemispherical temp.(C)	1431.0	hemispherical temp.(C)	1391.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86022
=====

sample id 00067
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 19/12/86

silicon dioxide %	(sio2)	57.71
aluminium oxide %	(al2o3)	23.54
ferric oxide %	(fe2o3)	4.69
titanium dioxide %	(tio2)	0.95
phosphorous pentoxide %	(p2o5)	0.52
calcium oxide %	(cao)	3.19
magnesium oxide %	(mgo)	2.30
sulphur trioxide %	(so3)	1.76
sodium oxide %	(na2o)	2.28
potassium oxide %	(k2o)	0.88

90.0 <= total <= 100.0

KPNLRDDH86023

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86023

DATE - 04/03/87

- HISTORY -

START DATE - 15/09/86

END DATE - 16/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - SAVOIE

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1396.65

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6345300.00

EASTING - 503627.25

LATITUDE - 571510

LONGITUDE - 1285624

- ORIENTATION -

LENGTH - 108.81

CORE SIZE - 0.0

INCLINATION - 90.0

AZIMUTH - 0.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 10.67

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

=====

02/APR/87

GULF CANADA CORPORATION - COAL DIVISION

SIMPLE SAMPLE SUMMARY

PAGE 1

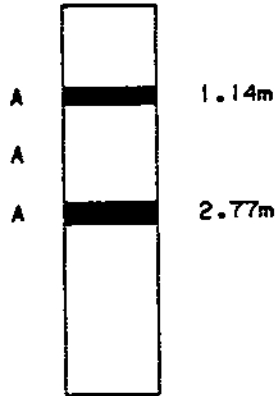
TRUE THICKNESS

KLAPPAN PROJECT

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

DDH86023		5382	23.85	24.44	91.53		0.205		0.019	0.000	0.224
	A	5383	24.44	26.34	100.00	0.535	0.129			0.535	0.129
	A	5384	26.34	27.87	100.00	0.472				0.472	0.000
		5385	27.87	28.30	100.00		0.122			0.000	0.122
		5386	40.37	40.82	100.00		0.136			0.000	0.136
	A	5387	40.82	41.96	96.49	0.352		0.012		0.364	0.000
		5388	41.96	42.24	100.00		0.094			0.000	0.094
		5389	55.13	55.60	100.00	0.043	0.211			0.043	0.211
	A	5390	55.60	57.28	88.69	0.827		0.108		0.935	0.000
	A	5391	57.28	60.11	94.70	0.714	0.626	0.087		0.801	0.626
	A	5392	60.11	61.36	92.80	0.372			0.030	0.372	0.030
		5393	61.36	62.85	100.00		0.436			0.000	0.436

SEAM TRUE SEAM THICKNESS
 (COAL & ROCK)



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

**1986 DIAMOND DRILL HOLES
DDH86023**

GULF CANADA CORPORATION
11/03/87
KLAP:[205057]870063023.L09



KPNLRDDH86024

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86024

DATE - 04/03/87

- HISTORY -

START DATE - 15/09/86

END DATE - 17/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - BARKER

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1438.85

ZONE - 9

NORTHING - 6344707.00

EASTING - 503600.19

LICENCE/LEASE NUMBER -

LATITUDE - 571450

LONGITUDE - 1285625

- ORIENTATION -

LENGTH - 121.91

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 3.05

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

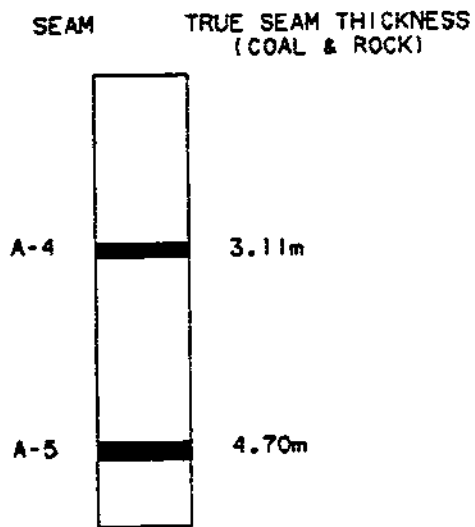
02/APR/87

GULF CANADA CORPORATION - COAL DIVISION
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

PAGE 1

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

DDH86024		5374	45.41	46.25	100.00		0.733			0.000	0.733
	A-4	5375	46.25	49.76	76.64	2.043	0.347	0.335	0.388	2.378	0.735
		5376	49.76	50.14	100.00		0.342			0.000	0.342
		5377	98.75	98.96	100.00		0.182			0.000	0.182
	A-5	5378	98.96	100.52	90.38	1.222		0.130		1.352	0.000
	A-5	5379	100.52	102.27	100.00	0.268	1.247			0.268	1.247
	A-5	5380	102.27	104.38	95.26	1.741		0.087		1.828	0.000
		5381	104.38	104.71	100.00		0.286			0.000	0.286



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE
MOUNT KLAPPAN ANTHRACITE PROJECT
1986 DIAMOND DRILL HOLES
DDH86024

GULF CANADA CORPORATION
11/03/87
KLAP:(205057)870063024.LOG



KPNLRDOH86025

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPMLRDDH86025

DATE - 04/03/87

- HISTORY -

START DATE - 16/09/86

END DATE - 18/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - SAVOIE

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - SITE Y. COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1656.94

ZONE - 9

NORTHING - 6342860.00

EASTING - 506215.00

LICENCE/LEASE NUMBER -

LATITUDE - 571351

LONGITUDE - 1285349

- ORIENTATION -

LENGTH - 230.72

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 3.05

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

02/APR/87

GULF CANADA CORPORATION - COAL DIVISION
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

PAGE 1

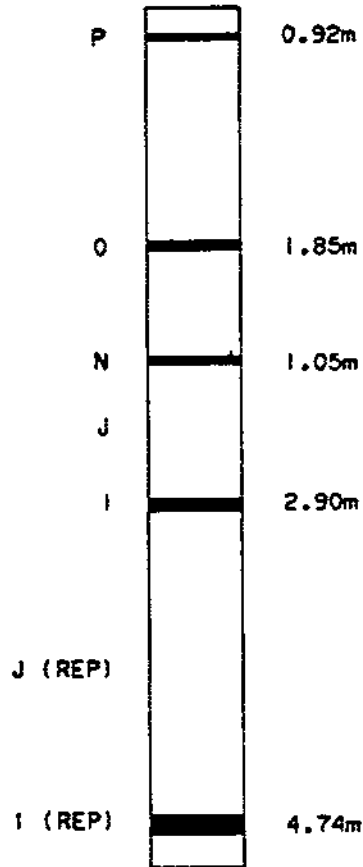
DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL	ROCK
DDH86025		10102	61.97	62.22	100.00		0.236			0.000	0.236
	O	10103	62.22	64.16	66.49	1.196	0.038	0.257	0.361	1.453	0.399
		10104	64.16	65.21	100.00		1.014			0.000	1.014
		10105	93.30	93.61	100.00		0.296			0.000	0.296
	N	10106	93.61	94.72	82.88	0.665	0.208	0.180		0.845	0.208
		10107	94.72	95.76	100.00		0.977			0.000	0.977
		10108	130.04	131.20	100.00		1.061			0.000	1.061
	I	10109	131.20	132.97	77.40	1.136	0.119	0.367		1.503	0.119
	I	10110	132.97	134.36	100.00	1.275				1.275	0.000
		10111	134.36	135.71	100.00		1.241			0.000	1.241
		10112	183.36	183.47	100.00		0.103			0.000	0.103
	J REP	10113	183.47	183.96	65.31	0.299		0.159		0.458	0.000
		10114	183.96	184.53	100.00		0.528			0.000	0.528
		10115	215.12	216.24	100.00		0.956			0.000	0.956
	I REP	10116	216.24	217.87	69.94	0.979		0.318	0.103	1.297	0.103
	I REP	10117	217.87	219.45	93.04	1.141	0.129	0.078	0.017	1.219	0.146
	I REP	10118	219.45	221.72	81.06	1.602		0.373		1.975	0.000
		10119	221.72	223.07	100.00		1.182			0.000	1.182

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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

DDH86025												
I		68	10109	10110	131.20	134.36	87.34	2.63	0.13	0.40	0.00	3.03- 0.13
I REP		69	10116	10116	216.24	217.87	69.93	1.14	0.00	0.37	0.12	1.51- 0.12
I REP		70	10117	10117	217.87	219.45	93.03	1.32	0.15	0.09	0.02	1.41- 0.17
I REP		71	10118	10118	219.45	221.72	81.05	1.84	0.00	0.43	0.00	2.27- 0.00
I		240	10109	10110	131.20	134.36	87.34	2.63	0.13	0.40	0.00	3.03- 0.13
I		241	10116	10117	216.24	219.45	81.30	2.46	0.15	0.46	0.14	2.92- 0.29
I		242	10118	10118	219.45	221.72	81.05	1.84	0.00	0.43	0.00	2.27- 0.00
I		340	10109	10110	131.20	134.36	87.34	2.63	0.13	0.40	0.00	3.03- 0.13
I		341	10116	10118	216.24	221.72	81.20	4.30	0.15	0.89	0.14	5.19- 0.29

SEAM TRUE SEAM THICKNESS
 (COAL & ROCK)



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86025

GULF CANADA CORPORATION
11/03/87
KLAP:(205057)870063025.L06



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86025
 Coal zone: 1
 Field sample no.: 10109 - 10110 Composite sample no.: 68
 Lab sample no.: 29374
 True sample thickness: 2.897 meters Drill core recovery(%): 87.34 %
 Coal/Rock: 2.778 / 0.119 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 17.93 22.98 20.33 25.95
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 7.69 5.12

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.95	
Ash (%):	21.87	22.08
Volatile matter (%):	7.61	7.68
Fixed carbon (%):	69.57	70.24
Total sulphur (%):	0.43	0.43
Combustible sulphur (%):	0.24	
Net calorific value (cal/g):	6314.00	6375.00
Gross calorific value (cal/g):	6314.00	6375.00
Volatile matter (dmmf %):	7.60	
Hardgrove index:	47.00	
Specific gravity:	1.51	
Carbon dioxide (%):	2.14	
Phosphorous in coal (%):	0.275	
Chlorine in coal (ppm):	1780.00	
Forms of Sulphur (%):	PYRITE 05.00	SULPHATE 00.00 ORGANIC 95.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	71.42	72.11
Hydrogen (%):	2.14	2.16
Nitrogen (%):	0.79	0.80
Oxygen (%):	2.40	2.42

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1214.00	1206.00
Softening temperature (°C):	1257.00	1211.00
Hemispherical temperature (°C):	1262.00	1217.00
Final temperature (°C):	1305.00	1292.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	48.24	TiO2 (%):	0.98
Al2O3 (%):	22.24	Na2O (%):	2.48
Fe2O3 (%):	8.01	K2O (%):	1.16
CaO (%):	5.18	SO3 (%):	2.19
MgO (%):	4.82	P2O5 (%):	2.88

gcri coal division ash fusion proj KPN BLK LR DS DDH86025
=====

sample id 00068
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 19/12/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1254.0	initial temp.(C)	1208.0
softening temp.(C)	1265.0	softening temp.(C)	1214.0
hemispherical temp.(C)	1270.0	hemispherical temp.(C)	1219.0
fluid temp.(C)	1300.0	fluid temp.(C)	1278.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86025
=====

sample id 00068
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 19/12/86

silicon dioxide %	(sio2)	48.34
aluminium oxide %	(al2o3)	19.28
ferric oxide %	(fe2o3)	6.74
titanium dioxide %	(tio2)	0.94
phosphorous pentoxide %	(p2o5)	2.25
calcium oxide %	(cao)	9.18
magnesium oxide %	(mgo)	5.47
sulphur trioxide %	(so3)	4.46
sodium oxide %	(na2o)	1.86
potassium oxide %	(k2o)	0.93

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86025
=====

sample id 00068
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 19/12/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1260.0	initial temp.(C)	1233.0
softening temp.(C)	1273.0	softening temp.(C)	1246.0
hemispherical temp.(C)	1284.0	hemispherical temp.(C)	1260.0
fluid temp.(C)	1340.0	fluid temp.(C)	1313.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86025
=====

sample id 00068
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 19/12/86

silicon dioxide %	(sio2)	46.00
aluminium oxide %	(al2o3)	25.33
ferric oxide %	(fe2o3)	5.85
titanium dioxide %	(tio2)	0.79
phosphorous pentoxide %	(p2o5)	3.02
calcium oxide %	(cao)	7.84
magnesium oxide %	(mgo)	4.89
sulphur trioxide %	(so3)	3.47
sodium oxide %	(na2o)	1.70
potassium oxide %	(k2o)	0.85

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86025
 Coal zone: I REP
 Field sample no.: 10116 Composite sample no.: 69
 Lab sample no.: 29374
 True sample thickness: 1.400 meters Drill core recovery (%): 69.93 %
 Coal/Rock: 1.297 / 0.103 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 27.64 24.00 15.57 24.79
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 5.17 2.83

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.91	
Ash (%):	24.12	24.34
Volatile matter (%):	7.20	7.27
Fixed carbon (%):	67.77	68.39
Total sulphur (%):	0.39	0.39
Combustible sulphur (%):	0.18	
Net calorific value (cal/g):	6135.00	6192.00
Gross calorific value (cal/g):	6135.00	6192.00
Volatile matter (dmmf %):	7.10	
Hardgrove index:	44.00	
Specific gravity:	1.53	
Carbon dioxide (%):	1.89	
Phosphorous in coal (%):	0.047	
Chlorine in coal (ppm):	1300.00	
Forms of Sulphur (%):	PYRITE 03.00	SULPHATE 00.00 ORGANIC 97.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	68.79	69.42
Hydrogen (%):	1.91	1.93
Nitrogen (%):	0.73	0.74
Oxygen (%):	3.15	3.18

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1251.00	1214.00
Softening temperature (°C):	1278.00	1230.00
Hemispherical temperature (°C):	1289.00	1238.00
Final temperature (°C):	1354.00	1344.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	57.25	TiO2 (%):	0.80
Al2O3 (%):	19.72	Na2O (%):	1.96
Fe2O3 (%):	6.83	K2O (%):	1.45
CaO (%):	3.28	SO3 (%):	2.17
MgO (%):	3.65	P2O5 (%):	0.45

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86025
 Coal zone: I REP
 Field sample no.: 10117 Composite sample no.: 70
 Lab sample no.: 29374
 True sample thickness: 1.365 meters Drill core recovery(%): 93.03 %
 Coal/Rock: 1.219 / 0.146 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 30.93 17.36 14.92 30.08
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 4.32 2.39

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.86	
Ash (%):	28.47	28.72
Volatile matter (%):	6.46	6.52
Fixed carbon (%):	64.21	64.76
Total sulphur (%):	0.40	0.40
Combustible sulphur (%):	0.23	
Net calorific value (cal/g):	5734.00	5783.00
Gross calorific value (cal/g):	5734.00	5783.00
Volatile matter (dmmf%):	6.00	
Hardgrove index:	48.00	
Specific gravity:	1.56	
Carbon dioxide (%):	1.51	
Phosphorous in coal (%):	0.042	
Chlorine in coal (ppm):	3850.00	
Forms of Sulphur (%):	PYRITE 07.50	SULPHATE 00.00 ORGANIC 92.50

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	64.27	64.83
Hydrogen (%):	2.17	2.19
Nitrogen (%):	0.74	0.75
Oxygen (%):	3.09	3.11

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1281.00	1262.00
Softening temperature (°C):	1305.00	1273.00
Hemispherical temperature (°C):	1324.00	1286.00
Final temperature (°C):	1407.00	1402.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	59.01	TiO2 (%):	0.98
Al2O3 (%):	21.86	Na2O (%):	2.58
Fe2O3 (%):	4.73	K2O (%):	0.99
CaO (%):	2.51	SO3 (%):	1.51
MgO (%):	3.38	P2O5 (%):	0.34

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86025
 Coal zone: I REP
 Field sample no.: 10118 Composite sample no.: 71
 Lab sample no.: 29374
 True sample thickness: 1.975 meters Drill core recovery(%): 81.05 %
 Coal/Rock: 1.975 / 0.000 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 9.88 15.79 23.40 40.87
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 6.14 3.92

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.60	
Ash (%):	10.00	10.06
Volatile matter (%):	6.57	6.61
Fixed carbon (%):	82.83	83.33
Total sulphur (%):	0.48	0.48
Combustible sulphur (%):	0.24	
Net calorific value (cal/g):	7492.00	7537.00
Gross calorific value (cal/g):	7493.00	7538.00
Volatile matter (dmmf%):	6.40	
Hardgrove index:	40.00	
Specific gravity:	1.41	
Carbon dioxide (%):	1.53	
Phosphorous in coal (%):	0.185	
Chlorine in coal (ppm):	1620.00	
Forms of Sulphur (%):	PYRITE 02.00	SULPHATE 00.00 ORGANIC 98.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	82.62	83.12
Hydrogen (%):	2.59	2.61
Nitrogen (%):	0.85	0.86
Oxygen (%):	2.86	2.87

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1246.00	1217.00
Softening temperature (°C):	1276.00	1222.00
Hemispherical temperature (°C):	1281.00	1227.00
Final temperature (°C):	1302.00	1284.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	37.49	TiO2 (%):	0.89
Al2O3 (%):	22.09	Na2O (%):	2.03
Fe2O3 (%):	8.63	K2O (%):	0.99
CaO (%):	10.11	SO3 (%):	5.93
MgO (%):	5.54	P2O5 (%):	4.24

gcri coal division ash fusion proj KPN BLK LR DS DDH86025
=====

sample id 00069
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 19/12/86

oxidizing atmosphere

initial temp.(C) 1276.0
softening temp.(C) 1292.0
hemispherical temp.(C) 1311.0
fluid temp.(C) 1388.0

reducing atmosphere

initial temp.(C) 1206.0
softening temp.(C) 1233.0
hemispherical temp.(C) 1251.0
fluid temp.(C) 1343.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86025
=====

sample id 00069
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 19/12/86

silicon dioxide %	(sio2)	54.62
aluminium oxide %	(al2o3)	22.55
ferric oxide %	(fe2o3)	5.28
titanium dioxide %	(tio2)	0.75
phosphorous pentoxide %	(p2o5)	0.56
calcium oxide %	(cao)	3.95
magnesium oxide %	(mgo)	3.86
sulphur trioxide %	(so3)	2.04
sodium oxide %	(na2o)	2.21
potassium oxide %	(k2o)	1.18

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86025
=====

sample id 00069
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 19/12/86

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1268.0	initial temp.(C)	1260.0
softening temp.(C)	1292.0	softening temp.(C)	1268.0
hemispherical temp.(C)	1319.0	hemispherical temp.(C)	1284.0
fluid temp.(C)	1407.0	fluid temp.(C)	1326.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86025
=====

sample id 00069
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 19/12/86

silicon dioxide %	(sio2)	57.09
aluminium oxide %	(al2o3)	21.31
ferric oxide %	(fe2o3)	5.03
titanium dioxide %	(tio2)	0.77
phosphorous pentoxide %	(p2o5)	0.58
calcium oxide %	(cao)	3.61
magnesium oxide %	(mgo)	3.85
sulphur trioxide %	(so3)	2.18
sodium oxide %	(na2o)	2.08
potassium oxide %	(k2o)	1.12

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86025
=====

sample id 00070
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 19/12/86

oxidizing atmosphere
oooooooooooooooooooo

initial temp.(C) 1270.0
softening temp.(C) 1286.0
hemispherical temp.(C) 1308.0
fluid temp.(C) 1370.0

reducing atmosphere
oooooooooooooooooooo

initial temp.(C) 1211.0
softening temp.(C) 1219.0
hemispherical temp.(C) 1243.0
fluid temp.(C) 1354.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86025
=====

sample id 00070
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 19/12/86

silicon dioxide %	(sio2)	55.06
aluminium oxide %	(al2o3)	20.41
ferric oxide %	(fe2o3)	6.44
titanium dioxide %	(tio2)	0.52
phosphorous pentoxide %	(p2o5)	0.51
calcium oxide %	(cao)	3.92
magnesium oxide %	(mgo)	4.38
sulphur trioxide %	(so3)	5.65
sodium oxide %	(na2o)	2.08
potassium oxide %	(k2o)	0.93

90.0 <= total <= 100.0

scri coal division ash fusion proj KPN BLK LR DS DDH84025
=====

sample id 00070
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 19/12/86

oxidizing atmosphere

initial temp.(C) 1297.0
softening temp.(C) 1305.0
hemispherical temp.(C) 1327.0
fluid temp.(C) 1434.0

reducing atmosphere

initial temp.(C) 1262.0
softening temp.(C) 1270.0
hemispherical temp.(C) 1281.0
fluid temp.(C) 1391.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

scri coal division ash mineral proj KPN BLK LR DS DDH84025
=====

sample id 00070
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 19/12/86

silicon dioxide %	(sio2)	55.65
aluminium oxide %	(al2o3)	23.54
ferric oxide %	(fe2o3)	5.36
titanium dioxide %	(tio2)	0.53
phosphorous pentoxide %	(p2o5)	0.52
calcium oxide %	(cao)	3.82
magnesium oxide %	(mgo)	3.78
sulphur trioxide %	(so3)	1.67
sodium oxide %	(na2o)	1.99
potassium oxide %	(k2o)	1.00

90.0 <= total <= 100.0

ecri coal division ash fusion proj KPN BLK LR DS DCH86025
=====

sample id 00071
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 19/12/86

oxidizing atmosphere

initial temp.(C) 1240.0
softening temp.(C) 1246.0
hemispherical temp.(C) 1268.0
fluid temp.(C) 1313.0

reducing atmosphere

initial temp.(C) 1208.0
softening temp.(C) 1214.0
hemispherical temp.(C) 1219.0
fluid temp.(C) 1286.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

ecri coal division ash mineral proj KPN BLK LR DS DCH86025
=====

sample id 00071
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 19/12/86

silicon dioxide %	(sio2)	39.70
aluminium oxide %	(al2o3)	18.90
ferric oxide %	(fe2o3)	6.25
titanium dioxide %	(tio2)	0.57
phosphorous pentoxide %	(p2o5)	3.85
calcium oxide %	(cao)	13.55
magnesium oxide %	(mgo)	6.33
sulphur trioxide %	(so3)	5.67
sodium oxide %	(na2o)	1.83
potassium oxide %	(k2o)	0.78

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86025
=====

sample id 00071
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 19/12/86

oxidizing atmosphere
#####

initial temp.(C) 1260.0
softening temp.(C) 1292.0
hemispherical temp.(C) 1302.0
fluid temp.(C) 1340.0

reducing atmosphere
#####

initial temp.(C) 1230.0
softening temp.(C) 1260.0
hemispherical temp.(C) 1270.0
fluid temp.(C) 1315.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86025
=====

sample id 00071
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 19/12/86

silicon dioxide %	(sio2)	44.72
aluminium oxide %	(al2o3)	22.53
ferric oxide %	(fe2o3)	5.46
titanium dioxide %	(tio2)	0.52
phosphorous pentoxide %	(p2o5)	4.14
calcium oxide %	(cao)	10.52
magnesium oxide %	(mgo)	4.66
sulphur trioxide %	(so3)	2.75
sodium oxide %	(na2o)	1.79
potassium oxide %	(k2o)	0.86

90.0 <= total <= 100.0

KPNLRDDH86026

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86026

DATE - 04/03/87

- HISTORY -

START DATE - 17/09/86
END DATE - 18/09/86

CONTRACTOR - J.T. THOMAS
GEOLOGIST - BARKER

OPERATOR - G.C.C.
SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC
ELEVATION - 1400.07

ZONE - 9
NORTHING - 6343948.00
EASTING - 502857.69

LICENCE/LEASE NUMBER -

LATITUDE - 571426
LONGITUDE - 1285710

- ORIENTATION -

LENGTH - 155.75

INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

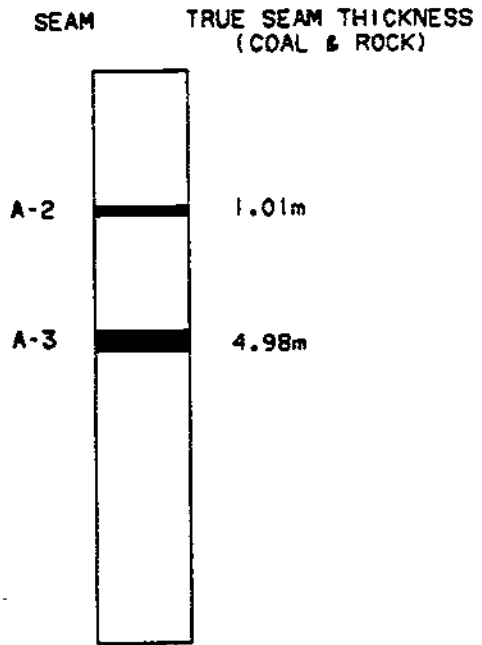
CEMENT - N
PLUG - N
PIEZ - N

CASING DEPTH (M) - 9.14
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE


02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL - ROCK
DDH86026		5394	36.32	36.63	100.00		0.286			0.000- 0.286
	A-2	5395	36.63	37.74	84.68	0.699	0.165	0.155		0.854- 0.165
		5396	37.74	38.71	100.00		0.882			0.000- 0.882
		5397	71.01	71.33	100.00	0.045	0.221			0.045- 0.221
	A-3	5398	71.33	73.64	58.87	1.097	0.136	0.861		1.958- 0.136
	A-3	5399	73.64	74.73	100.00	0.993				0.993- 0.000
	A-3	5400	74.73	76.79	100.00	1.095	0.798			1.095- 0.798
		10101	76.79	77.34	100.00		0.510			0.000- 0.510



NOTE:
 SCHEMATIC PROFILE.
 NO THICKNESSES SHOWN
 FOR SEAMS CONTAINING
 LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

<p>FIGURE</p> <p>MOUNT KLAPPAN ANTHRACITE PROJECT</p> <p>1986 DIAMOND DRILL HOLES DDH86026</p>
<p>GULF CANADA CORPORATION 11/03/87 KLAP1:2090571870063026-LOG</p> 

KPNLRDDH86027

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86027

DATE - 04/03/87

- HISTORY -

START DATE - 19/09/86

END DATE - 21/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - BARKER

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC
ELEVATION - 1672.19

ZONE - 9
NORTHING - 6343060.00
EASTING - 505969.06

LICENCE/LEASE NUMBER -

LATITUDE - 571357
LONGITUDE - 1285404

- ORIENTATION -

LENGTH - 172.81

INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N
PLUG - N
PIEZ - N

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

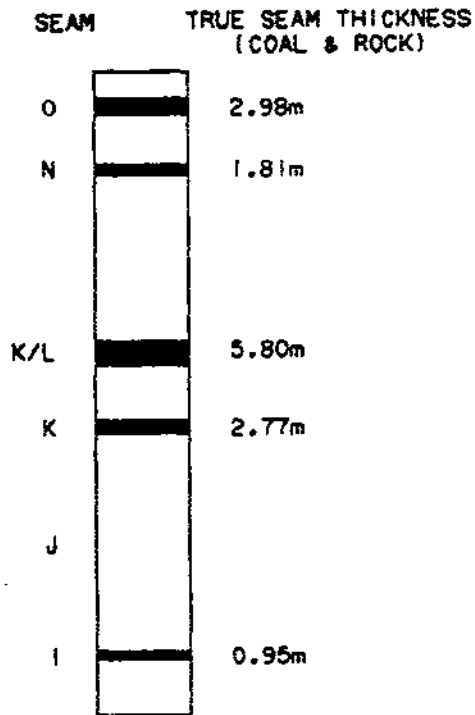
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GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 SIMPLE SAMPLE SUMMARY PAGE 1
 TRUE THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL - ROCK
DDH86027										
	D	10060	9.36	9.61	100.00		0.217			0.000- 0.217
	D	10061	9.61	12.00	30.54	0.485	0.147	1.290	0.147	1.775- 0.294
		10062	12.00	12.38	100.00		0.329			0.000- 0.329
		10063	26.08	26.53	100.00		0.414			0.000- 0.414
	N	10064	26.53	28.48	55.38	0.936	0.065	0.584	0.222	1.520- 0.287
		10065	28.48	28.91	100.00		0.401			0.000- 0.401
		10066	72.21	73.59	100.00		1.297			0.000- 1.297
	K/L	10067	73.59	76.55	75.00	1.965	0.122	0.696		2.661- 0.122
	K/L	10068	76.55	77.72	92.31	0.949	0.066		0.085	0.949- 0.151
	K/L	10069	77.72	79.76	88.73	1.466	0.235	0.197	0.019	1.663- 0.254
		10070	79.76	80.06	100.00	0.066	0.216			0.066- 0.216
		10071	95.17	95.95	100.00		0.732			0.000- 0.732
	K	10072	95.95	98.95	86.00	2.257	0.119	0.261	0.128	2.518- 0.247
		10073	98.95	99.17	100.00		0.199			0.000- 0.199

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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
DDH86027												
	K/L	72	10067	10067	73.59	76.55	75.00	2.09	0.13	0.74	0.00	2.83- 0.13
	K/L	73	10068	10068	76.55	77.72	92.30	1.01	0.07	0.00	0.09	1.01- 0.16
	K/L	74	10069	10069	77.72	79.76	88.72	1.56	0.25	0.21	0.02	1.77- 0.27
	K	75	10072	10072	95.95	98.95	86.00	2.45	0.13	0.28	0.14	2.73- 0.27
	K/L	243	10067	10069	73.59	79.76	82.82	4.66	0.45	0.95	0.11	5.61- 0.56
	K	244	10072	10072	95.95	98.95	86.00	2.45	0.13	0.28	0.14	2.73- 0.27
	K/L	343	10067	10069	73.59	79.76	82.82	4.66	0.45	0.95	0.11	5.61- 0.56
	K	344	10072	10072	95.95	98.95	86.00	2.45	0.13	0.28	0.14	2.73- 0.27



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86027

GULF CANADA CORPORATION
11/03/87
KLAP1(205057)870063027.L00



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPnlRDDH86027
 Coal zone: K/L
 Field sample no.: 10067 Composite sample no.: 72
 Lab sample no.: 29374
 True sample thickness: 2.783 meters Drill core recovery (%): 75.00 %
 Coal/Rock: 2.661 / 0.122 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 40.96 22.22 14.06 19.00
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 2.39 1.37

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.93	
Ash (%):	35.40	35.73
Volatile matter (%):	7.46	7.53
Fixed carbon (%):	56.21	56.74
Total sulphur (%):	0.50	0.50
Combustible sulphur (%):	0.19	
Net calorific value (cal/g):	5201.00	5250.00
Gross calorific value (cal/g):	5201.00	5250.00
Volatile matter (dmmf %):	7.40	
Hardgrove index:	50.00	
Specific gravity:	1.65	
Carbon dioxide (%):	2.08	
Phosphorous in coal (%):	0.122	
Chlorine in coal (ppm):	3530.00	
Forms of Sulphur (%):	PYRITE 18.00	SULPHATE 00.00 ORGANIC 82.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	58.17	58.72
Hydrogen (%):	1.87	1.89
Nitrogen (%):	0.76	0.77
Oxygen (%):	2.37	2.39

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1281.00	1246.00
Softening temperature (°C):	1300.00	1260.00
Hemispherical temperature (°C):	1316.00	1270.00
Final temperature (°C):	1364.00	1362.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	60.06	TiO2 (%):	0.90
Al2O3 (%):	19.52	Na2O (%):	1.81
Fe2O3 (%):	4.66	K2O (%):	1.47
CaO (%):	4.06	SO3 (%):	2.16
MgO (%):	2.45	P2O5 (%):	0.79

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86027
 Coal zone: K/L
 Field sample no.: 10068 Composite sample no.: 73
 Lab sample no.: 29374
 True sample thickness: 1.100 meters Drill core recovery (%): 92.30 %
 Coal/Rock: 0.949 / 0.151 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 44.48 27.43 13.10 13.29
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 1.19 0.51

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.22	
Ash (%):	32.80	33.21
Volatile matter (%):	6.90	6.99
Fixed carbon (%):	59.08	59.80
Total sulphur (%):	0.47	0.48
Combustible sulphur (%):	0.33	
Net calorific value (cal/g):	5210.00	5275.00
Gross calorific value (cal/g):	5210.00	5275.00
Volatile matter (dmmf %):	6.50	
Hardgrove index:	44.00	
Specific gravity:	1.63	
Carbon dioxide (%):	1.65	
Phosphorous in coal (%):	0.079	
Chlorine in coal (ppm):	2180.00	
Forms of Sulphur (%):	PYRITE 02.00	SULPHATE 00.00 ORGANIC 98.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	60.21	60.96
Hydrogen (%):	2.11	2.14
Nitrogen (%):	0.87	0.88
Oxygen (%):	2.32	2.33

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1372.00	1362.00
Softening temperature (°C):	1439.00	1421.00
Hemispherical temperature (°C):	1469.00	1448.00
Final temperature (°C):	1472.00	1472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	55.33	TiO2 (%):	1.47
Al2O3 (%):	25.99	Na2O (%):	2.92
Fe2O3 (%):	3.77	K2O (%):	1.32
CaO (%):	2.86	SO3 (%):	1.10
MgO (%):	1.75	P2O5 (%):	0.55

===== GULF CANADA CORPORATION - COAL DIVISION =====

----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86027
 Coal zone: K/L
 Field sample no.: 10069 Composite sample no.: 74
 Lab sample no.: 29374
 True sample thickness: 1.917 meters Drill core recovery (%): 88.72 %
 Coal/Rock: 1.663 / 0.254 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 47.21 25.46 12.92 12.69
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 0.88 0.84

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.10	
Ash (%):	38.00	38.42
Volatile matter (%):	7.40	7.48
Fixed carbon (%):	53.50	54.10
Total sulphur (%):	0.38	0.38
Combustible sulphur (%):	0.18	
Net calorific value (cal/g):	4756.00	4809.00
Gross calorific value (cal/g):	4756.00	4809.00
Volatile matter (dmmf %):	7.30	
Hardgrove index:	51.00	
Specific gravity:	1.72	
Carbon dioxide (%):	2.52	
Phosphorous in coal (%):	0.061	
Chlorine in coal (ppm):	1140.00	
Forms of Sulphur (%):	PYRITE 08.00	SULPHATE 00.00 ORGANIC 92.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	54.39	54.99
Hydrogen (%):	1.71	1.73
Nitrogen (%):	0.65	0.66
Oxygen (%):	3.77	3.82

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1291.00	1270.00
Softening temperature (°C):	1316.00	1281.00
Hemispherical temperature (°C):	1327.00	1286.00
Final temperature (°C):	1413.00	1405.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	58.71	TiO2 (%):	1.01
Al2O3 (%):	21.86	Na2O (%):	2.67
Fe2O3 (%):	3.98	K2O (%):	1.41
CaO (%):	3.37	SO3 (%):	1.29
MgO (%):	2.65	P2O5 (%):	0.37

gcri coal division ash fusion proj KPN BLK LR DS DDH86027
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sample id 00072
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 19/12/86

oxidizing atmosphere

initial temp.(C) 1289.0
softening temp.(C) 1300.0
hemispherical temp.(C) 1329.0
fluid temp.(C) 1402.0

reducing atmosphere

initial temp.(C) 1233.0
softening temp.(C) 1243.0
hemispherical temp.(C) 1276.0
fluid temp.(C) 1401.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86027
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sample id 00072
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 19/12/86

silicon dioxide %	(sio2)	61.20
aluminium oxide %	(al2o3)	18.90
ferric oxide %	(fe2o3)	4.27
titanium dioxide %	(tio2)	0.90
phosphorous pentoxide %	(p2o5)	0.72
calcium oxide %	(cao)	3.75
magnesium oxide %	(mgo)	2.68
sulphur trioxide %	(so3)	2.10
sodium oxide %	(na2o)	1.94
potassium oxide %	(k2o)	1.05

90.0 <= total <= 100.0

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sample id 00072
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 19/12/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1329.0	initial temp.(C)	1276.0
softening temp.(C)	1348.0	softening temp.(C)	1294.0
hemispherical temp.(C)	1383.0	hemispherical temp.(C)	1329.0
fluid temp.(C)	1453.0	fluid temp.(C)	1439.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86027
=====

sample id 00072
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 19/12/86

silicon dioxide %	(sio2)	59.10
aluminium oxide %	(al2o3)	22.55
ferric oxide %	(fe2o3)	3.55
titanium dioxide %	(tio2)	0.68
phosphorous pentoxide %	(p2o5)	0.76
calcium oxide %	(cao)	3.50
magnesium oxide %	(mgo)	2.33
sulphur trioxide %	(so3)	1.82
sodium oxide %	(na2o)	1.91
potassium oxide %	(k2o)	0.97

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86027
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sample id 00073
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 19/12/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1385.0	initial temp.(C)	1337.0
softening temp.(C)	1462.0	softening temp.(C)	1386.0
hemispherical temp.(C)	1472.0	hemispherical temp.(C)	1413.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86027
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sample id 00073
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 19/12/86

silicon dioxide %	(sio2)	61.38
aluminium oxide %	(al2o3)	20.41
ferric oxide %	(fe2o3)	3.08
titanium dioxide %	(tio2)	0.90
phosphorous pentoxide %	(p2o5)	0.66
calcium oxide %	(cao)	2.58
magnesium oxide %	(mgo)	1.66
sulphur trioxide %	(so3)	0.91
sodium oxide %	(na2o)	2.78
potassium oxide %	(k2o)	0.94

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86027
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sample id 00073
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 19/12/86

oxidizing atmosphere
oooooooooooooooooooo

initial temp.(C) 1434.0
softening temp.(C) 1472.0
hemispherical temp.(C) 1472.0
fluid temp.(C) 1472.0

reducing atmosphere
oooooooooooooooooooo

initial temp.(C) 1359.0
softening temp.(C) 1423.0
hemispherical temp.(C) 1461.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86027
=====

sample id 00073
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 19/12/86

silicon dioxide %	(sio2)	60.96
aluminium oxide %	(al2o3)	22.90
ferric oxide %	(fe2o3)	3.38
titanium dioxide %	(tio2)	0.91
phosphorous pentoxide %	(p2o5)	0.64
calcium oxide %	(cao)	2.53
magnesium oxide %	(mgo)	1.71
sulphur trioxide %	(so3)	0.92
sodium oxide %	(na2o)	2.76
potassium oxide %	(k2o)	1.07

90.0 <= total <= 100.0

agri coal division ash fusion proj KPN BLK LR DS DDH86027
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sample id 00074
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 19/12/86

oxidizing atmosphere

initial temp.(C) 1300.0
softening temp.(C) 1319.0
hemispherical temp.(C) 1332.0
fluid temp.(C) 1386.0

reducing atmosphere

initial temp.(C) 1241.0
softening temp.(C) 1257.0
hemispherical temp.(C) 1276.0
fluid temp.(C) 1350.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

agri coal division ash mineral proj KPN BLK LR DS DDH86027
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sample id 00074
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 19/12/86

silicon dioxide %	(sio2)	56.52
aluminium oxide %	(al2o3)	23.95
ferric oxide %	(fe2o3)	4.46
titanium dioxide %	(tio2)	0.68
phosphorous pentoxide %	(p2o5)	0.99
calcium oxide %	(cao)	4.56
magnesium oxide %	(mgo)	3.32
sulphur trioxide %	(so3)	2.17
sodium oxide %	(na2o)	2.21
potassium oxide %	(k2o)	0.95

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86027
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sample id 00074
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 19/12/86

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1343.0	initial temp.(C)	1296.0
softening temp.(C)	1356.0	softening temp.(C)	1294.0
hemispherical temp.(C)	1383.0	hemispherical temp.(C)	1327.0
fluid temp.(C)	1448.0	fluid temp.(C)	1431.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps'

gcri coal division ash mineral proj KPN BLK LR DS DDH86027
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sample id 00074
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 19/12/86

silicon dioxide %	(sio2)	56.29
aluminium oxide %	(al2o3)	26.34
ferric oxide %	(fe2o3)	3.85
titanium dioxide %	(tio2)	0.76
phosphorous pentoxide %	(p2o5)	0.79
calcium oxide %	(cao)	4.00
magnesium oxide %	(mgo)	2.79
sulphur trioxide %	(so3)	1.84
sodium oxide %	(na2o)	2.32
potassium oxide %	(k2o)	1.02

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86027
 Coal zone: K
 Field sample no.: 10072 Composite sample no.: 75
 Lab sample no.: 29433
 True sample thickness: 2.765 meters Drill core recovery (%): 86.00 %
 Coal/Rock: 2.518 / 0.247 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 36.77 26.51 14.46 19.10
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 1.35 1.81

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.82	
Ash (%):	33.44	33.72
Volatile matter (%):	7.80	7.86
Fixed carbon (%):	57.94	58.42
Total sulphur (%):	0.88	0.89
Combustible sulphur (%):	0.54	
Net calorific value (cal/g):	5248.00	5292.00
Gross calorific value (cal/g):	5248.00	5292.00
Volatile matter (dmmf %):	7.70	
Hardgrove index:	45.00	
Specific gravity:	1.63	
Carbon dioxide (%):	3.05	
Phosphorous in coal (%):	0.137	
Chlorine in coal (ppm):	3510.00	
Forms of Sulphur (%):	PYRITE 41.00	SULPHATE 00.00 ORGANIC 59.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	58.76	59.25
Hydrogen (%):	2.02	2.04
Nitrogen (%):	0.71	0.72
Oxygen (%):	3.37	3.38

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1237.00	1192.00
Softening temperature (°C):	1249.00	1208.00
Hemispherical temperature (°C):	1257.00	1222.00
Final temperature (°C):	1289.00	1268.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	57.40	TiO2 (%):	1.01
Al2O3 (%):	18.19	Na2O (%):	1.93
Fe2O3 (%):	5.38	K2O (%):	1.49
CaO (%):	4.77	SO3 (%):	2.53
MgO (%):	4.43	P2O5 (%):	0.94

gcri coal division ash fusion proj KPN BLK LR DS DDH86027
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sample id 00075
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 05/01/87

oxidizing atmosphere
xxxxxxxxxxxxxxxxxxxxxxxx

initial temp.(C) 1254.0
softening temp.(C) 1276.0
hemispherical temp.(C) 1284.0
fluid temp.(C) 1313.0

reducing atmosphere
xxxxxxxxxxxxxxxxxxxxxxxx

initial temp.(C) 1203.0
softening temp.(C) 1243.0
hemispherical temp.(C) 1273.0
fluid temp.(C) 1296.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86027
=====

sample id 00075
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 05/01/87

silicon dioxide %	(sio2)	52.67
aluminium oxide %	(al2o3)	20.98
ferric oxide %	(fe2o3)	4.72
titanium dioxide %	(tio2)	0.82
phosphorous pentoxide %	(p2o5)	2.30
calcium oxide %	(cao)	6.54
magnesium oxide %	(mgo)	4.56
sulphur trioxide %	(so3)	2.83
sodium oxide %	(na2o)	1.39
potassium oxide %	(k2o)	1.03

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86027
=====

sample id 00075
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 05/01/87

oxidizing atmosphere

initial temp.(C) 1257.0
softening temp.(C) 1276.0
hemispherical temp.(C) 1292.0
fluid temp.(C) 1348.0

reducing atmosphere

initial temp.(C) 1241.0
softening temp.(C) 1257.0
hemispherical temp.(C) 1273.0
fluid temp.(C) 1319.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86027
=====

sample id 00075
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 05/01/87

silicon dioxide %	(sio2)	52.50
aluminium oxide %	(al2o3)	23.41
ferric oxide %	(fe2o3)	4.44
titanium dioxide %	(tio2)	0.61
phosphorous pentoxide %	(p2o5)	1.73
calcium oxide %	(cao)	5.43
magnesium oxide %	(mgo)	4.39
sulphur trioxide %	(so3)	2.33
sodium oxide %	(na2o)	1.69
potassium oxide %	(k2o)	1.03

90.0 <= total <= 100.0

KPNLRDDH86028

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86028

DATE - 04/03/87

- HISTORY -

START DATE - 19/09/86

END DATE - 22/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - MACLEOD

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1366.45

ZONE - 9

NORTHING - 6346990.00

EASTING - 506187.50

LICENCE/LEASE NUMBER -

LATITUDE - 571604

LONGITUDE - 1285351

- ORIENTATION -

LENGTH - 179.21

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 14.32

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE 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

DDH86028		10074	35.26	35.88	100.00		0.606			0.000- 0.606
	D	10075	35.88	38.87	80.60	1.849	0.448	0.484	0.066	2.333- 0.514
		10076	38.87	39.05	100.00		0.166			0.000- 0.166
		10077	59.60	60.32	100.00		0.573			0.000- 0.573
	C	10078	60.32	61.48	87.93	0.181	0.589	0.108		0.289- 0.589
		10079	61.48	61.99	100.00		0.368			0.000- 0.368
		10080	145.20	145.64	100.00		0.437			0.000- 0.437
	A	10081	145.64	147.32	98.21	1.593	0.029	0.030		1.623- 0.029
		10082	147.32	147.65	100.00	0.039	0.282			0.039- 0.282

KPNLRDDH86029

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86029

DATE - 04/03/87

- HISTORY -

START DATE - 21/09/86
END DATE - 23/09/86

CONTRACTOR - J.T. THOMAS
GEOLOGIST - MACLEOD

OPERATOR - G.C.C.
SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC
ELEVATION - 1690.89

ZONE - 9
NORTHING - 6343175.00
EASTING - 505751.56

LICENCE/LEASE NUMBER -

LATITUDE - 571401
LONGITUDE - 1285417

- ORIENTATION -

LENGTH - 156.36

INCLINATION - 70.0
AZIMUTH - 300.0

CORE SIZE - 0.0

CEMENT - N
PLUG - N
PIEZ - N

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

02/APR/87

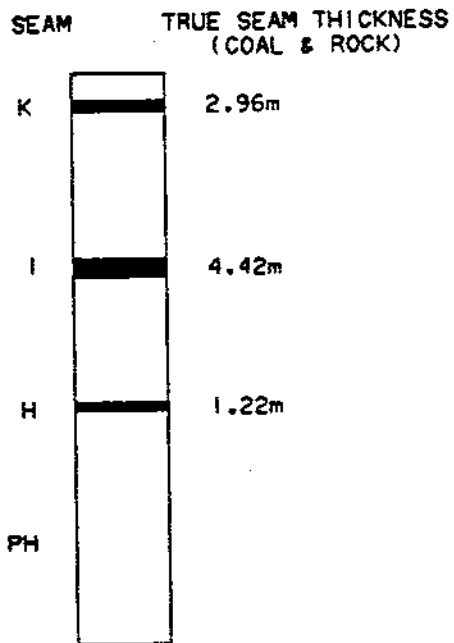
GULF CANADA CORPORATION - COAL DIVISION
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL - ROCK
DDH86029		10083	7.59	8.03	100.00		0.438			0.000- 0.438
	K	10084	8.03	11.00	36.70	0.969	0.120	1.495	0.378	2.464- 0.498
		10085	11.00	11.93	55.91		0.518		0.408	0.000- 0.926
		10086	50.04	50.99	100.00		0.914			0.000- 0.914
	I	10087	50.99	53.23	62.05	1.142	0.227	0.709	0.128	1.851- 0.355
	I	10088	53.23	55.48	70.22	1.556		0.660		2.216- 0.000
		10089	55.48	56.13	100.00		0.640			0.000- 0.640

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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
DDH86029												
I		76	10087	10088	50.99	55.48	66.14	2.74	0.23	1.39	0.13	4.13- 0.36
I		245	10087	10088	50.99	55.48	66.14	2.74	0.23	1.39	0.13	4.13- 0.36
I		345	10087	10088	50.99	55.48	66.14	2.74	0.23	1.39	0.13	4.13- 0.36



NOTE:

SCHMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86029

GULF CANADA CORPORATION
11/03/87
KLAP: (2050571870063029.LOG



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86029
 Coal zone: 1
 Field sample no.: 10087 - 10088 Composite sample no.: 76
 Lab sample no.: 29433
 True sample thickness: 4.422 meters Drill core recovery (%): 66.14 %
 Coal/Rock: 4.067 / 0.355 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 26.23 17.96 16.25 30.27
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 5.42 3.87

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.80	
Ash (%):	20.39	20.56
Volatile matter (%):	7.45	7.51
Fixed carbon (%):	71.36	71.93
Total sulphur (%):	0.44	0.44
Combustible sulphur (%):	0.15	
Net calorific value (cal/g):	6393.00	6445.00
Gross calorific value (cal/g):	6393.00	6445.00
Volatile matter (dmmf %):	7.40	
Hardgrove index:	42.00	
Specific gravity:	1.48	
Carbon dioxide (%):	2.88	
Phosphorous in coal (%):	0.139	
Chlorine in coal (ppm):	3110.00	
Forms of Sulphur (%):	PYRITE 07.00	SULPHATE 00.00 ORGANIC 93.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	72.13	72.71
Hydrogen (%):	2.20	2.22
Nitrogen (%):	0.80	0.81
Oxygen (%):	3.24	3.26

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1230.00	1182.00
Softening temperature (°C):	1246.00	1198.00
Hemispherical temperature (°C):	1254.00	1206.00
Final temperature (°C):	1286.00	1251.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	51.13	TiO2 (%):	1.03
Al2O3 (%):	17.90	Na2O (%):	1.34
Fe2O3 (%):	8.03	K2O (%):	1.09
CaO (%):	6.24	SO3 (%):	3.59
MgO (%):	6.02	P2O5 (%):	1.56

gcri coal division ash fusion proj KPN BLK LR DS DDHS6029
=====

sample id 00076
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 05/01/87

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1233.0	initial temp.(C)	1179.0
softening temp.(C)	1254.0	softening temp.(C)	1203.0
hemispherical temp.(C)	1273.0	hemispherical temp.(C)	1225.0
fluid temp.(C)	1305.0	fluid temp.(C)	1278.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDHS6029
=====

sample id 00076
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 05/01/87

silicon dioxide %	(sio2)	60.08
aluminium oxide %	(al2o3)	16.54
ferric oxide %	(fe2o3)	5.75
titanium dioxide %	(tio2)	0.89
phosphorous pentoxide %	(p2o5)	1.45
calcium oxide %	(cao)	4.36
magnesium oxide %	(mgo)	4.33
sulphur trioxide %	(so3)	1.89
sodium oxide %	(na2o)	1.34
potassium oxide %	(k2o)	1.07

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86029
=====

sample id 00076
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 05/01/87

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1233.0	initial temp.(C)	1208.0
softening temp.(C)	1257.0	softening temp.(C)	1219.0
hemispherical temp.(C)	1270.0	hemispherical temp.(C)	1238.0
fluid temp.(C)	1321.0	fluid temp.(C)	1292.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86029
=====

sample id 00076
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 05/01/87

silicon dioxide %	(sio2)	56.87
aluminium oxide %	(al2o3)	18.99
ferric oxide %	(fe2o3)	5.45
titanium dioxide %	(tio2)	0.81
phosphorous pentoxide %	(p2o5)	1.92
calcium oxide %	(cao)	4.95
magnesium oxide %	(mgo)	4.16
sulphur trioxide %	(so3)	1.95
sodium oxide %	(na2o)	1.48
potassium oxide %	(k2o)	0.97

90.0 <= total <= 100.0

KPNLRDDH86030

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86030

DATE - 04/03/87

- HISTORY -

START DATE - 22/09/86

END DATE - 24/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - MACLEOD

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1531.20

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6344803.00

EASTING - 507888.12

LATITUDE - 571453

LONGITUDE - 1285209

- ORIENTATION -

LENGTH - 157.58

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

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

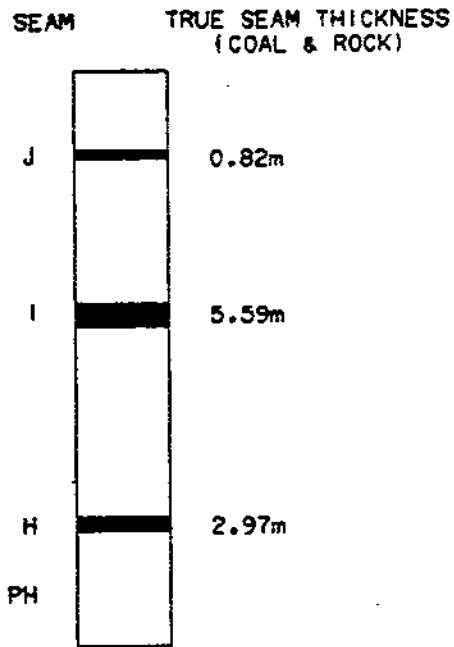
02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

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

DDH86030		10090	63.01	63.15	100.00		0.120			0.000- 0.120
	I	10091	63.15	64.82	76.05	1.091		0.343		1.434- 0.000
	I	10092	64.82	67.33	77.69	1.609	0.069	0.310	0.172	1.919- 0.241
	I	10093	67.33	69.65	100.00	2.001				2.001- 0.000
		10094	69.65	71.10	100.00		1.253			0.000- 1.253
		10095	121.31	122.64	100.00		1.311			0.000- 1.311
	H	10096	122.64	125.68	91.78	2.498	0.235	0.187	0.059	2.685- 0.294
		10097	125.68	126.66	100.00		0.954			0.000- 0.954
		10098	144.07	145.01	100.00		0.876			0.000- 0.876
	PH	10099	145.01	145.48	100.00	0.439				0.439- 0.000
		10100	145.48	145.90	100.00		0.392			0.000- 0.392

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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
DDH86030												
I		77	10091	10091	63.15	64.82	76.04	1.27	0.00	0.40	0.00	1.67- 0.00
I		78	10092	10092	64.82	67.33	77.68	1.87	0.08	0.36	0.20	2.23- 0.28
I		79	10093	10093	67.33	69.65	100.00	2.32	0.00	0.00	0.00	2.32- 0.00
H		80	10096	10096	122.64	125.68	91.77	2.55	0.24	0.19	0.06	2.74- 0.30
I		246	10091	10092	63.15	67.33	77.03	3.14	0.08	0.76	0.20	3.90- 0.28
I		247	10093	10093	67.33	69.65	100.00	2.32	0.00	0.00	0.00	2.32- 0.00
H		248	10096	10096	122.64	125.68	91.77	2.55	0.24	0.19	0.06	2.74- 0.30
I		346	10091	10093	63.15	69.65	85.23	5.46	0.08	0.76	0.20	6.22- 0.28
H		348	10096	10096	122.64	125.68	91.77	2.55	0.24	0.19	0.06	2.74- 0.30



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86030

GULF CANADA CORPORATION
11/03/87
KLAP:(205057)870063030.L06



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86030
 Coal zone: I
 Field sample no.: 10091 Composite sample no.: 77
 Lab sample no.: 29433
 True sample thickness: 1.434 meters Drill core recovery (%): 76.04 %
 Coal/Rock: 1.434 / 0.000 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 19.75 23.99 14.39 30.14
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 5.88 5.85

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.68	
Ash (%):	20.38	20.52
Volatile matter (%):	7.57	7.62
Fixed carbon (%):	71.37	71.86
Total sulphur (%):	0.41	0.41
Combustible sulphur (%):	0.09	
Net calorific value (cal/g):	6485.00	6530.00
Gross calorific value (cal/g):	6486.00	6531.00
Volatile matter (dmmf %):	7.50	
Hardgrove index:	47.00	
Specific gravity:	1.49	
Carbon dioxide (%):	2.91	
Phosphorous in coal (%):	0.058	
Chlorine in coal (ppm):	5390.00	
Forms of Sulphur (%):	PYRITE 05.00	SULPHATE 00.00 ORGANIC 95.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	72.27	72.76
Hydrogen (%):	2.37	2.39
Nitrogen (%):	0.87	0.88
Oxygen (%):	3.02	3.04

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1235.00	1203.00
Softening temperature (°C):	1243.00	1208.00
Hemispherical temperature (°C):	1251.00	1217.00
Final temperature (°C):	1305.00	1270.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	57.72	TiO2 (%):	0.55
Al2O3 (%):	13.85	Na2O (%):	1.52
Fe2O3 (%):	6.25	K2O (%):	1.03
CaO (%):	6.83	SO3 (%):	3.97
MgO (%):	5.22	P2O5 (%):	0.65

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86030
 Coal zone: 1
 Field sample no.: 10092 Composite sample no.: 78
 Lab sample no.: 29433
 True sample thickness: 2.160 meters Drill core recovery(%): 77.68 %
 Coal/Rock: 1.919 / 0.241 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 34.48 22.27 14.34 23.67
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 2.98 2.26

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.63	
Ash (%):	21.72	21.86
Volatile matter (%):	7.33	7.38
Fixed carbon (%):	70.32	70.76
Total sulphur (%):	0.38	0.38
Combustible sulphur (%):	0.29	
Net calorific value (cal/g):	6367.00	6407.00
Gross calorific value (cal/g):	6367.00	6407.00
Volatile matter (dmmf%):	7.20	
Hardgrove index:	38.00	
Specific gravity:	1.49	
Carbon dioxide (%):	3.74	
Phosphorous in coal (%):	0.029	
Chlorine in coal (ppm):	4910.00	
Forms of Sulphur (%):	PYRITE 08.00	SULPHATE 00.00 ORGANIC 92.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	70.48	70.92
Hydrogen (%):	2.19	2.20
Nitrogen (%):	0.85	0.86
Oxygen (%):	3.75	3.78

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C):	1262.00	1179.00
Softening temperature(°C):	1292.00	1208.00
Hemispherical temperature(°C):	1311.00	1225.00
Final temperature(°C):	1354.00	1327.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	52.76	TiO2 (%):	0.96
Al2O3 (%):	21.48	Na2O (%):	2.37
Fe2O3 (%):	10.77	K2O (%):	1.25
CaO (%):	2.00	SO3 (%):	1.02
MgO (%):	4.83	P2O5 (%):	0.31

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86030
 Coal zone: 1
 Field sample no.: 10093 Composite sample no.: 79
 Lab sample no.: 29433
 True sample thickness: 2.001 meters Drill core recovery (%): 100.00 %
 Coal/Rock: 2.001 / 0.000 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 17.73 23.08 15.34 34.23
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 6.04 3.58

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.66	
Ash (%):	9.72	9.78
Volatile matter (%):	6.56	6.60
Fixed carbon (%):	83.06	83.62
Total sulphur (%):	0.45	0.45
Combustible sulphur (%):	0.39	
Net calorific value (cal/g):	7532.00	7582.00
Gross calorific value (cal/g):	7533.00	7583.00
Volatile matter (dmmf %):	6.40	
Hardgrove index:	41.00	
Specific gravity:	1.41	
Carbon dioxide (%):	0.67	
Phosphorous in coal (%):	0.228	
Chlorine in coal (ppm):	5230.00	
Forms of Sulphur (%):	PYRITE 02.00	SULPHATE 00.00 ORGANIC 98.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	83.10	83.65
Hydrogen (%):	2.65	2.67
Nitrogen (%):	0.99	1.00
Oxygen (%):	2.43	2.45

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1260.00	1238.00
Softening temperature (°C):	1265.00	1243.00
Hemispherical temperature (°C):	1268.00	1265.00
Final temperature (°C):	1308.00	1305.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	44.38	TiO2 (%):	1.36
Al2O3 (%):	25.61	Na2O (%):	1.93
Fe2O3 (%):	5.96	K2O (%):	1.27
CaO (%):	7.33	SO3 (%):	1.64
MgO (%):	2.95	P2O5 (%):	5.37

gcri coal division ash fusion proj KPN BLK LR DS DDHS6030
=====

sample id 00077
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 05/01/87

oxidizing atmosphere oooooooooooooooooooo		reducing atmosphere oooooooooooooooooooo	
initial temp.(C)	1251.0	initial temp.(C)	1222.0
softening temp.(C)	1268.0	softening temp.(C)	1243.0
hemispherical temp.(C)	1276.0	hemispherical temp.(C)	1251.0
fluid temp.(C)	1313.0	fluid temp.(C)	1279.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDHS6030
=====

sample id 00077
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 05/01/87

silicon dioxide %	(sio2)	57.17
aluminium oxide %	(al2o3)	19.39
ferric oxide %	(fe2o3)	3.98
titanium dioxide %	(tio2)	0.83
phosphorous pentoxide %	(p2o5)	0.40
calcium oxide %	(cao)	6.51
magnesium oxide %	(mgo)	4.08
sulphur trioxide %	(so3)	3.55
sodium oxide %	(na2o)	1.62
potassium oxide %	(k2o)	1.39

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86030
=====

sample id 00077
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 05/01/87

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1265.0	initial temp.(C)	1235.0
softening temp.(C)	1281.0	softening temp.(C)	1260.0
hemispherical temp.(C)	1294.0	hemispherical temp.(C)	1284.0
fluid temp.(C)	1354.0	fluid temp.(C)	1350.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86030
=====

sample id 00077
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 05/01/87

silicon dioxide %	(sio2)	58.14
aluminium oxide %	(al2o3)	19.63
ferric oxide %	(fe2o3)	3.77
titanium dioxide %	(tio2)	0.61
phosphorous pentoxide %	(p2o5)	0.35
calcium oxide %	(cao)	5.91
magnesium oxide %	(mgo)	2.99
sulphur trioxide %	(so3)	2.79
sodium oxide %	(na2o)	1.98
potassium oxide %	(k2o)	1.51

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86030
 =====
 =====

sample id 00078
 sample product id SP1 data type (real,boro,aver,calc) REAL
 split sample id AF3 date analysed 05/01/87

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1332.0	initial temp.(C)	1257.0
softening temp.(C)	1394.0	softening temp.(C)	1327.0
hemispherical temp.(C)	1423.0	hemispherical temp.(C)	1370.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
 1000.0 >= values <= 1500.0
 oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86030
 =====
 =====

sample id 00078
 sample product id SP1 data type (real,boro,aver,calc) REAL
 split sample id AM3 date analysed 05/01/87

silicon dioxide %	(sio2)	61.24
aluminium oxide %	(al2o3)	23.06
ferric oxide %	(fe2o3)	3.27
titanium dioxide %	(tio2)	1.03
phosphorous pentoxide %	(p2o5)	0.33
calcium oxide %	(cao)	2.69
magnesium oxide %	(mgo)	2.48
sulphur trioxide %	(so3)	1.45
sodium oxide %	(na2o)	1.66
potassium oxide %	(k2o)	1.20

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86030
=====

sample id 00078
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 05/01/87

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1332.0	initial temp.(C)	1300.0
softening temp.(C)	1383.0	softening temp.(C)	1362.0
hemispherical temp.(C)	1418.0	hemispherical temp.(C)	1402.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86030
=====

sample id 00078
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 05/01/87

silicon dioxide %	(sio2)	59.40
aluminium oxide %	(al2o3)	24.19
ferric oxide %	(fe2o3)	3.09
titanium dioxide %	(tio2)	0.80
phosphorous pentoxide %	(p2o5)	0.27
calcium oxide %	(cao)	3.08
magnesium oxide %	(mgo)	2.21
sulphur trioxide %	(so3)	1.67
sodium oxide %	(na2o)	1.83
potassium oxide %	(k2o)	1.17

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86030
=====

sample id 00079
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 05/01/87

oxidizing atmosphere

initial temp.(C) 1278.0
softening temp.(C) 1284.0
hemispherical temp.(C) 1289.0
fluid temp.(C) 1316.0

reducing atmosphere

initial temp.(C) 1257.0
softening temp.(C) 1260.0
hemispherical temp.(C) 1265.0
fluid temp.(C) 1289.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86030
=====

sample id 00079
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 05/01/87

silicon dioxide %	(sio2)	47.43
aluminium oxide %	(al2o3)	25.21
ferric oxide %	(fe2o3)	4.38
titanium dioxide %	(tio2)	1.91
phosphorous pentoxide %	(p2o5)	3.69
calcium oxide %	(cao)	8.06
magnesium oxide %	(mgo)	3.48
sulphur trioxide %	(so3)	4.73
sodium oxide %	(na2o)	2.15
potassium oxide %	(k2o)	1.02

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86030
=====

sample id 00079
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 05/01/87

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1294.0	initial temp.(C)	1276.0
softening temp.(C)	1313.0	softening temp.(C)	1286.0
hemispherical temp.(C)	1327.0	hemispherical temp.(C)	1300.0
fluid temp.(C)	1378.0	fluid temp.(C)	1362.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86030
=====

sample id 00079
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 05/01/87

silicon dioxide %	(sio2)	49.28
aluminium oxide %	(al2o3)	27.27
ferric oxide %	(fe2o3)	3.59
titanium dioxide %	(tio2)	1.08
phosphorous pentoxide %	(p2o5)	3.35
calcium oxide %	(cao)	6.37
magnesium oxide %	(mgo)	2.53
sulphur trioxide %	(so3)	2.22
sodium oxide %	(na2o)	1.56
potassium oxide %	(k2o)	0.94

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86030
 Coal zone: H
 Field sample no.: 10096 Composite sample no.: 80
 Lab sample no.: 29433
 True sample thickness: 2.979 meters Drill core recovery (%): 91.77 %
 Coal/Rock: 2.685 / 0.294 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 19.37 21.81 12.91 31.72
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 8.56 5.63

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.73	
Ash (%):	27.01	27.21
Volatile matter (%):	8.40	8.46
Fixed carbon (%):	63.86	64.33
Total sulphur (%):	0.40	0.40
Combustible sulphur (%):	0.08	
Net calorific value (cal/g):	5760.00	5803.00
Gross calorific value (cal/g):	5760.00	5803.00
Volatile matter (dmmf%):	8.70	
Hardgrove index:	53.00	
Specific gravity:	1.59	
Carbon dioxide (%):	4.47	
Phosphorous in coal (%):	0.140	
Chlorine in coal (ppm):	3990.00	
Forms of Sulphur (%):	PYRITE 08.00	SULPHATE 00.00 ORGANIC 92.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	65.25	65.73
Hydrogen (%):	1.99	2.00
Nitrogen (%):	0.70	0.71
Oxygen (%):	3.92	3.95

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1225.00	1174.00
Softening temperature (°C):	1233.00	1182.00
Hemispherical temperature (°C):	1241.00	1192.00
Final temperature (°C):	1281.00	1238.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	50.56	TiO2 (%):	1.03
Al2O3 (%):	16.46	Na2O (%):	1.62
Fe2O3 (%):	10.08	K2O (%):	0.83
CaO (%):	7.43	SO3 (%):	2.98
MgO (%):	5.42	P2O5 (%):	1.19

gcri coal division ash fusion proj KPN BLK LR DS DDH86030
=====

sample id 00080
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 05/01/87

oxidizing atmosphere

initial temp.(C) 1284.0
softening temp.(C) 1316.0
hemispherical temp.(C) 1337.0
fluid temp.(C) 1413.0

reducing atmosphere

initial temp.(C) 1219.0
softening temp.(C) 1243.0
hemispherical temp.(C) 1265.0
fluid temp.(C) 1409.0

- normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86030
=====

sample id 00080
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 05/01/87

silicon dioxide %	(sio2)	55.98
aluminium oxide %	(al2o3)	23.44
ferric oxide %	(fe2o3)	4.36
titanium dioxide %	(tio2)	1.46
phosphorous pentoxide %	(p2o5)	1.10
calcium oxide %	(cao)	4.03
magnesium oxide %	(mgo)	2.74
sulphur trioxide %	(so3)	2.04
sodium oxide %	(na2o)	1.70
potassium oxide %	(k2o)	0.78

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86030
=====

sample id 00080
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 05/01/87

oxidizing atmosphere

initial temp.(C) 1329.0
softening temp.(C) 1380.0
hemispherical temp.(C) 1402.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1254.0
softening temp.(C) 1266.0
hemispherical temp.(C) 1321.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86030
=====

sample id 00080
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 05/01/87

silicon dioxide %	(sio2)	55.90
aluminium oxide %	(al2o3)	25.57
ferric oxide %	(fe2o3)	4.23
titanium dioxide %	(tio2)	1.34
phosphorous pentoxide %	(p2o5)	0.96
calcium oxide %	(cao)	3.11
magnesium oxide %	(mgo)	2.45
sulphur trioxide %	(so3)	1.73
sodium oxide %	(na2o)	1.60
potassium oxide %	(k2o)	0.67

90.0 <= total <= 100.0

KPNLRDDH86031

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86031

DATE - 04/03/87

- HISTORY -

START DATE - 23/09/86

END DATE - 25/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - LOVE

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1699.75

ZONE - 9

NORTHING - 6343071.00

EASTING - 505509.44

LICENCE/LEASE NUMBER -

LATITUDE - 571357

LONGITUDE - 1285431

- ORIENTATION -

LENGTH - 150.57

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 3.05

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

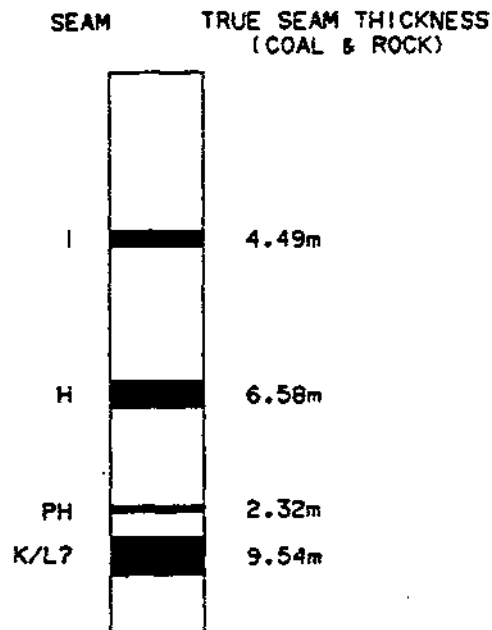
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02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL - ROCK
DDH86031		10151	40.19	40.72	100.00		0.513			0.000- 0.513
	I	10152	40.72	45.36	38.15	1.376	0.338	2.597	0.184	3.973- 0.522
		10153	45.36	46.56	100.00		1.165			0.000- 1.165
		10154	81.76	83.44	100.00		1.632			0.000- 1.632
	H	10155	83.44	87.61	84.17	2.398	0.994	0.521	0.116	2.919- 1.110
	H	10156	87.61	90.27	65.04	1.515	0.143	0.804	0.086	2.319- 0.229
		10157	90.27	90.64	100.00		0.353			0.000- 0.353
		10158	117.63	117.90	100.00		0.247			0.000- 0.247
	PH	10159	117.90	120.47	80.54	1.579	0.289	0.298	0.154	1.877- 0.443
		10160	120.47	120.93	100.00		0.310			0.000- 0.310
		10161	123.63	124.00	100.00		0.324			0.000- 0.324
	K/L?	10162	124.00	125.56	85.90	1.182		0.194		1.376- 0.000
	K/L?	10163	125.56	127.16	100.00	0.990	0.438			0.990- 0.438
	K/L?	10164	127.16	130.65	90.54	2.862		0.110	0.192	2.972- 0.192
	K/L?	10165	130.65	134.51	95.08	1.496	1.905	0.176		1.672- 1.905
		10166	134.51	135.02	100.00		0.478			0.000- 0.478

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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
BDH86031												
H		81	10155	10156	83.44	90.27	76.72	4.06	1.18	1.38	0.21	5.44- 1.39
PH		82	10159	10159	117.90	120.47	80.54	1.75	0.32	0.33	0.17	2.08- 0.49
K/L		83	10162	10164	124.00	130.65	91.72	5.61	0.49	0.34	0.21	5.95- 0.70
K/L		84	10165	10165	130.65	134.51	95.07	1.61	2.06	0.19	0.00	1.80- 2.06
H		249	10155	10156	83.44	90.27	76.72	4.06	1.18	1.38	0.21	5.44- 1.39
PH		250	10159	10159	117.90	120.47	80.54	1.75	0.32	0.33	0.17	2.08- 0.49
K/L		251	10162	10165	124.00	134.51	92.95	7.22	2.55	0.53	0.21	7.75- 2.76
H		349	10155	10156	83.44	90.27	76.72	4.06	1.18	1.38	0.21	5.44- 1.39
PH		350	10159	10159	117.90	120.47	80.54	1.75	0.32	0.33	0.17	2.08- 0.49
K/L		351	10162	10165	124.00	134.51	92.95	7.22	2.55	0.53	0.21	7.75- 2.76



NOTE:

SCHMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86031

GULF CANADA CORPORATION
11/03/87
KLAP:(205057187006303).LOG



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86031
 Coal zone: H
 Field sample no.: 10155 - 10156 Composite sample no.: 81
 Lab sample no.: 29433
 True sample thickness: 6.577 meters Drill core recovery(%): 76.72 %
 Coal/Rock: 5.238 / 1.339 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 26.45 24.72 15.91 25.80
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 4.41 2.71

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.74	
Ash (%):	43.94	44.27
Volatile matter (%):	8.39	8.45
Fixed carbon (%):	46.93	47.28
Total sulphur (%):	0.28	0.28
Combustible sulphur (%):	0.01	
Net calorific value (cal/g):	4132.00	4163.00
Gross calorific value (cal/g):	4132.00	4163.00
Volatile matter (dmmf %):	9.30	
Hardgrove index:	58.00	
Specific gravity:	1.74	
Carbon dioxide (%):	4.36	
Phosphorous in coal (%):	0.067	
Chlorine in coal (ppm):	3520.00	
Forms of Sulphur (%):	PYRITE 07.00	SULPHATE 00.00 ORGANIC 93.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	48.13	48.49
Hydrogen (%):	1.71	1.72
Nitrogen (%):	0.50	0.50
Oxygen (%):	4.70	4.74

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1235.00	1225.00
Softening temperature (°C):	1246.00	1233.00
Hemispherical temperature (°C):	1260.00	1243.00
Final temperature (°C):	1324.00	1321.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	59.45	TiO2 (%):	0.93
Al2O3 (%):	18.00	Na2O (%):	1.75
Fe2O3 (%):	4.03	K2O (%):	1.21
CaO (%):	6.32	SO3 (%):	1.54
MgO (%):	4.40	P2O5 (%):	0.35

gcri coal division ash fusion proj KPN BLK LR DS DDHS6031
 =====

sample id 00081
 sample product id SP1 data type (real,boro,aver,calc) REAL
 split sample id AF3 date analysed 05/01/87

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1278.0
 softening temp.(C) 1294.0
 hemispherical temp.(C) 1311.0
 fluid temp.(C) 1336.0

initial temp.(C) 1243.0
 softening temp.(C) 1265.0
 hemispherical temp.(C) 1276.0
 fluid temp.(C) 1364.0

normal ranges all temps.
 1000.0 >= values <= 1500.0
 oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDHS6031
 =====

sample id 00081
 sample product id SP1 data type (real,boro,aver,calc) REAL
 split sample id AM3 date analysed 05/01/87

silicon dioxide %	(sio2)	61.58
aluminium oxide %	(al2o3)	20.41
ferric oxide %	(fe2o3)	3.92
titanium dioxide %	(tio2)	0.98
phosphorous pentoxide %	(p2o5)	0.39
calcium oxide %	(cao)	4.14
magnesium oxide %	(mgo)	3.15
sulphur trioxide %	(so3)	2.22
sodium oxide %	(na2o)	1.51
potassium oxide %	(k2o)	1.26

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86031
=====

sample id 00081
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 05/01/87

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1273.0	initial temp.(C)	1260.0
softening temp.(C)	1294.0	softening temp.(C)	1276.0
hemispherical temp.(C)	1319.0	hemispherical temp.(C)	1300.0
fluid temp.(C)	1399.0	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 LR DS DDH86031
=====

sample id 00081
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 05/01/87

silicon dioxide %	(sio2)	59.20
aluminium oxide %	(al2o3)	22.65
ferric oxide %	(fe2o3)	2.92
titanium dioxide %	(tio2)	0.88
phosphorous pentoxide %	(p2o5)	0.38
calcium oxide %	(cao)	3.75
magnesium oxide %	(mgo)	3.13
sulphur trioxide %	(so3)	1.93
sodium oxide %	(na2o)	1.58
potassium oxide %	(k2o)	1.18

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86031
 Coal zone: PH
 Field sample no.: 10159 Composite sample no.: 82
 Lab sample no.: 29433
 True sample thickness: 2.320 meters Drill core recovery (%): 80.54 %
 Coal/Rock: 1.877 / 0.443 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 15.53 22.93 16.23 34.20
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 7.20 3.91

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.54	
Ash (%):	38.30	38.51
Volatile matter (%):	7.86	7.90
Fixed carbon (%):	53.30	53.59
Total sulphur (%):	0.39	0.39
Combustible sulphur (%):	0.09	
Net calorific value (cal/g):	4603.00	4628.00
Gross calorific value (cal/g):	4603.00	4628.00
Volatile matter (dmmf %):	8.10	
Hardgrove index:	59.00	
Specific gravity:	1.66	
Carbon dioxide (%):	2.21	
Phosphorous in coal (%):	0.145	
Chlorine in coal (ppm):	3750.00	
Forms of Sulphur (%):	PYRITE 26.00	SULPHATE 00.00 ORGANIC 74.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	55.02	55.32
Hydrogen (%):	1.69	1.70
Nitrogen (%):	0.63	0.63
Oxygen (%):	3.43	3.45

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1265.00	1222.00
Softening temperature (°C):	1278.00	1241.00
Hemispherical temperature (°C):	1289.00	1249.00
Final temperature (°C):	1340.00	1337.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	59.85	TiO2 (%):	0.85
Al2O3 (%):	18.48	Na2O (%):	1.14
Fe2O3 (%):	4.61	K2O (%):	2.02
CaO (%):	4.20	SO3 (%):	1.96
MgO (%):	3.70	P2O5 (%):	0.87

gcri coal division ash fusion proj KPN BLK LR DS DDH86031
=====

sample id 00082
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 05/01/87

oxidizing atmosphere

reducing atmosphere

initial temp.(C) 1284.0
softening temp.(C) 1327.0
hemispherical temp.(C) 1345.0
fluid temp.(C) 1413.0

initial temp.(C) 1230.0
softening temp.(C) 1265.0
hemispherical temp.(C) 1284.0
fluid temp.(C) 1401.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86031
=====

sample id 00082
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 05/01/87

silicon dioxide %	(sic2)	57.64
aluminium oxide %	(al2o3)	21.55
ferric oxide %	(fe2o3)	5.16
titanium dioxide %	(tio2)	1.00
phosphorous pentoxide %	(p2o5)	1.16
calcium oxide %	(cao)	3.19
magnesium oxide %	(mgo)	3.81
sulphur trioxide %	(so3)	1.45
sodium oxide %	(na2o)	1.13
potassium oxide %	(k2o)	1.76

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDHS6031
=====

sample id 00082
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 05/01/87

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1292.0	initial temp.(C)	1238.0
softening temp.(C)	1324.0	softening temp.(C)	1265.0
hemispherical temp.(C)	1351.0	hemispherical temp.(C)	1302.0
fluid temp.(C)	1405.0	fluid temp.(C)	1402.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDHS6031
=====

sample id 00082
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 05/01/87

silicon dioxide %	(sio2)	54.32
aluminium oxide %	(al2o3)	24.19
ferric oxide %	(fe2o3)	5.63
titanium dioxide %	(tio2)	0.77
phosphorous pentoxide %	(p2o5)	1.19
calcium oxide %	(cao)	3.25
magnesium oxide %	(mgo)	4.15
sulphur trioxide %	(so3)	1.08
sodium oxide %	(na2o)	1.40
potassium oxide %	(k2o)	1.61

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86031
 Coal zone: K/L
 Field sample no.: 10162 - 10164 Composite sample no.: 83
 Lab sample no.: 29433
 True sample thickness: 5.968 meters Drill core recovery (%): 91.72 %
 Coal/Rock: 5.338 / 0.630 meters

----- RAW HEAD ANALYSIS (HBI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 20.49 21.96 15.02 29.87
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 7.71 4.95

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.46	
Ash (%):	33.11	33.26
Volatile matter (%):	7.64	7.68
Fixed carbon (%):	58.79	59.06
Total sulphur (%):	0.40	0.40
Combustible sulphur (%):	0.08	
Net calorific value (cal/g):	5134.00	5157.00
Gross calorific value (cal/g):	5134.00	5157.00
Volatile matter (dmmf %):	7.70	
Hardgrove index:	86.00	
Specific gravity:	1.63	
Carbon dioxide (%):	2.99	
Phosphorous in coal (%):	0.184	
Chlorine in coal (ppm):	6430.00	
Forms of Sulphur (%):	PYRITE 15.00	SULPHATE 00.00 ORGANIC 85.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	60.09	60.37
Hydrogen (%):	1.87	1.88
Nitrogen (%):	0.61	0.61
Oxygen (%):	3.46	3.48

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1257.00	1217.00
Softening temperature (°C):	1265.00	1225.00
Hemispherical temperature (°C):	1276.00	1235.00
Final temperature (°C):	1324.00	1321.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	59.40	TiO2 (%):	0.79
Al2O3 (%):	14.61	Na2O (%):	1.17
Fe2O3 (%):	5.92	K2O (%):	1.22
CaO (%):	6.35	SO3 (%):	2.45
MgO (%):	4.39	P2O5 (%):	1.27

gcri coal division ash fusion proj KPN BLK LR DS DDH86031
=====

sample id 00083
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 05/01/87

oxidizing atmosphere

initial temp.(C) 1294.0
softening temp.(C) 1313.0
hemispherical temp.(C) 1327.0
fluid temp.(C) 1399.0

reducing atmosphere

initial temp.(C) 1230.0
softening temp.(C) 1251.0
hemispherical temp.(C) 1273.0
fluid temp.(C) 1384.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86031
=====

sample id 00083
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 05/01/87

silicon dioxide %	(sio2)	53.24
aluminium oxide %	(al2o3)	22.78
ferric oxide %	(fe2o3)	6.09
titanium dioxide %	(tio2)	1.14
phosphorous pentoxide %	(p2o5)	0.98
calcium oxide %	(cao)	4.13
magnesium oxide %	(mgo)	4.36
sulphur trioxide %	(so3)	2.59
sodium oxide %	(na2o)	1.13
potassium oxide %	(k2o)	1.44

90.0 <= total <= 100.0

scri coal division ash fusion proj KPN BLK LR DS DDH86031
=====

sample id 00083
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 05/01/87

oxidizing atmosphere

initial temp.(C) 1294.0
softening temp.(C) 1319.0
hemispherical temp.(C) 1345.0
fluid temp.(C) 1399.0

reducing atmosphere

initial temp.(C) 1257.0
softening temp.(C) 1273.0
hemispherical temp.(C) 1299.0
fluid temp.(C) 1392.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

scri coal division ash mineral proj KPN BLK LR DS DDH86031
=====

sample id 00083
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 05/01/87

silicon dioxide %	(sio2)	54.54
aluminium oxide %	(al2o3)	23.82
ferric oxide %	(fe2o3)	6.12
titanium dioxide %	(tio2)	0.89
phosphorous pentoxide %	(p2o5)	0.97
calcium oxide %	(cao)	3.50
magnesium oxide %	(mgo)	4.10
sulphur trioxide %	(so3)	1.92
sodium oxide %	(na2o)	1.05
potassium oxide %	(k2o)	1.28

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86031
 Coal zone: K/L
 Field sample no.: 10165 Composite sample no.: 84
 Lab sample no.: 29433
 True sample thickness: 3.577 meters Drill core recovery(%): 95.07 %
 Coal/Rock: 1.672 / 1.905 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 29.03 22.09 16.98 25.13
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 4.25 2.52

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.58	
Ash (%):	61.42	61.78
Volatile matter (%):	7.46	7.50
Fixed carbon (%):	30.54	30.72
Total sulphur (%):	0.41	0.41
Combustible sulphur (%):	0.18	
Net calorific value (cal/g):	2364.00	2377.00
Gross calorific value (cal/g):	2364.00	2377.00
Volatile matter (dmmf %):	7.30	
Hardgrove index:	32.00	
Specific gravity:	2.01	
Carbon dioxide (%):	3.59	
Phosphorous in coal (%):	0.078	
Chlorine in coal (ppm):	3910.00	
Forms of Sulphur (%):	PYRITE 51.00	SULPHATE 00.00 ORGANIC 49.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	33.00	33.19
Hydrogen (%):	1.21	1.22
Nitrogen (%):	0.37	0.37
Oxygen (%):	3.01	3.03

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1289.00	1241.00
Softening temperature (°C):	1308.00	1248.00
Hemispherical temperature (°C):	1329.00	1268.00
Final temperature (°C):	1370.00	1366.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	65.76	TiO2 (%):	0.60
Al2O3 (%):	15.37	Na2O (%):	1.15
Fe2O3 (%):	5.25	K2O (%):	1.37
CaO (%):	3.36	SO3 (%):	0.93
MgO (%):	3.44	P2O5 (%):	0.29

gcri coal division ash fusion proj KPN BLK LR DS DDH86031
=====

sample id 00084
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 05/01/87

oxidizing atmosphere

initial temp.(C) 1364.0
softening temp.(C) 1445.0
hemispherical temp.(C) 1472.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1258.0
softening temp.(C) 1332.0
hemispherical temp.(C) 1370.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86031
=====

sample id 00084
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 05/01/87

silicon dioxide %	(sio2)	54.90
aluminium oxide %	(al2o3)	25.58
ferric oxide %	(fe2o3)	6.71
titanium dioxide %	(tio2)	1.16
phosphorous pentoxide %	(p2o5)	0.34
calcium oxide %	(cao)	1.31
magnesium oxide %	(mgo)	4.00
sulphur trioxide %	(so3)	0.70
sodium oxide %	(na2o)	1.29
potassium oxide %	(k2o)	1.87

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86031
=====

sample id 00084
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 05/01/87

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1348.0	initial temp.(C)	1286.0
softening temp.(C)	1445.0	softening temp.(C)	1321.0
hemispherical temp.(C)	1472.0	hemispherical temp.(C)	1354.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86031
=====

sample id 00084
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 05/01/87

silicon dioxide %	(sio2)	50.58
aluminium oxide %	(al2o3)	28.73
ferric oxide %	(fe2o3)	7.66
titanium dioxide %	(tio2)	1.14
phosphorous pentoxide %	(p2o5)	0.36
calcium oxide %	(cao)	1.46
magnesium oxide %	(mgo)	4.31
sulphur trioxide %	(so3)	0.75
sodium oxide %	(na2o)	1.46
potassium oxide %	(k2o)	1.84

90.0 <= total <= 100.0

KPNLRDDH86032

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86032

DATE - 04/03/87

- HISTORY -

START DATE - 24/09/86
END DATE - 25/09/86

CONTRACTOR - J.T. THOMAS
GEOLOGIST - SAVOIE

OPERATOR - G.C.C.
SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC
ELEVATION - 1519.34

ZONE - 9
NORTHING - 6345039.00
EASTING - 507804.44

LICENCE/LEASE NUMBER -

LATITUDE - 571501
LONGITUDE - 1285214

- ORIENTATION -

LENGTH - 72.24

INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N
PLUG - N
PIEZ - N

CASING DEPTH (M) - 8.23
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

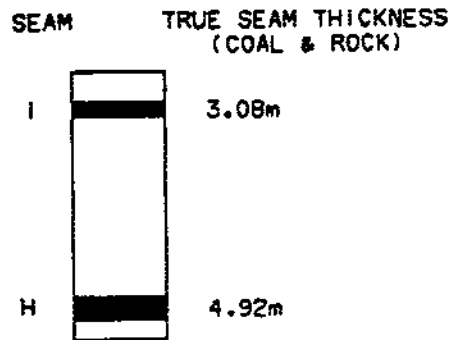
DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL - ROCK

DDH86032										
	I	10120	8.15	9.29	77.19	0.764	0.110	0.158	0.099	0.922- 0.209
	I	10121	9.29	11.33	87.25	1.766		0.258		2.024- 0.000
		10122	11.33	12.37	100.00		1.032			0.000- 1.032
		10123	61.66	62.12	100.00		0.417			0.000- 0.417
	H	10124	62.12	64.65	58.89	1.051	0.299	0.851	0.090	1.902- 0.389
	H	10125	64.65	67.55	78.28	1.476	0.580	0.571		2.047- 0.580
		10126	67.55	67.93	100.00		0.344			0.000- 0.344

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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

DDH86032												
I		85	10120	10121	8.15	11.33	86.16	2.55	0.19	0.34	0.10	2.89- 0.29
H		86	10124	10125	62.12	67.55	69.24	2.79	0.97	1.57	0.10	4.36- 1.07
I		252	10120	10121	8.15	11.33	86.16	2.55	0.19	0.34	0.10	2.89- 0.29
H		253	10124	10125	62.12	67.55	69.24	2.79	0.97	1.57	0.10	4.36- 1.07
I		352	10120	10121	8.15	11.33	86.16	2.55	0.19	0.34	0.10	2.89- 0.29
H		353	10124	10125	62.12	67.55	69.24	2.79	0.97	1.57	0.10	4.36- 1.07



NOTE:
 SCHEMATIC PROFILE.
 NO THICKNESSES SHOWN
 FOR SEAMS CONTAINING
 LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE
 MOUNT KLAPPAN ANTHRACITE PROJECT
 1986 DIAMOND DRILL HOLES
 DDH86032

GULF CANADA CORPORATION
 11/03/87
 KLAP: (205057) 870063032.L00



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86032
 Coal zone: I
 Field sample no.: 10120 - 10121 Composite sample no.: 85
 Lab sample no.: 29459
 True sample thickness: 3.155 meters Drill core recovery(%): 86.16 %
 Coal/Rock: 2.946 / 0.209 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 34.83 23.78 15.70 21.36
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 2.91 1.42

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.49	
Ash (%):	14.61	14.68
Volatile matter (%):	7.62	7.66
Fixed carbon (%):	77.28	77.66
Total sulphur (%):	0.43	0.43
Combustible sulphur (%):	0.26	
Net calorific value (cal/g):	7115.00	7150.00
Gross calorific value (cal/g):	7115.00	7150.00
Volatile matter (dmmf %):	7.60	
Hardgrove index:	39.00	
Specific gravity:	1.45	
Carbon dioxide (%):	3.06	
Phosphorous in coal (%):	0.136	
Chlorine in coal (ppm):	2160.00	
Forms of Sulphur (%):	PYRITE 36.00	SULPHATE 00.00 ORGANIC 64.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	77.81	78.19
Hydrogen (%):	2.21	2.22
Nitrogen (%):	0.73	0.73
Oxygen (%):	3.72	3.75

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1243.00	1192.00
Softening temperature (°C):	1265.00	1214.00
Hemispherical temperature (°C):	1276.00	1225.00
Final temperature (°C):	1324.00	1321.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	53.32	TiO2 (%):	1.11
Al2O3 (%):	18.68	Na2O (%):	1.79
Fe2O3 (%):	6.49	K2O (%):	0.88
CaO (%):	6.94	SO3 (%):	2.83
MgO (%):	3.79	P2O5 (%):	2.13

gcri coal division ash fusion proj KPN BLK LR DS DDH86032
=====

sample id 00085
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/01/87

oxidizing atmosphere

initial temp.(C) 1308.0
softening temp.(C) 1313.0
hemispherical temp.(C) 1337.0
fluid temp.(C) 1437.0

reducing atmosphere

initial temp.(C) 1254.0
softening temp.(C) 1273.0
hemispherical temp.(C) 1300.0
fluid temp.(C) 1421.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86032
=====

sample id 00085
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/01/87

silicon dioxide %	(sio2)	50.72
aluminium oxide %	(al2o3)	24.19
ferric oxide %	(fe2o3)	5.88
titanium dioxide %	(tio2)	0.82
phosphorous pentoxide %	(p2o5)	1.62
calcium oxide %	(cao)	5.37
magnesium oxide %	(mgo)	3.73
sulphur trioxide %	(so3)	2.39
sodium oxide %	(na2o)	1.85
potassium oxide %	(k2o)	1.25

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86032
=====

sample id 00085
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/01/87

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1313.0	initial temp.(C)	1273.0
softening temp.(C)	1364.0	softening temp.(C)	1324.0
hemispherical temp.(C)	1407.0	hemispherical temp.(C)	1364.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86032
=====

sample id 00085
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/01/87

silicon dioxide %	(sio2)	54.96
aluminium oxide %	(al2o3)	26.46
ferric oxide %	(fe2o3)	3.58
titanium dioxide %	(tio2)	0.56
phosphorous pentoxide %	(p2o5)	1.83
calcium oxide %	(cao)	4.73
magnesium oxide %	(mgo)	2.81
sulphur trioxide %	(so3)	1.61
sodium oxide %	(na2o)	1.91
potassium oxide %	(k2o)	1.31

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86032
 Coal zone: H
 Field sample no.: 10124 - 10125 Composite sample no.: 86
 Lab sample no.: 29459
 True sample thickness: 4.918 meters Drill core recovery (%): 69.24 %
 Coal/Rock: 3.949 / 0.969 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 23.41 21.42 13.42 30.12
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 6.96 4.67

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.55	
Ash (%):	41.45	41.68
Volatile matter (%):	8.41	8.46
Fixed carbon (%):	49.59	49.86
Total sulphur (%):	0.58	0.58
Combustible sulphur (%):	0.11	
Net calorific value (cal/g):	4269.00	4292.00
Gross calorific value (cal/g):	4269.00	4292.00
Volatile matter (dmmf%):	9.00	
Hardgrove index:	64.00	
Specific gravity:	1.73	
Carbon dioxide (%):	2.72	
Phosphorous in coal (%):	0.400	
Chlorine in coal (ppm):	2000.00	
Forms of Sulphur (%):	PYRITE 22.00	SULPHATE 00.00 ORGANIC 78.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	51.69	51.97
Hydrogen (%):	2.07	2.08
Nitrogen (%):	0.74	0.74
Oxygen (%):	2.92	2.95

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1246.00	1179.00
Softening temperature (°C):	1268.00	1208.00
Hemispherical temperature (°C):	1278.00	1219.00
Final temperature (°C):	1324.00	1321.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	53.03	TiO2 (%):	0.87
Al2O3 (%):	19.16	Na2O (%):	1.78
Fe2O3 (%):	6.32	K2O (%):	0.87
CaO (%):	6.97	SO3 (%):	2.82
MgO (%):	3.59	P2O5 (%):	2.21

gcri coal division ash fusion proj KPN BLK LR DS DDH84032
=====

sample id 00086
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/01/87

oxidizing atmosphere

initial temp.(C) 1289.0
softening temp.(C) 1308.0
hemispherical temp.(C) 1321.0
fluid temp.(C) 1396.0

reducing atmosphere

initial temp.(C) 1240.0
softening temp.(C) 1257.0
hemispherical temp.(C) 1273.0
fluid temp.(C) 1364.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH84032
=====

sample id 00086
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/01/87

silicon dioxide %	(sio2)	58.88
aluminium oxide %	(al2o3)	20.41
ferric oxide %	(fe2o3)	4.52
titanium dioxide %	(tio2)	0.84
phosphorous pentoxide %	(p2o5)	0.98
calcium oxide %	(cao)	5.49
magnesium oxide %	(mgo)	2.56
sulphur trioxide %	(so3)	2.59
sodium oxide %	(na2o)	1.75
potassium oxide %	(k2o)	0.80

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86032
=====

sample id 00086
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/01/87

oxidizing atmosphere

initial temp.(C) 1284.0
softening temp.(C) 1300.0
hemispherical temp.(C) 1321.0
fluid temp.(C) 1372.0

reducing atmosphere

initial temp.(C) 1241.0
softening temp.(C) 1254.0
hemispherical temp.(C) 1284.0
fluid temp.(C) 1359.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86032
=====

sample id 00086
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/01/87

silicon dioxide %	(sio2)	58.60
aluminium oxide %	(al2o3)	21.17
ferric oxide %	(fe2o3)	4.10
titanium dioxide %	(tio2)	0.62
phosphorous pentoxide %	(p2o5)	0.82
calcium oxide %	(cao)	5.74
magnesium oxide %	(mgo)	2.17
sulphur trioxide %	(so3)	2.39
sodium oxide %	(na2o)	1.85
potassium oxide %	(k2o)	0.82

90.0 <= total <= 100.0

KPNLRDDH86033

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86033

DATE - 04/03/87

- HISTORY -

START DATE - 27/09/86

END DATE - 29/09/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - BARKER

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1523.54

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6344323.00

EASTING - 508088.81

LATITUDE - 571438

LONGITUDE - 1285158

- ORIENTATION -

LENGTH - 169.67

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

INCLINATION - 90.0

AZIMUTH - 0.0

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 CORPORATION - COAL DIVISION
 02/APR/87 SIMPLE SAMPLE SUMMARY PAGE 1
 TRUE THICKNESS
 KLAPPAN PROJECT

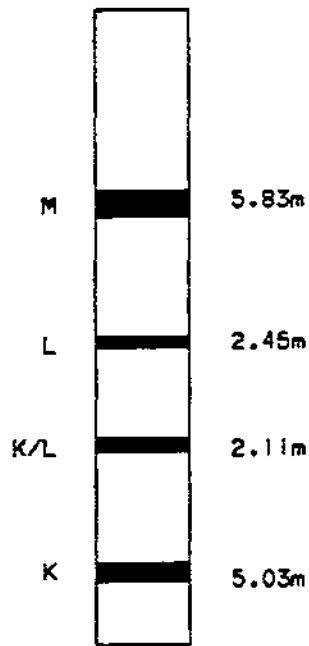
DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL - ROCK
DDH86033		10215	47.38	48.80	100.00		0.558			0.000- 0.558
	M	10216	48.80	52.77	64.23	0.438	0.194	0.593		1.031- 0.194
	M	10217	52.77	55.11	88.89		0.970		0.087	0.000- 1.057
	M	10218	55.11	56.51	100.00	0.596	0.041			0.596- 0.041
	M	10219	56.51	57.45	72.34		0.305		0.116	0.000- 0.421
	M	10220	57.45	62.51	83.40	1.665	0.400	0.424		2.089- 0.400
		10221	62.51	63.07	100.00		0.426			0.000- 0.426
		10222	86.52	87.42	100.00		0.828			0.000- 0.828
	L	10223	87.42	90.06	84.85	1.758	0.316	0.298	0.074	2.056- 0.390
		10224	90.06	90.47	100.00		0.382			0.000- 0.382
		10225	114.92	115.07	100.00		0.141			0.000- 0.141
	K/L	10226	115.07	117.31	94.64	1.697	0.302	0.113		1.810- 0.302
		10227	117.31	117.92	67.21	0.161	0.227	0.066	0.123	0.227- 0.350
		10228	147.13	147.47	100.00		0.326			0.000- 0.326
	K	10229	147.47	151.21	67.65	2.276	0.134	0.899	0.258	3.175- 0.392
	K	10230	151.21	152.76	87.74	0.747	0.540	0.133	0.047	0.880- 0.587
		10231	152.76	153.47	100.00		0.670			0.000- 0.670

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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

DDH86033												
L		87	10223	10223	87.42	90.06	84.84	1.90	0.34	0.32	0.08	2.22- 0.42
K/L		88	10226	10226	115.07	117.31	94.64	1.80	0.32	0.12	0.00	1.92- 0.32
K		89	10229	10230	147.47	152.76	73.53	3.18	0.71	1.08	0.32	4.26- 1.03
L		254	10223	10223	87.42	90.06	84.84	1.90	0.34	0.32	0.08	2.22- 0.42
K		256	10229	10230	147.47	152.76	73.53	3.18	0.71	1.08	0.32	4.26- 1.03
L		354	10223	10223	87.42	90.06	84.84	1.90	0.34	0.32	0.08	2.22- 0.42
K/L		355	10226	10226	115.07	117.31	94.64	1.80	0.32	0.12	0.00	1.92- 0.32
K		356	10229	10230	147.47	152.76	73.53	3.18	0.71	1.08	0.32	4.26- 1.03

SEAM TRUE SEAM THICKNESS
 (COAL & ROCK)



NOTE:

SCHMATIC PROFILE,
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86033

GULF CANADA CORPORATION
11/03/87
KLAP: (205057)870063033.LOG



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86033
 Coal zone: L
 Field sample no.: 10223 Composite sample no.: 87
 Lab sample no.: 29459
 True sample thickness: 2.446 meters Drill core recovery(%): 84.84 %
 Coal/Rock: 2.056 / 0.390 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 27.68 22.46 15.53 25.64
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 5.11 3.58

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.48	
Ash (%):	34.01	34.17
Volatile matter (%):	7.98	8.02
Fixed carbon (%):	57.53	57.81
Total sulphur (%):	0.43	0.43
Combustible sulphur (%):	0.13	
Net calorific value (cal/g):	4993.00	5017.00
Gross calorific value (cal/g):	4993.00	5017.00
Volatile matter (dmmf%):	8.20	
Hardgrove index:	54.00	
Specific gravity:	1.61	
Carbon dioxide (%):	2.06	
Phosphorous in coal (%):	0.116	
Chlorine in coal (ppm):	4480.00	
Forms of Sulphur (%):	PYRITE 05.00	SULPHATE 00.00 ORGANIC 95.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	59.42	59.71
Hydrogen (%):	2.09	2.10
Nitrogen (%):	0.71	0.71
Oxygen (%):	2.86	2.88

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1273.00	1219.00
Softening temperature (°C):	1297.00	1246.00
Hemispherical temperature (°C):	1324.00	1276.00
Final temperature (°C):	1386.00	1384.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	58.28	TiO2 (%):	1.07
Al2O3 (%):	21.92	Na2O (%):	2.63
Fe2O3 (%):	4.66	K2O (%):	0.74
CaO (%):	3.97	SO3 (%):	2.17
MgO (%):	2.53	P2O5 (%):	0.78

gcri coal division ash fusion proj KPN BLK LR DS DDH86033
=====

sample id 00087
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/01/87

oxidizing atmosphere

initial temp.(C) 1278.0
softening temp.(C) 1359.0
hemispherical temp.(C) 1388.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1219.0
softening temp.(C) 1302.0
hemispherical temp.(C) 1337.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86033
=====

sample id 00087
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/01/87

silicon dioxide %	(sio2)	59.66
aluminium oxide %	(al2o3)	23.06
ferric oxide %	(fe2o3)	4.63
titanium dioxide %	(tio2)	1.01
phosphorous pentoxide %	(p2o5)	0.49
calcium oxide %	(cao)	2.94
magnesium oxide %	(mgo)	2.05
sulphur trioxide %	(so3)	1.14
sodium oxide %	(na2o)	2.35
potassium oxide %	(k2o)	0.97

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86033
=====

sample id 00087
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/01/87

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1327.0	initial temp.(C)	1286.0
softening temp.(C)	1423.0	softening temp.(C)	1375.0
hemispherical temp.(C)	1472.0	hemispherical temp.(C)	1429.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86033
=====

sample id 00087
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/01/87

silicon dioxide %	(sio2)	59.52
aluminium oxide %	(al2o3)	25.58
ferric oxide %	(fe2o3)	3.73
titanium dioxide %	(tio2)	0.73
phosphorous pentoxide %	(p2o5)	0.93
calcium oxide %	(cao)	2.94
magnesium oxide %	(mgo)	1.77
sulphur trioxide %	(so3)	1.25
sodium oxide %	(na2o)	2.40
potassium oxide %	(k2o)	0.91

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86033
 Coal zone: K/L
 Field sample no.: 10226 Composite sample no.: 88
 Lab sample no.: 29459
 True sample thickness: 2.112 meters Drill core recovery(%): 94.64 %
 Coal/Rock: 1.810 / 0.302 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 25.67 25.04 15.34 23.89
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 6.16 3.90

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.55	
Ash (%):	49.70	49.97
Volatile matter (%):	7.34	7.38
Fixed carbon (%):	42.41	42.65
Total sulphur (%):	0.52	0.52
Combustible sulphur (%):	0.29	
Net calorific value (cal/g):	3516.00	3535.00
Gross calorific value (cal/g):	3516.00	3535.00
Volatile matter (dmmf%):	7.00	
Hardgrove index:	56.00	
Specific gravity:	1.79	
Carbon dioxide (%):	1.86	
Phosphorous in coal (%):	0.089	
Chlorine in coal (ppm):	5360.00	
Forms of Sulphur (%):	PYRITE 25.00	SULPHATE 00.00 ORGANIC 75.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	43.98	44.22
Hydrogen (%):	1.62	1.63
Nitrogen (%):	0.61	0.61
Oxygen (%):	3.02	3.05

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1305.00	1235.00
Softening temperature (°C):	1359.00	1281.00
Hemispherical temperature (°C):	1388.00	1319.00
Final temperature (°C):	1466.00	1456.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	61.42	TiO2 (%):	1.08
Al2O3 (%):	21.47	Na2O (%):	1.77
Fe2O3 (%):	4.39	K2O (%):	1.81
CaO (%):	2.26	SO3 (%):	1.17
MgO (%):	2.02	P2O5 (%):	0.41

gcri coal division ash fusion proj KPN BLK LR DS DDH86033
=====

sample id 00082
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/01/87

oxidizing atmosphere

initial temp.(C) 1421.0
softening temp.(C) 1472.0
hemispherical temp.(C) 1472.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1385.0
softening temp.(C) 1402.0
hemispherical temp.(C) 1466.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86033
=====

sample id 00086
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/01/87

silicon dioxide %	(sio2)	59.50
aluminium oxide %	(al2o3)	23.82
ferric oxide %	(fe2o3)	3.93
titanium dioxide %	(tio2)	1.33
phosphorous pentoxide %	(p2o5)	1.09
calcium oxide %	(cao)	2.38
magnesium oxide %	(mgo)	2.22
sulphur trioxide %	(so3)	0.77
sodium oxide %	(na2o)	1.71
potassium oxide %	(k2o)	1.08

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86033
=====

sample id 00088
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/01/87

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1329.0	initial temp.(C)	1286.0
softening temp.(C)	1472.0	softening temp.(C)	1396.0
hemispherical temp.(C)	1472.0	hemispherical temp.(C)	1437.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86033
=====

sample id 00088
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/01/87

silicon dioxide %	(sio2)	59.36
aluminium oxide %	(al2o3)	26.08
ferric oxide %	(fe2o3)	4.21
titanium dioxide %	(tio2)	1.10
phosphorous pentoxide %	(p2o5)	1.00
calcium oxide %	(cao)	2.74
magnesium oxide %	(mgo)	1.69
sulphur trioxide %	(so3)	0.89
sodium oxide %	(na2o)	1.81
potassium oxide %	(k2o)	0.97

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86033
 Coal zone: K
 Field sample no.: 10229 - 10230 Composite sample no.: 89
 Lab sample no.: 29459
 True sample thickness: 5.034 meters Drill core recovery (%): 73.53 %
 Coal/Rock: 4.055 / 0.979 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 34.26 23.58 13.17 23.11
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 3.57 2.31

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.42	
Ash (%):	36.64	36.79
Volatile matter (%):	8.24	8.27
Fixed carbon (%):	54.70	54.94
Total sulphur (%):	0.52	0.52
Combustible sulphur (%):	0.28	
Net calorific value (cal/g):	4861.00	4882.00
Gross calorific value (cal/g):	4861.00	4882.00
Volatile matter (dmmf %):	8.60	
Hardgrove index:	48.00	
Specific gravity:	1.66	
Carbon dioxide (%):	2.82	
Phosphorous in coal (%):	0.064	
Chlorine in coal (ppm):	4960.00	
Forms of Sulphur (%):	PYRITE 19.00	SULPHATE 00.00 ORGANIC 81.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	56.97	57.21
Hydrogen (%):	1.79	1.80
Nitrogen (%):	0.74	0.74
Oxygen (%):	3.10	2.94

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1268.00	1182.00
Softening temperature (°C):	1302.00	1217.00
Hemispherical temperature (°C):	1321.00	1243.00
Final temperature (°C):	1351.00	1345.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	58.54	TiO2 (%):	1.08
Al2O3 (%):	19.34	Na2O (%):	1.68
Fe2O3 (%):	7.45	K2O (%):	1.87
CaO (%):	2.83	SO3 (%):	1.67
MgO (%):	3.06	P2O5 (%):	0.40

gcri coal division ash fusion proj KPN BLK LR DS DDH86033
=====

sample id 00089
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/01/87

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1278.0	initial temp.(C)	1225.0
softening temp.(C)	1351.0	softening temp.(C)	1300.0
hemispherical temp.(C)	1378.0	hemispherical temp.(C)	1335.0
fluid temp.(C)	1448.0	fluid temp.(C)	1448.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86033
=====

sample id 00089
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/01/87

silicon dioxide %	(sio2)	57.46
aluminium oxide %	(al2o3)	23.06
ferric oxide %	(fe2o3)	5.75
titanium dioxide %	(tio2)	1.36
phosphorous pentoxide %	(p2o5)	0.51
calcium oxide %	(cao)	2.80
magnesium oxide %	(mgo)	2.73
sulphur trioxide %	(so3)	1.21
sodium oxide %	(na2o)	1.70
potassium oxide %	(k2o)	1.34

90.0 <= total <= 100.0

agri coal division ash fusion proj KPN BLK LR DS DDH86033
=====

sample id 00089
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/01/87

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1335.0	initial temp.(C)	1278.0
softening temp.(C)	1472.0	softening temp.(C)	1364.0
hemispherical temp.(C)	1472.0	hemispherical temp.(C)	1396.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

agri coal division ash mineral proj KPN BLK LR DS DDH86033
=====

sample id 00089
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/01/87

silicon dioxide %	(sio2)	59.26
aluminium oxide %	(al2o3)	24.70
ferric oxide %	(fe2o3)	5.18
titanium dioxide %	(tio2)	0.67
phosphorous pentoxide %	(p2o5)	0.94
calcium oxide %	(cao)	2.69
magnesium oxide %	(mgo)	2.49
sulphur trioxide %	(so3)	0.89
sodium oxide %	(na2o)	1.87
potassium oxide %	(k2o)	1.15

90.0 <= total <= 100.0

KPNLRDDH86034

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86034

DATE - 04/03/87

- HISTORY -

START DATE - 25/09/86
END DATE - 27/09/86

CONTRACTOR - J.T. THOMAS
GEOLOGIST - MACLEOD

OPERATOR - G.C.C.
SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC
ELEVATION - 1503.64

ZONE - 9
NORTHING - 6344599.00
EASTING - 508167.37

LICENCE/LEASE NUMBER -

LATITUDE - 571447
LONGITUDE - 1285153

- ORIENTATION -

LENGTH - 158.49

INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N
PLUG - N
PIEZ - N

CASING DEPTH (M) - 13.72
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

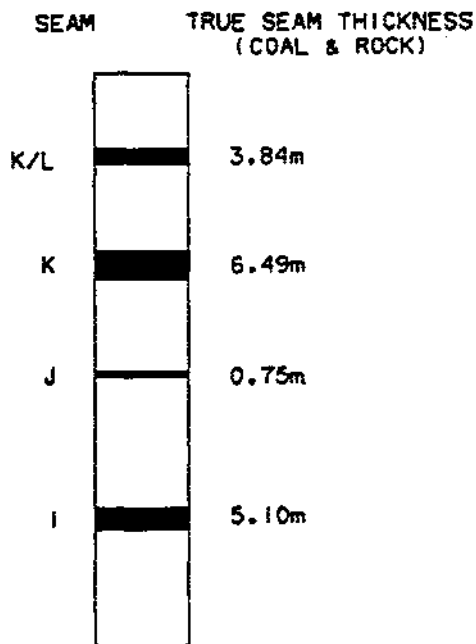
DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED		MISSING		TOTAL	
						COAL	ROCK	COAL	ROCK	COAL	ROCK

DDH86034		10167	19.72	20.03	100.00		0.294			0.000	0.294
	K/L	10168	20.03	24.02	34.84	1.070	0.271	2.183	0.319	3.253	0.590
		10169	24.02	24.52	100.00		0.487			0.000	0.487
		10170	48.36	48.80	100.00		0.395			0.000	0.395
	K	10171	48.80	50.94	70.56	1.101	0.251	0.341	0.225	1.442	0.476
	K	10172	50.94	53.22	97.37	1.931	0.044	0.054		1.985	0.044
	K	10173	53.22	56.10	81.60	1.032	1.045	0.469		1.501	1.045
		10174	56.10	56.45	100.00		0.308			0.000	0.308
		10175	80.71	81.88	100.00		1.133			0.000	1.133
	J	10176	81.88	82.68	100.00	0.609	0.140			0.609	0.140
		10177	82.68	83.11	100.00		0.391			0.000	0.391
		10178	118.63	119.66	100.00		0.933			0.000	0.933
	I	10179	119.66	121.34	71.43	1.044	0.055	0.442		1.485	0.055
	I	10180	121.34	123.34	62.00	1.045	0.111	0.595	0.111	1.640	0.222
	I	10181	123.34	125.13	100.00	1.690				1.690	0.000
		10182	125.13	126.53	100.00		1.335			0.000	1.335

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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

DDH86034												
K		90	10171	10172	48.80	53.22	84.38	3.40	0.33	0.44	0.25	3.84- 0.58
K		91	10173	10173	53.22	56.10	81.59	1.17	1.18	0.53	0.00	1.70- 1.18
I		92	10179	10181	119.66	125.13	77.33	4.05	0.18	1.12	0.12	5.17- 0.30
K		257	10171	10173	48.80	56.10	83.28	4.57	1.51	0.97	0.25	5.54- 1.76
I		258	10179	10181	119.66	125.13	77.33	4.05	0.18	1.12	0.12	5.17- 0.30
K		357	10171	10173	48.80	56.10	83.28	4.57	1.51	0.97	0.25	5.54- 1.76
I		358	10179	10181	119.66	125.13	77.33	4.05	0.18	1.12	0.12	5.17- 0.30



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86034

GULF CANADA CORPORATION
11/03/87
KLAP:12050571870063034.LOG



COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86034
 Coal zone: K
 Field sample no.: 10171 - 10172 Composite sample no.: 90
 Lab sample no.: 29459
 True sample thickness: 3.947 meters Drill core recovery (%): 84.38 %
 Coal/Rock: 3.427 / 0.520 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 32.87 22.62 12.37 23.32
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 5.24 3.58

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.37	
Ash (%):	23.08	23.17
Volatile matter (%):	7.94	7.97
Fixed carbon (%):	68.61	68.86
Total sulphur (%):	0.45	0.45
Combustible sulphur (%):	0.22	
Net calorific value (cal/g):	6257.00	6279.00
Gross calorific value (cal/g):	6257.00	6280.00
Volatile matter (dmmf %):	8.00	
Hardgrove index:	49.00	
Specific gravity:	1.49	
Carbon dioxide (%):	2.72	
Phosphorous in coal (%):	0.102	
Chlorine in coal (ppm):	3040.00	
Forms of Sulphur (%):	PYRITE 09.00	SULPHATE 00.00 ORGANIC 91.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	69.25	69.51
Hydrogen (%):	2.34	2.35
Nitrogen (%):	0.88	0.88
Oxygen (%):	3.63	3.64

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1241.00	1172.00
Softening temperature (°C):	1270.00	1192.00
Hemispherical temperature (°C):	1289.00	1206.00
Final temperature (°C):	1380.00	1354.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	54.60	TiO2 (%):	1.14
Al2O3 (%):	20.28	Na2O (%):	2.24
Fe2O3 (%):	8.04	K2O (%):	0.80
CaO (%):	4.23	SO3 (%):	2.52
MgO (%):	2.74	P2O5 (%):	1.01

gcri coal division ash fusion proj KPN BLK LR DS DDH86034
=====

sample id 00090
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/01/87

oxidizing atmosphere
oooooooooooooooooooo

reducing atmosphere
oooooooooooooooooooo

initial temp.(C)	1262.0	initial temp.(C)	1208.0
softening temp.(C)	1311.0	softening temp.(C)	1246.0
hemispherical temp.(C)	1340.0	hemispherical temp.(C)	1284.0
fluid temp.(C)	1430.0	fluid temp.(C)	1432.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86034
=====

sample id 00090
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/01/87

silicon dioxide %	(sio2)	57.74
aluminium oxide %	(al2o3)	22.55
ferric oxide %	(fe2o3)	4.80
titanium dioxide %	(tio2)	1.72
phosphorous pentoxide %	(p2o5)	0.73
calcium oxide %	(cao)	4.00
magnesium oxide %	(mgo)	1.96
sulphur trioxide %	(so3)	1.61
sodium oxide %	(na2o)	2.18
potassium oxide %	(k2o)	0.79

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86034
=====

sample id 00090
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/01/87

oxidizing atmosphere
#####

initial temp.(C) 1313.0
softening temp.(C) 1378.0
hemispherical temp.(C) 1423.0
fluid temp.(C) 1472.0

reducing atmosphere
#####

initial temp.(C) 1281.0
softening temp.(C) 1348.0
hemispherical temp.(C) 1367.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86034
=====

sample id 00090
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/01/87

silicon dioxide %	(sio2)	59.28
aluminium oxide %	(al2o3)	21.31
ferric oxide %	(fe2o3)	7.51
titanium dioxide %	(tio2)	0.67
phosphorous pentoxide %	(p2o5)	1.19
calcium oxide %	(cao)	3.69
magnesium oxide %	(mgo)	1.79
sulphur trioxide %	(so3)	1.34
sodium oxide %	(na2o)	2.13
potassium oxide %	(k2o)	0.73

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86034
 Coal zone: K
 Field sample no.: 10173 Composite sample no.: 91
 Lab sample no.: 29459
 True sample thickness: 2.546 meters Drill core recovery (%): 81.59 %
 Coal/Rock: 1.501 / 1.045 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 33.06 27.09 14.39 20.09
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 3.29 2.08

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.79	
Ash (%):	60.22	60.70
Volatile matter (%):	7.39	7.45
Fixed carbon (%):	31.60	31.85
Total sulphur (%):	0.27	0.27
Combustible sulphur (%):	0.09	
Net calorific value (cal/g):	2478.00	2498.00
Gross calorific value (cal/g):	2478.00	2498.00
Volatile matter (dmmf%):	7.30	
Hardgrove index:	53.00	
Specific gravity:	1.95	
Carbon dioxide (%):	3.80	
Phosphorous in coal (%):	0.034	
Chlorine in coal (ppm):	1080.00	
Forms of Sulphur (%):	PYRITE 22.00	SULPHATE 00.00 ORGANIC 78.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	32.69	32.95
Hydrogen (%):	1.10	1.11
Nitrogen (%):	0.46	0.46
Oxygen (%):	4.47	4.51

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C):	1294.00	1203.00
Softening temperature(°C):	1321.00	1233.00
Hemispherical temperature(°C):	1345.00	1265.00
Final temperature(°C):	1383.00	1370.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	60.64	TiO2 (%):	1.07
Al2O3 (%):	18.78	Na2O (%):	1.72
Fe2O3 (%):	5.65	K2O (%):	2.08
CaO (%):	1.60	SO3 (%):	0.75
MgO (%):	3.09	P2O5 (%):	0.13

12

gcri coal division ash fusion proj KPN BLK LR DS DDH86034
=====

sample id 00091
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/01/87

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1273.0	initial temp.(C)	1190.0
softening temp.(C)	1332.0	softening temp.(C)	1262.0
hemispherical temp.(C)	1367.0	hemispherical temp.(C)	1297.0
fluid temp.(C)	1439.0	fluid temp.(C)	1433.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86034
=====

sample id 00091
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/01/87

silicon dioxide %	(sio2)	58.76
aluminium oxide %	(al2o3)	21.79
ferric oxide %	(fe2o3)	5.02
titanium dioxide %	(tio2)	1.57
phosphorous pentoxide %	(p2o5)	0.24
calcium oxide %	(cao)	2.24
magnesium oxide %	(mgo)	2.87
sulphur trioxide %	(so3)	1.58
sodium oxide %	(na2o)	1.75
potassium oxide %	(k2o)	1.83

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DCH86034
=====

sample id 00091
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/01/87

oxidizing atmosphere

reducing atmosphere

initial temp.(C)	1300.0	initial temp.(C)	1241.0
softening temp.(C)	1375.0	softening temp.(C)	1321.0
hemispherical temp.(C)	1413.0	hemispherical temp.(C)	1375.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DCH86034
=====

sample id 00091
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/01/87

silicon dioxide %	(sio2)	62.02
aluminium oxide %	(al2o3)	22.44
ferric oxide %	(fe2o3)	4.52
titanium dioxide %	(tio2)	0.78
phosphorous pentoxide %	(p2o5)	0.19
calcium oxide %	(cao)	2.74
magnesium oxide %	(mgo)	2.69
sulphur trioxide %	(so3)	1.03
sodium oxide %	(na2o)	1.83
potassium oxide %	(k2o)	1.73

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86034
 Coal zone: I
 Field sample no.: 10179 - 10181 Composite sample no.: 92
 Lab sample no.: 29459
 True sample thickness: 5.093 meters Drill core recovery (%): 77.33 %
 Coal/Rock: 4.816 / 0.277 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 26.20 18.80 15.22 30.10
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 5.73 3.95

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.59	
Ash (%):	22.55	22.68
Volatile matter (%):	7.31	7.35
Fixed carbon (%):	69.55	69.97
Total sulphur (%):	0.40	0.40
Combustible sulphur (%):	0.24	
Net calorific value (cal/g):	6342.00	6379.00
Gross calorific value (cal/g):	6343.00	6380.00
Volatile matter (dmmf %):	7.20	
Hardgrove index:	44.00	
Specific gravity:	1.48	
Carbon dioxide (%):	1.49	
Phosphorous in coal (%):	0.129	
Chlorine in coal (ppm):	1560.00	
Forms of Sulphur (%):	PYRITE 05.00	SULPHATE 00.00 ORGANIC 95.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	71.34	71.76
Hydrogen (%):	2.46	2.47
Nitrogen (%):	0.85	0.86
Oxygen (%):	1.81	1.83

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1270.00	1233.00
Softening temperature (°C):	1294.00	1249.00
Hemispherical temperature (°C):	1308.00	1262.00
Final temperature (°C):	1388.00	1377.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	56.97	TiO2 (%):	1.06
Al2O3 (%):	21.47	Na2O (%):	2.53
Fe2O3 (%):	4.70	K2O (%):	1.20
CaO (%):	3.83	SO3 (%):	1.77
MgO (%):	2.96	P2O5 (%):	1.31

gcri coal division ash fusion proj KPN BLK LR DS DDH86034
=====

sample id 00092
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/01/87

oxidizing atmosphere
oooooooooooooooooooo

initial temp.(C) 1265.0
softening temp.(C) 1273.0
hemispherical temp.(C) 1284.0
fluid temp.(C) 1375.0

reducing atmosphere
oooooooooooooooooooo

initial temp.(C) 1217.0
softening temp.(C) 1225.0
hemispherical temp.(C) 1235.0
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 LR DS DDH86034
=====

sample id 00092
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/01/87

silicon dioxide %	(sio2)	55.35
aluminium oxide %	(al2o3)	20.21
ferric oxide %	(fe2o3)	4.77
titanium dioxide %	(tio2)	1.01
phosphorous pentoxide %	(p2o5)	0.75
calcium oxide %	(cao)	6.02
magnesium oxide %	(mgo)	3.49
sulphur trioxide %	(so3)	3.33
sodium oxide %	(na2o)	1.82
potassium oxide %	(k2o)	1.06

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86034
=====

sample id 00092
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/01/87

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1286.0	initial temp.(C)	1243.0
softening temp.(C)	1311.0	softening temp.(C)	1278.0
hemispherical temp.(C)	1340.0	hemispherical temp.(C)	1305.0
fluid temp.(C)	1439.0	fluid temp.(C)	1433.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86034
=====

sample id 00092
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/01/87

silicon dioxide %	(sio2)	59.24
aluminium oxide %	(al2o3)	21.92
ferric oxide %	(fe2o3)	4.05
titanium dioxide %	(tio2)	0.58
phosphorous pentoxide %	(p2o5)	1.45
calcium oxide %	(cao)	4.73
magnesium oxide %	(mgo)	2.78
sulphur trioxide %	(so3)	2.33
sodium oxide %	(na2o)	1.70
potassium oxide %	(k2o)	1.03

90.0 <= total <= 100.0

KPNLRDDH86035

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86035

DATE - 04/03/87

- HISTORY -

START DATE - 27/09/86
END DATE - 30/09/86

CONTRACTOR - J.T. THOMAS
GEOLOGIST - SAVOIE

OPERATOR - G.C.C.
SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE. CASING TO 20.42
M WITH MINOR RECOVERY BETWEEN 7.67 M AND 20.42 M.

- LOCATION -

PROVINCE - BC
ELEVATION - 1502.46

ZONE - 9
NORTHING - 6344512.00
EASTING - 508451.56

LICENCE/LEASE NUMBER -

LATITUDE - 571444
LONGITUDE - 1285136

- ORIENTATION -

LENGTH - 212.45

INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N
PLUG - N
PIEZ - N

CASING DEPTH (M) - 20.42
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE 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
DDH86035	L	10183	50.78	54.40	38.95	0.819	0.494	1.712	0.322	2.531- 0.816
		10184	54.40	54.66	100.00		0.233			0.000- 0.233
		10201	90.05	90.73	100.00		0.671			0.000- 0.671
	K	10202	90.73	93.96	59.75	1.893		0.754	0.517	2.647- 0.517
	K	10203	93.96	97.29	69.37	2.051	0.174	0.980		3.031- 0.174
	K	10204	97.29	99.39	74.29	0.745	0.730	0.254	0.255	0.999- 0.985
		10205	99.39	100.22	100.00		0.776			0.000- 0.776
		10206	156.89	157.51	100.00		0.573			0.000- 0.573
	I	10207	157.51	158.82	95.42	1.176		0.056		1.232- 0.000
		10208	158.82	159.15	100.00		0.314			0.000- 0.314
		10209	180.25	180.33	100.00		0.070			0.000- 0.070
	H/I	10210	180.33	181.21	55.68	0.316	0.114	0.342		0.658- 0.114
		10211	181.21	181.93	100.00		0.628			0.000- 0.628
		10212	197.09	197.19	100.00		0.088			0.000- 0.088
	H	10213	197.19	198.51	71.97	0.808	0.026	0.177	0.150	0.985- 0.176
		10214	198.51	198.73	100.00		0.195			0.000- 0.195

02/APR/87

GULF CANADA CORPORATION - COAL DIVISION

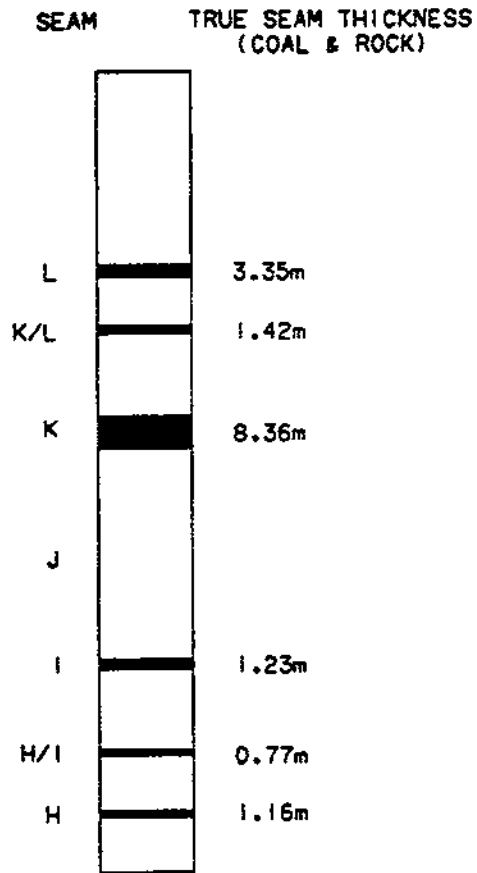
COMPOSITE SAMPLE SUMMARY

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
DDH86035												
K		93	10202	10203	90.73	97.29	64.63	4.06	0.18	1.79	0.53	5.85- 0.71
K		94	10204	10204	97.29	99.39	74.28	0.79	0.77	0.27	0.27	1.06- 1.04
K		259	10202	10204	90.73	99.39	66.97	4.85	0.95	2.06	0.80	6.91- 1.75
K		359	10202	10204	90.73	99.39	66.97	4.85	0.95	2.06	0.80	6.91- 1.75



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86035

GULF CANADA CORPORATION
11/03/87
KLAP: (205057) 870063035.L06



**COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES.**

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86035
 Coal zone: K
 Field sample no.: 10202 - 10203 Composite sample no.: 93
 Lab sample no.: 29459
 True sample thickness: 6.369 meters Drill core recovery (%): 64.63 %
 Coal/Rock: 5.678 / 0.691 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 26.39 20.53 13.62 30.29
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 5.64 3.53

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.63	
Ash (%):	29.09	29.27
Volatile matter (%):	9.84	9.90
Fixed carbon (%):	60.44	60.83
Total sulphur (%):	0.39	0.39
Combustible sulphur (%):	0.09	
Net calorific value (cal/g):	5738.00	5775.00
Gross calorific value (cal/g):	5738.00	5775.00
Volatile matter (dmmf %):	10.90	
Hardgrove index:	51.00	
Specific gravity:	1.58	
Carbon dioxide (%):	5.49	
Phosphorous in coal (%):	0.072	
Chlorine in coal (ppm):	4000.00	
Forms of Sulphur (%):	PYRITE 08.00	SULPHATE 00.00 ORGANIC 92.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	63.35	63.75
Hydrogen (%):	2.08	2.09
Nitrogen (%):	0.77	0.77
Oxygen (%):	3.69	3.73

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1249.00	1184.00
Softening temperature (°C):	1281.00	1214.00
Hemispherical temperature (°C):	1292.00	1227.00
Final temperature (°C):	1348.00	1343.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	49.66	TiO2 (%):	0.93
Al2O3 (%):	17.25	Na2O (%):	1.73
Fe2O3 (%):	10.50	K2O (%):	0.95
CaO (%):	8.26	SO3 (%):	2.57
MgO (%):	5.27	P2O5 (%):	0.57

gcri coal division ash fusion proj KPN BLK LR DS DDH86035
=====

sample id 00093
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/01/87

oxidizing atmosphere		reducing atmosphere	
oooooooooooooooooooo		oooooooooooooooooooo	
initial temp.(C)	1276.0	initial temp.(C)	1203.0
softening temp.(C)	1308.0	softening temp.(C)	1230.0
hemispherical temp.(C)	1332.0	hemispherical temp.(C)	1262.0
fluid temp.(C)	1388.0	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 LR DS DDH86035
=====

sample id 00093
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/01/87

silicon dioxide %	(sio2)	57.34
aluminium oxide %	(al2o3)	20.71
ferric oxide %	(fe2o3)	4.99
titanium dioxide %	(tio2)	1.45
phosphorous pentoxide %	(p2o5)	1.04
calcium oxide %	(cao)	3.95
magnesium oxide %	(mgo)	2.79
sulphur trioxide %	(so3)	2.17
sodium oxide %	(na2o)	2.08
potassium oxide %	(k2o)	1.11

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86035
=====

sample id 00093
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/01/87

oxidizing atmosphere

initial temp.(C) 1321.0
softening temp.(C) 1380.0
hemispherical temp.(C) 1402.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1268.0
softening temp.(C) 1327.0
hemispherical temp.(C) 1370.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86035
=====

sample id 00093
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/01/87

silicon dioxide %	(sio2)	60.46
aluminium oxide %	(al2o3)	22.44
ferric oxide %	(fe2o3)	4.20
titanium dioxide %	(tio2)	0.69
phosphorous pentoxide %	(p2o5)	0.77
calcium oxide %	(cao)	3.55
magnesium oxide %	(mgo)	2.58
sulphur trioxide %	(so3)	1.98
sodium oxide %	(na2o)	2.18
potassium oxide %	(k2o)	1.11

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPMLRDDH86035
 Coal zone: K
 Field sample no.: 10204 Composite sample no.: 94
 Lab sample no.: 29459
 True sample thickness: 1.984 meters Drill core recovery (%): 74.28 %
 Coal/Rock: 0.999 / 0.985 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 39.14 25.70 13.59 17.12
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 2.89 1.56

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.78	
Ash (%):	65.37	65.89
Volatile matter (%):	8.87	8.94
Fixed carbon (%):	24.98	25.17
Total sulphur (%):	0.34	0.34
Combustible sulphur (%):	0.12	
Net calorific value (cal/g):	1986.00	2002.00
Gross calorific value (cal/g):	1986.00	2002.00
Volatile matter (dmmf%):	12.40	
Hardgrove index:	55.00	
Specific gravity:	2.02	
Carbon dioxide (%):	3.57	
Phosphorous in coal (%):	0.031	
Chlorine in coal (ppm):	1960.00	
Forms of Sulphur (%):	PYRITE 44.00	SULPHATE 00.00 ORGANIC 56.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	28.41	28.63
Hydrogen (%):	1.06	1.07
Nitrogen (%):	0.46	0.46
Oxygen (%):	3.58	3.61

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1321.00	1257.00
Softening temperature (°C):	1356.00	1286.00
Hemispherical temperature (°C):	1386.00	1316.00
Final temperature (°C):	1434.00	1431.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	63.00	TiO2 (%):	0.96
Al2O3 (%):	19.50	Na2O (%):	1.59
Fe2O3 (%):	5.28	K2O (%):	2.06
CaO (%):	1.57	SO3 (%):	0.85
MgO (%):	3.05	P2O5 (%):	0.11

gcri coal division ash fusion proj KPN BLK LR DS DCH66035
=====

sample id 00094
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/01/87

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1388.0	initial temp.(C)	1246.0
softening temp.(C)	1421.0	softening temp.(C)	1324.0
hemispherical temp.(C)	1445.0	hemispherical temp.(C)	1364.0
fluid temp.(C)	1472.0	fluid temp.(C)	1466.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DCH66035
=====

sample id 00094
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/01/87

silicon dioxide %	(sio2)	62.64
aluminium oxide %	(al2o3)	21.01
ferric oxide %	(fe2o3)	4.65
titanium dioxide %	(tio2)	1.14
phosphorous pentoxide %	(p2o5)	0.14
calcium oxide %	(cao)	0.95
magnesium oxide %	(mgo)	2.84
sulphur trioxide %	(so3)	0.62
sodium oxide %	(na2o)	1.73
potassium oxide %	(k2o)	1.96

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86035
=====

sample id 00094
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/01/87

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1311.0	initial temp.(C)	1259.0
softening temp.(C)	1437.0	softening temp.(C)	1391.0
hemispherical temp.(C)	1448.0	hemispherical temp.(C)	1407.0
fluid temp.(C)	1472.0	fluid temp.(C)	1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86035
=====

sample id 00094
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/01/87

silicon dioxide %	(sio2)	62.02
aluminium oxide %	(al2o3)	23.06
ferric oxide %	(fe2o3)	4.68
titanium dioxide %	(tio2)	1.21
phosphorous pentoxide %	(p2o5)	0.18
calcium oxide %	(cao)	0.98
magnesium oxide %	(mgo)	2.91
sulphur trioxide %	(so3)	0.75
sodium oxide %	(na2o)	1.59
potassium oxide %	(k2o)	1.87

90.0 <= total <= 100.0

KPNLRDDH86036

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86036

DATE - 04/03/87

- HISTORY -

START DATE - 29/09/86
END DATE - 01/10/86

CONTRACTOR - J.T. THOMAS
GEOLOGIST - BARKER

OPERATOR - G.C.C.
SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC
ELEVATION - 1507.54

ZONE - 9
NORTHING - 6344851.00
EASTING - 508346.87

LICENCE/LEASE NUMBER -

LATITUDE - 571455
LONGITUDE - 1285142

- ORIENTATION -

LENGTH - 148.43

INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N
PLUG - N
PIEZ - N

CASING DEPTH (M) - 7.62
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

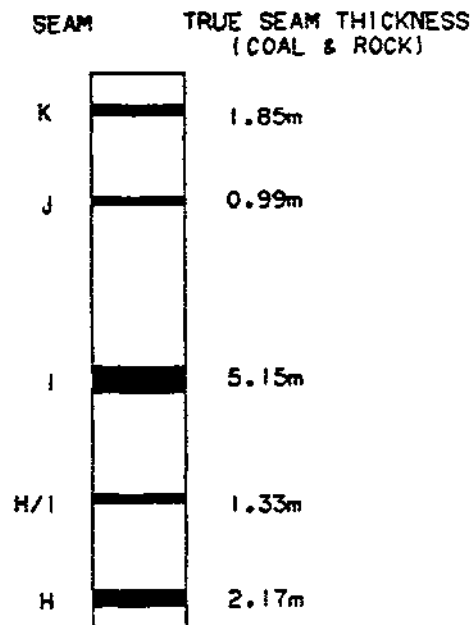
GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 SIMPLE SAMPLE SUMMARY PAGE 1
 TRUE THICKNESS
 KLAPPAN PROJECT

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

DDHB6036		10127	32.10	32.84	100.00		0.721			0.000- 0.721
	J	10128	32.84	33.87	72.82	0.701	0.019	0.267		0.968- 0.019
		10129	33.87	34.31	100.00		0.415			0.000- 0.415
		10130	78.49	78.56	100.00		0.066			0.000- 0.066
	I	10131	78.56	80.85	100.00	2.075	0.075			2.075- 0.075
	I	10132	80.85	82.03	100.00	0.938	0.168			0.938- 0.168
	I	10133	82.03	84.06	97.04	1.846		0.056		1.902- 0.000
		10134	84.06	85.91	100.00		1.733			0.000- 1.733
		10135	138.98	139.56	100.00		0.546			0.000- 0.546
	H	10136	139.56	140.67	90.99	0.360	0.595	0.095		0.455- 0.595
	H	10137	140.67	141.85	100.00	1.084	0.038			1.084- 0.038
		10138	141.85	142.08	100.00		0.219			0.000- 0.219

GULF CANADA CORPORATION - COAL DIVISION
 02/APR/87 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
DDHB6036												
I		95	10131	10131	78.56	80.85	100.00	2.21	0.08	0.00	0.00	2.21- 0.08
I		96	10132	10132	80.85	82.03	100.00	1.00	0.18	0.00	0.00	1.00- 0.18
I		97	10133	10133	82.03	84.06	97.04	1.97	0.00	0.06	0.00	2.03- 0.00
H		98	10136	10137	139.56	141.85	95.63	1.52	0.67	0.10	0.00	1.62- 0.67
I		260	10131	10132	78.56	82.03	100.00	3.21	0.26	0.00	0.00	3.21- 0.26
I		261	10133	10133	82.03	84.06	97.04	1.97	0.00	0.06	0.00	2.03- 0.00
H		262	10136	10137	139.56	141.85	95.63	1.52	0.67	0.10	0.00	1.62- 0.67
I		360	10131	10133	78.56	84.06	98.90	5.18	0.26	0.06	0.00	5.24- 0.26
H		363	10136	10137	139.56	141.85	95.63	1.52	0.67	0.10	0.00	1.62- 0.67



NOTE:

SCHMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86036

GULF CANADA CORPORATION
11/03/87
KLAP: (205057) 870063036 - LOG



COAL SEAM DATA SHEETS
AND
COAL QUALITY ANALYSES

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86036
 Coal zone: I
 Field sample no.: 10131 Composite sample no.: 95
 Lab sample no.: 29459
 True sample thickness: 2.150 meters Drill core recovery (%): 100.00 %
 Coal/Rock: 2.075 / 0.075 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 13.10 20.55 15.21 36.65
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 9.06 5.43

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.59	
Ash (%):	21.49	21.62
Volatile matter (%):	6.84	6.88
Fixed carbon (%):	71.08	71.50
Total sulphur (%):	0.39	0.39
Combustible sulphur (%):	0.24	
Net calorific value (cal/g):	6567.00	6605.00
Gross calorific value (cal/g):	6568.00	6606.00
Volatile matter (dmmf %):	6.60	
Hardgrove index:	53.00	
Specific gravity:	1.51	
Carbon dioxide (%):	1.40	
Phosphorous in coal (%):	0.053	
Chlorine in coal (ppm):	2480.00	
Forms of Sulphur (%):	PYRITE 05.00	SULPHATE 00.00 ORGANIC 95.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	72.28	72.71
Hydrogen (%):	2.43	2.44
Nitrogen (%):	0.85	0.86
Oxygen (%):	1.97	1.98

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1251.00	1222.00
Softening temperature (°C):	1284.00	1254.00
Hemispherical temperature (°C):	1308.00	1284.00
Final temperature (°C):	1386.00	1384.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	70.52	TiO2 (%):	0.48
Al2O3 (%):	14.36	Na2O (%):	1.38
Fe2O3 (%):	3.65	K2O (%):	0.81
CaO (%):	3.69	SO3 (%):	1.74
MgO (%):	2.66	P2O5 (%):	0.56

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86036
 Coal zone: 1
 Field sample no.: 10132 Composite sample no.: 96
 Lab sample no.: 29459
 True sample thickness: 1.106 meters Drill core recovery (%): 100.00 %
 Coal/Rock: 0.938 / 0.168 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 7.21 18.91 14.79 37.08
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 10.45 11.56

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.65	
Ash (%):	32.17	32.38
Volatile matter (%):	8.21	8.26
Fixed carbon (%):	58.97	59.36
Total sulphur (%):	0.33	0.33
Combustible sulphur (%):	0.14	
Net calorific value (cal/g):	5308.00	5343.00
Gross calorific value (cal/g):	5308.00	5343.00
Volatile matter (dmmf %):	8.60	
Hardgrove index:	48.00	
Specific gravity:	1.62	
Carbon dioxide (%):	2.58	
Phosphorous in coal (%):	0.035	
Chlorine in coal (ppm):	3360.00	
Forms of Sulphur (%):	PYRITE 09.00	SULPHATE 00.00 ORGANIC 91.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	60.48	60.87
Hydrogen (%):	2.20	2.21
Nitrogen (%):	0.81	0.82
Oxygen (%):	3.36	3.39

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1289.00	1227.00
Softening temperature (°C):	1364.00	1321.00
Hemispherical temperature (°C):	1410.00	1370.00
Final temperature (°C):	1466.00	1442.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	55.64	TiO2 (%):	1.07
Al2O3 (%):	24.81	Na2O (%):	2.26
Fe2O3 (%):	5.55	K2O (%):	1.35
CaO (%):	2.35	SO3 (%):	1.48
MgO (%):	3.23	P2O5 (%):	0.25

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86036
 Coal zone: I
 Field sample no.: 10133 Composite sample no.: 97
 Lab sample no.: 19459
 True sample thickness: 1.902 meters Drill core recovery (%): 97.04 %
 Coal/Rock: 1.902 / 0.000 meters

----- RAW HEAD ANALYSIS (HD1) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 11.71 19.28 16.95 43.28
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 6.11 2.67

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.34	
Ash (%):	10.13	10.16
Volatile matter (%):	7.26	7.28
Fixed carbon (%):	82.27	82.56
Total sulphur (%):	0.46	0.46
Combustible sulphur (%):	0.20	
Net calorific value (cal/g):	7525.00	7551.00
Gross calorific value (cal/g):	7526.00	7552.00
Volatile matter (dmmf %):	7.10	
Hardgrove index:	47.00	
Specific gravity:	1.41	
Carbon dioxide (%):	1.77	
Phosphorous in coal (%):	0.174	
Chlorine in coal (ppm):	880.00	
Forms of Sulphur (%):	PYRITE 04.00	SULPHATE 01.00 ORGANIC 95.00

----- ULTIMATE ANALYSIS (UL1) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	81.60	81.88
Hydrogen (%):	2.76	2.77
Nitrogen (%):	1.00	1.00
Oxygen (%):	3.69	3.73

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1246.00	1198.00
Softening temperature (°C):	1254.00	1206.00
Hemispherical temperature (°C):	1262.00	1214.00
Final temperature (°C):	1294.00	1291.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	43.30	TiO2 (%):	1.13
Al2O3 (%):	17.90	Na2O (%):	1.48
Fe2O3 (%):	5.75	K2O (%):	0.70
CaO (%):	12.34	SO3 (%):	6.53
MgO (%):	4.80	P2O5 (%):	3.94

agri coal division ash fusion proj KPN BLK LR DS DDH86036
=====

sample id 00095
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 data analysed 20/01/87

oxidizing atmosphere		reducing atmosphere	
*****		*****	
initial temp.(C)	1281.0	initial temp.(C)	1230.0
softening temp.(C)	1294.0	softening temp.(C)	1260.0
hemispherical temp.(C)	1308.0	hemispherical temp.(C)	1270.0
fluid temp.(C)	1356.0	fluid temp.(C)	1349.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

agri coal division ash mineral proj KPN BLK LR DS DDH86036
=====

sample id 00095
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 data analysed 20/01/87

silicon dioxide %	(sio2)	64.25
aluminium oxide %	(al2o3)	17.23
ferric oxide %	(fe2o3)	2.96
titanium dioxide %	(tio2)	1.00
phosphorous pentoxide %	(p2o5)	0.43
calcium oxide %	(cao)	4.40
magnesium oxide %	(mgo)	2.88
sulphur trioxide %	(so3)	2.45
sodium oxide %	(na2o)	1.57
potassium oxide %	(k2o)	0.99

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86036
=====

sample id 00095
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/01/87

oxidizing atmosphere *****		reducing atmosphere *****	
initial temp.(C)	1292.0	initial temp.(C)	1257.0
softening temp.(C)	1319.0	softening temp.(C)	1286.0
hemispherical temp.(C)	1345.0	hemispherical temp.(C)	1316.0
fluid temp.(C)	1442.0	fluid temp.(C)	1440.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86036
=====

sample id 00095
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/01/87

silicon dioxide %	(sio2)	67.14
aluminium oxide %	(al2o3)	18.52
ferric oxide %	(fe2o3)	2.44
titanium dioxide %	(tio2)	0.81
phosphorous pentoxide %	(p2o5)	0.71
calcium oxide %	(cao)	3.02
magnesium oxide %	(mgo)	2.24
sulphur trioxide %	(so3)	1.00
sodium oxide %	(na2o)	1.22
potassium oxide %	(k2o)	0.84

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86036
=====

sample id 00096
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/01/87

oxidizing atmosphere

initial temp.(C) 1230.0
softening temp.(C) 1434.0
hemispherical temp.(C) 1472.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1187.0
softening temp.(C) 1375.0
hemispherical temp.(C) 1423.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86036
=====

sample id 00096
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/01/87

silicon dioxide %	(sio2)	57.19
aluminium oxide %	(al2o3)	25.34
ferric oxide %	(fe2o3)	4.76
titanium dioxide %	(tio2)	1.18
phosphorous pentoxide %	(p2o5)	0.16
calcium oxide %	(cao)	1.94
magnesium oxide %	(mgo)	2.75
sulphur trioxide %	(so3)	1.06
sodium oxide %	(na2o)	2.17
potassium oxide %	(k2o)	1.23

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86036
=====

sample id 00096
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/01/87

oxidizing atmosphere

initial temp.(C) 1316.0
softening temp.(C) 1472.0
hemispherical temp.(C) 1472.0
fluid temp.(C) 1472.0

reducing atmosphere

initial temp.(C) 1273.0
softening temp.(C) 1450.0
hemispherical temp.(C) 1470.0
fluid temp.(C) 1472.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86036
=====

sample id 00096
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/01/87

silicon dioxide %	(sio2)	61.18
aluminium oxide %	(al2o3)	26.22
ferric oxide %	(fe2o3)	2.77
titanium dioxide %	(tio2)	1.05
phosphorous pentoxide %	(p2o5)	0.51
calcium oxide %	(cao)	1.68
magnesium oxide %	(mgo)	1.91
sulphur trioxide %	(so3)	1.73
sodium oxide %	(na2o)	1.75
potassium oxide %	(k2o)	0.96

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86036
=====

sample id 00097
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/01/87

oxidizing atmosphere

initial temp.(C) 1294.0
softening temp.(C) 1300.0
hemispherical temp.(C) 1308.0
fluid temp.(C) 1354.0

reducing atmosphere

initial temp.(C) 1278.0
softening temp.(C) 1278.0
hemispherical temp.(C) 1286.0
fluid temp.(C) 1332.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86036
=====

sample id 00097
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/01/87

silicon dioxide %	(sio2)	46.00
aluminium oxide %	(al2o3)	23.41
ferric oxide %	(fe2o3)	4.16
titanium dioxide %	(tio2)	1.29
phosphorous pentoxide %	(p2o5)	1.07
calcium oxide %	(cao)	10.97
magnesium oxide %	(mgo)	3.62
sulphur trioxide %	(so3)	4.21
sodium oxide %	(na2o)	1.98
potassium oxide %	(k2o)	0.94

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86036
=====

sample id 00097
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/01/87

oxidizing atmosphere

initial temp.(C) 1302.0
softening temp.(C) 1307.0
hemispherical temp.(C) 1313.0
fluid temp.(C) 1394.0

reducing atmosphere

initial temp.(C) 1299.0
softening temp.(C) 1303.0
hemispherical temp.(C) 1310.0
fluid temp.(C) 1391.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86036
=====

sample id 00097
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/01/87

silicon dioxide %	(sio2)	51.38
aluminium oxide %	(al2o3)	24.57
ferric oxide %	(fe2o3)	2.65
titanium dioxide %	(tio2)	0.59
phosphorous pentoxide %	(p2o5)	4.26
calcium oxide %	(cao)	8.29
magnesium oxide %	(mgo)	2.45
sulphur trioxide %	(so3)	1.95
sodium oxide %	(na2o)	2.10
potassium oxide %	(k2o)	1.02

90.0 <= total <= 100.0

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- RAW COAL ANALYSIS REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86036
 Coal zone: H
 Field sample no.: 10136 - 10137 Composite sample no.: 98
 Lab sample no.: 29459
 True sample thickness: 2.172 meters Drill core recovery (%): 95.63 %
 Coal/Rock: 1.539 / 0.633 meters

----- RAW HEAD ANALYSIS (HDI) -----

Standard: ASTM
 Size analysis: SZ1
 Fraction size (mm): 35.00 X 25.00 25.00 X 12.00 12.00 X 6.00 6.00 X 0.50
 Relative weight (%): 22.25 22.62 12.78 26.44
 Fraction size (mm): 0.50 X 0.15 0.15 X 0.00
 Relative weight (%): 9.47 6.44

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.66	
Ash (%):	46.37	46.68
Volatile matter (%):	10.24	10.31
Fixed carbon (%):	42.73	43.01
Total sulphur (%):	0.33	0.33
Combustible sulphur (%):	0.06	
Net calorific value (cal/g):	3853.00	3878.00
Gross calorific value (cal/g):	3853.00	3878.00
Volatile matter (dmmf %):	13.10	
Hardgrove index:	68.00	
Specific gravity:	1.76	
Carbon dioxide (%):	5.58	
Phosphorous in coal (%):	0.180	
Chlorine in coal (ppm):	3040.00	
Forms of Sulphur (%):	PYRITE 15.00	SULPHATE 03.00 ORGANIC 82.00

----- ULTIMATE ANALYSIS (ULI) -----

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Carbon (%):	46.82	47.13
Hydrogen (%):	1.76	1.77
Nitrogen (%):	0.55	0.55
Oxygen (%):	3.51	3.54

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1225.00	1176.00
Softening temperature (°C):	1238.00	1192.00
Hemispherical temperature (°C):	1246.00	1203.00
Final temperature (°C):	1316.00	1314.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	61.20	TiO2 (%):	0.66
Al2O3 (%):	14.74	Na2O (%):	1.44
Fe2O3 (%):	7.18	K2O (%):	0.85
CaO (%):	6.07	SO3 (%):	1.47
MgO (%):	4.56	P2O5 (%):	0.89

gcri coal division ash fusion proj KPN BLK LR DS DDH86036
=====

sample id 00098
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF3 date analysed 20/01/87

oxidizing atmosphere		reducing atmosphere	
oooooooooooooooooooo		oooooooooooooooooooo	
initial temp.(C)	1246.0	initial temp.(C)	1208.0
softening temp.(C)	1273.0	softening temp.(C)	1235.0
hemispherical temp.(C)	1289.0	hemispherical temp.(C)	1251.0
fluid temp.(C)	1364.0	fluid temp.(C)	1354.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86036
=====

sample id 00098
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM3 date analysed 20/01/87

silicon dioxide %	(sio2)	55.01
aluminium oxide %	(al2o3)	20.81
ferric oxide %	(fe2o3)	4.30
titanium dioxide %	(tio2)	1.69
phosphorous pentoxide %	(p2o5)	0.88
calcium oxide %	(cao)	5.72
magnesium oxide %	(mgo)	3.35
sulphur trioxide %	(so3)	3.24
sodium oxide %	(na2o)	1.90
potassium oxide %	(k2o)	0.85

90.0 <= total <= 100.0

gcri coal division ash fusion proj KPN BLK LR DS DDH86036
=====

sample id 00098
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AF4 date analysed 20/01/87

oxidizing atmosphere

initial temp.(C) 1316.0
softening temp.(C) 1337.0
hemispherical temp.(C) 1375.0
fluid temp.(C) 1448.0

reducing atmosphere

initial temp.(C) 1251.0
softening temp.(C) 1289.0
hemispherical temp.(C) 1327.0
fluid temp.(C) 1441.0

normal ranges all temps.
1000.0 >= values <= 1500.0
oxidation temps >= reduction temps

gcri coal division ash mineral proj KPN BLK LR DS DDH86036
=====

sample id 00098
sample product id SP1 data type (real,boro,aver,calc) REAL
split sample id AM4 date analysed 20/01/87

silicon dioxide %	(sio2)	57.74
aluminium oxide %	(al2o3)	23.44
ferric oxide %	(fe2o3)	3.93
titanium dioxide %	(tio2)	1.42
phosphorous pentoxide %	(p2o5)	1.64
calcium oxide %	(cao)	4.37
magnesium oxide %	(mgo)	2.87
sulphur trioxide %	(so3)	1.72
sodium oxide %	(na2o)	1.69
potassium oxide %	(k2o)	0.75

90.0 <= total <= 100.0

KPNLRDDH86037

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH86037

DATE - 04/03/87

- HISTORY -

START DATE - 30/09/86

END DATE - 01/10/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - MACLEOD

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1641.62

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6342290.00

EASTING - 506750.37

LATITUDE - 571332

LONGITUDE - 1285318

- ORIENTATION -

LENGTH - 160.63

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 7.62

AQUIFER DEPTHS (M) - 0.00

0.00

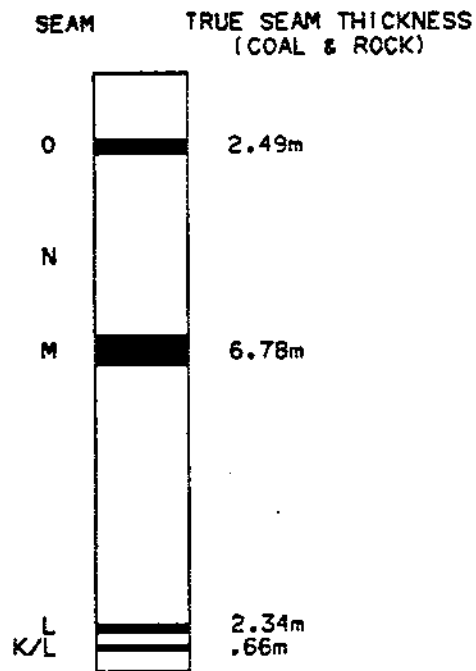
LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

02/APR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
 SIMPLE SAMPLE SUMMARY
 TRUE THICKNESS
 KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL - ROCK
DDH86037		10139	16.78	17.48	100.00		0.692			0.000- 0.692
	D	10140	17.48	20.03	83.92	1.351	0.745	0.403		1.754- 0.745
		10141	20.03	20.33	100.00		0.291			0.000- 0.291
		10142	70.46	70.98	100.00		0.516			0.000- 0.516
	M	10143	70.98	73.12	85.05	0.473	1.298	0.236	0.079	0.709- 1.377
	M	10144	73.12	75.57	88.98	1.536	0.489	0.246		1.782- 0.489
	M	10145	75.57	78.44	94.43	1.062	1.234	0.129		1.191- 1.234
		10146	78.44	80.04	100.00		1.207			0.000- 1.207
		10147	147.78	148.02	100.00		0.227			0.000- 0.227
	L	10148	148.02	150.48	86.99	1.306	0.733	0.305		1.611- 0.733
		10149	150.48	151.96	100.00		1.423			0.000- 1.423
	K/L	10150	153.27	153.95	100.00	0.661				0.661- 0.000



NOTE:

SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm ANTHRACITE.

SCALE 1:2000

FIGURE

MOUNT KLAPPAN ANTHRACITE PROJECT

1986 DIAMOND DRILL HOLES
DDH86037

GULF CANADA CORPORATION
11/03/87
KLAP: (205057)870063037.LOG



KPNLRDDH86038

----- GULF CANADA CORPORATION -----

- DATA SOURCE SUMMARY -

DATA SOURCE - KPnlRDDH86038

DATE - 04/03/87

- HISTORY -

START DATE - 30/09/86

END DATE - 02/10/86

CONTRACTOR - J.T. THOMAS

GEOLOGIST - BARKER

OPERATOR - G.C.C.

SURVEYOR - TRONNES

REMARKS - COAL LOGGED BY BRAD VANDENBUSSCHE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1388.95

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6346177.00

EASTING - 505424.75

LATITUDE - 571538

LONGITUDE - 1285436

- ORIENTATION -

LENGTH - 122.53

INCLINATION - 90.0

AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ - N

CASING DEPTH (M) - 24.99

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

*** NOTE *** 0 INDICATES NO VALUE

Mount Klappan
Project 1986
Lost - Fox Area
Confidential Analysis
Drill Hole Data

MOUNT KLAPPAN
PROJECT
1986
LOST - FOX AREA
DRILL HOLE DATA

723

GULF CANADA CORPORATION - COAL DIVISION

MAR 30/87

WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRDDH86004 SEAM - K

SAMPLE ID - 1

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		35.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 61.01		ASH % - 22.58		CUM. C.V.		CUM. MOIST		
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI	C.V.	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	2.06	2.64	2.06	2.64	97.94	22.59											0.80	0.80
1.45	10.98	8.51	13.04	7.58	86.96	24.37											0.68	0.70
1.50	30.89	13.06	43.93	11.43	56.07	30.60											0.73	0.72
1.55	13.81	17.38	57.74	12.86	42.26	34.93											0.65	0.70
1.60	11.19	20.86	68.93	14.16	31.07	39.99											0.81	0.72
1.70	9.73	26.87	78.66	15.73	21.34	45.98											0.75	0.72
1.80	6.38	31.60	85.04	16.92	14.96	52.11											0.92	0.74
2.00	9.31	46.35	94.35	19.82	5.65	61.59											0.84	0.75
2.60	5.65	61.59	100.00	22.18													0.68	0.75

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		6.00 X 0.50		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 30.88		ASH % - 14.96		CUM. C.V.		CUM. MOIST		
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI	C.V.	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	18.96	1.50	18.96	1.50	81.04	16.52											0.73	0.73
1.45	27.82	6.49	46.78	4.47	53.22	21.76											0.73	0.73
1.50	19.17	11.44	65.95	6.49	34.05	27.57											0.70	0.72
1.55	12.04	15.12	77.99	7.83	22.01	34.38											0.81	0.73
1.60	5.50	18.54	83.49	8.53	16.51	39.65											1.10	0.76
1.70	6.83	23.08	90.32	9.63	9.68	51.35											1.16	0.79
1.80	3.23	31.00	93.55	10.37	6.45	61.54											1.16	0.80
2.00	2.25	43.61	95.80	11.15	4.20	71.14											1.31	0.81
2.60	4.20	71.14	100.00	13.67													1.05	0.82

CONFIDENTIAL

2

GULF CANADA CORPORATION - COAL DIVISION

MAR 30/87

WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRDDH86004 SEAM - K

SAMPLE ID - 1

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % -				5.30 ASH % - 15.01					
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V. CUM.		CUM. C.V. CUM.		CUM. CUM.			
SG-TME	WT% ASH%	WT% ASH%	WT% ASH%	WT% ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	15.94 2.96	15.94 2.96	84.06 17.90									0.88	0.88
1.45	26.09 3.66	42.03 3.39	57.97 24.31									0.95	0.92
1.50	14.92 6.33	56.95 4.16	43.05 30.54									1.12	0.97
1.55	10.04 10.88	66.99 5.17	33.01 36.52									1.40	1.04
1.60	3.28 13.10	70.27 5.54	29.73 39.10									1.57	1.06
1.70	9.73 16.61	80.00 6.89	20.00 50.05									1.89	1.16
1.80	6.84 23.83	86.84 8.22	13.16 63.67									1.72	1.21
2.00	3.95 36.22	90.79 9.44	9.21 75.45									1.58	1.22
2.60	9.21 75.45	100.00 15.52										1.22	1.22

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % -				2.81 ASH % - 24.87					
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V. CUM.		CUM. C.V. CUM.		CUM. CUM.			
SG-TME	WT% ASH%	WT% ASH%	WT% ASH%	WT% ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	**** 24.87	100.00 24.87	25.49 25.49	0.47 0.47	0.47	7.84	7.84	0.74	0.74				

MAR 30/87 WASHABILITY REPORT 2

SAMPLE ID - 1

WASHABILITY ID - WA1

MAR 30/87

WASHABILITY REPORT 2

PAGE -

GULF CANADA CORPORATION - COAL DIVISION

GULF CANADA CORPORATION - COAL DIVISION

MAR 30/87

WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRDDH86004 SEAM - K

SAMPLE ID - 2

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 76.12				ASH % - 21.90						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	5.58	3.48	5.58	3.48	94.42	23.77							0.32	0.32
1.45	18.50	8.25	24.08	7.14	75.92	27.55							0.26	0.27
1.50	29.14	12.33	53.22	9.98	46.78	37.03							0.30	0.29
1.55	13.63	17.02	66.85	11.42	33.15	45.26							0.27	0.28
1.60	7.02	21.11	73.87	12.34	26.13	51.75							0.36	0.29
1.70	4.06	28.71	77.93	13.19	22.07	55.99							0.38	0.30
1.80	3.36	37.86	81.29	14.21	18.71	59.24							0.50	0.30
2.00	6.03	41.92	87.32	16.13	12.68	67.48							0.44	0.31
2.60	12.68	67.48	100.00	22.64									0.22	0.30

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 21.29				ASH % - 14.65						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	33.56	1.69	33.56	1.69	66.44	21.53							0.32	0.32
1.45	27.21	6.71	60.77	3.94	39.23	31.80							0.34	0.33
1.50	15.55	11.68	76.32	5.52	23.68	45.02							0.40	0.34
1.55	6.46	15.50	82.78	6.29	17.22	56.09							0.54	0.36
1.60	2.74	19.14	85.52	6.71	14.48	63.08							0.69	0.37
1.70	1.81	26.01	87.33	7.11	12.67	68.38							0.87	0.38
1.80	1.35	31.81	88.68	7.48	11.32	72.74							1.04	0.39
2.00	1.67	39.17	90.35	8.07	9.65	78.55							1.40	0.41
2.60	9.65	78.55	100.00	14.87									0.83	0.45

GULF CANADA CORPORATION - COAL DIVISION

MAR 30/87

WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPMLRDDH86004 SEAM - K

SAMPLE ID - 2

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)	0.50 X 0.15		ELEMENTAL		CUM. FLOATS	CUM. SINKS	RELATIVE WEIGHT % -			1.76 ASH % - 18.48					
	WT%	ASH%	WT%	ASH%			CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	VOL.	VOL.	MOIST
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	18.37	2.17	18.37	2.17	81.63	21.68								0.62	0.62
1.45	32.39	3.95	50.76	3.31	49.24	33.34								0.82	0.75
1.50	9.47	7.71	60.23	4.00	39.77	39.44								0.83	0.76
1.55	9.85	10.63	70.08	4.93	29.92	48.93								0.97	0.79
1.60	5.49	14.67	75.57	5.64	24.43	56.62								1.28	0.83
1.70	4.55	19.50	80.12	6.43	19.88	65.12								1.84	0.88
1.80	2.84	25.71	82.96	7.09	17.04	71.69								1.85	0.92
2.00	1.89	36.33	84.85	7.74	15.15	76.10								1.87	0.94
2.60	15.15	76.10	100.00	18.09										1.00	0.95

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)	0.15 X 0.00		ELEMENTAL		CUM. FLOATS	CUM. SINKS	RELATIVE WEIGHT % -			0.83 ASH % - 28.46					
	WT%	ASH%	WT%	ASH%			CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	VOL.	VOL.	MOIST
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	28.46	100.00	28.46			23.70	23.70	0.47	0.47	0.47	8.66	8.66	1.06	1.06

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

FRACTION SIZE(MM)		35.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -		57.15 ASH % - 57.28					
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.42	6.27	0.42	6.27	99.58	56.80										0.72	0.72
1.45	2.71	10.19	3.13	9.66	96.87	58.10										0.67	0.68
1.50	5.16	15.15	8.29	13.08	91.71	60.52										0.64	0.65
1.55	10.23	20.55	18.52	17.21	81.48	65.54										0.53	0.59
1.60	7.29	24.92	25.81	19.38	74.19	69.53										0.72	0.62
1.70	11.84	29.64	37.65	22.61	62.35	77.11										0.65	0.63
1.80	3.91	39.11	41.56	24.16	58.44	79.65										0.78	0.65
2.00	4.70	50.82	46.26	26.87	53.74	82.17										0.86	0.67
2.60	53.74	82.17	100.00	56.59												0.61	0.64

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

FRACTION SIZE(MM)		6.00 X 0.50		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -		30.61 ASH % - 48.92					
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	6.65	2.41	6.65	2.41	93.35	51.25										0.71	0.71
1.45	7.72	7.05	14.37	4.90	85.63	55.24										0.76	0.74
1.50	7.81	11.85	22.18	7.35	77.82	59.59										0.91	0.80
1.55	6.71	17.13	28.89	9.62	71.11	63.60										0.67	0.77
1.60	5.30	21.26	34.19	11.43	65.81	67.01										0.92	0.79
1.70	8.54	27.54	42.73	14.65	57.27	72.89										1.08	0.85
1.80	6.15	33.54	48.88	17.02	51.12	77.63										1.20	0.89
2.00	7.00	45.21	55.88	20.55	44.12	82.77										1.93	1.02
2.60	44.12	82.77	100.00	48.00												1.91	1.41

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

FRACTION	SIZE(MM)		0.50 X 0.15		CUM.	SINKS	RELATIVE WEIGHT % - 7.34 ASH % - 34.08				CUM.	CUM.	CUM.		
	ELEMENTAL		CUM. FLOATS				CUM.	C.V.	CUM.	S				S	VOL.
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
1.40	9.21	1.85	9.21	1.85	90.79	36.50								1.02	1.02
1.45	16.02	4.74	25.23	3.69	74.77	43.30								1.23	1.15
1.50	9.15	7.98	34.38	4.83	65.62	48.23								1.32	1.20
1.55	6.19	11.57	40.57	5.86	59.43	52.04								1.60	1.26
1.60	5.25	15.07	45.82	6.91	54.18	55.63								1.97	1.34
1.70	9.21	19.95	55.03	9.09	44.97	62.93								1.79	1.42
1.80	6.70	26.02	61.73	10.93	38.27	69.40								1.82	1.46
2.00	8.76	36.57	70.49	14.12	29.51	79.14								1.92	1.52
2.60	29.51	79.14	100.00	33.31										1.92	1.64

----- ANALYSIS TYPE - FROTH -----

FRACTION	SIZE(MM)		0.15 X 0.00		CUM.	SINKS	RELATIVE WEIGHT % - 4.90 ASH % - 31.41				CUM.	CUM.	CUM.	
	ELEMENTAL		CUM. FLOATS				CUM.	C.V.	CUM.	S				S
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
240.00	*****	31.41	100.00	31.41			22.87	22.87	0.54	0.54	7.61	7.61	1.02	1.02

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: K
 Field sample no.: 05409 - 05411 Composite sample no.: 200
 Lab sample no.: 29606

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.54
 Contribution (%): 30.96
 Total yield (%): 30.96

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.82	
Ash (%):	11.83	11.93
Volatile matter (%):	6.24	6.29
Fixed carbon (%):	81.11	81.78
Total sulphur (%):	0.59	0.59
Combustible sulphur (%):	0.54	
Gross calorific value (cal/g):	7,378.00	7,439.00
Volatile matter (dmmf %):	5.90	
Hardgrove index:	40.00	
Phosphorous in coal (%):	0.196	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,270.00	1,243.00
Softening temperature (°C):	1,305.00	1,268.00
Hemispherical temperature (°C):	1,321.00	1,289.00
Final temperature (°C):	1,431.00	1,429.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	49.78	TiO2 (%):	1.50
Al2O3 (%):	24.95	Na2O (%):	2.43
Fe2O3 (%):	4.45	K2O (%):	1.18
CaO (%):	6.05	SO3 (%):	1.10
MgO (%):	1.87	P2O5 (%):	3.80

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: K
 Field sample no.: 05409 - 05411 Composite sample no.: 300
 Lab sample no.: 29606

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.55
 Contribution (%): 17.29
 Total yield (%): 17.29

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.88	
Ash (%):	7.77	7.84
Volatile matter (%):	6.26	6.32
Fixed carbon (%):	85.09	85.84
Total sulphur (%):	0.61	0.62
Combustible sulphur (%):	0.58	
Gross calorific value (cal/g):	7,691.00	7,759.00
Volatile matter (dmmf %):	6.00	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.023	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,286.00	1,262.00
Softening temperature (°C):	1,332.00	1,328.00
Hemispherical temperature (°C):	1,391.00	1,375.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO ₂ (%):	54.72	TiO ₂ (%):	2.49
Al ₂ O ₃ (%):	26.46	Na ₂ O (%):	2.43
Fe ₂ O ₃ (%):	4.02	K ₂ O (%):	1.19
CaO (%):	3.95	SO ₃ (%):	0.88
MgO (%):	1.87	P ₂ O ₅ (%):	0.68

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 77.36				ASH % - 22.72						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.		
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MDIST	MOIST
1.40	7.43	3.20	7.43	3.20	92.57	25.34							0.63	0.63
1.45	37.78	7.36	45.21	6.68	54.79	37.73							0.68	0.67
1.50	12.00	12.10	57.21	7.81	42.79	44.92							0.72	0.68
1.55	9.25	16.43	66.46	9.01	33.54	52.78							0.82	0.70
1.60	4.77	20.19	71.23	9.76	28.77	58.18							0.81	0.71
1.70	1.63	27.37	72.86	10.16	27.14	60.03							0.83	0.71
1.80	3.37	39.30	76.23	11.44	23.77	62.97							0.90	0.72
2.00	1.63	40.60	77.86	12.05	22.14	64.62							0.63	0.72
2.60	22.14	64.62	100.00	23.69									0.78	0.73

----- ANALYSIS TYPE - FLDAT -----

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 19.39				ASH % - 18.69						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.		
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MDIST	MOIST
1.40	26.51	2.13	26.51	2.13	73.49	24.48							0.55	0.55
1.45	26.57	5.35	53.08	3.74	46.92	35.31							0.69	0.62
1.50	13.83	9.97	66.91	5.03	33.09	45.90							0.75	0.65
1.55	8.43	14.79	75.34	6.12	24.66	56.53							0.92	0.68
1.60	3.38	19.57	78.72	6.70	21.28	62.40							1.08	0.69
1.70	3.16	25.47	81.88	7.42	18.12	68.85							1.33	0.72
1.80	1.56	33.01	83.44	7.90	16.56	72.22							1.30	0.73
2.00	1.97	43.65	85.41	8.73	14.59	76.08							1.55	0.75
2.60	14.59	76.08	100.00	18.55									1.51	0.86

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

FRACTION SIZE(MM)		0.50 X		0.15		CUM. SINKS		RELATIVE WEIGHT % -		2.31 ASH % - 35.14		CUM. MOIST	
SG-TME	ELEMENTAL	WT%	ASH%	CUM. WT%	FLOATS	WT%	ASH%	CUM. FSI	C.V. (MJ/KG)	CUM. S	CUM. S	VOL. VOL.	MOIST
1.40	17.01	6.35		17.01	6.35	82.99	40.40						1.45
1.45	17.38	9.07		34.39	7.72	65.61	48.71						1.08
1.50	10.54	9.37		44.93	8.11	55.07	56.23						1.37
1.55	6.65	15.36		51.58	9.05	48.42	61.85						1.71
1.60	3.51	17.93		55.09	9.61	44.91	65.28						1.74
1.70	4.07	21.27		59.16	10.41	40.84	69.67						1.12
1.80	2.96	28.28		62.12	11.26	37.88	72.90						1.67
2.00	2.40	43.62		64.52	12.47	35.48	74.88						1.61
2.60	35.48	74.88		100.00	34.61								1.04

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X		0.00		CUM. SINKS		RELATIVE WEIGHT % -		0.94 ASH % - 41.97		CUM. MOIST	
SG-TME	ELEMENTAL	WT%	ASH%	CUM. WT%	FLOATS	WT%	ASH%	CUM. FSI	C.V. (MJ/KG)	CUM. S	CUM. S	VOL. VOL.	MOIST
240.00	*****	41.97		100.00	41.97			18.28	18.28	0.28	0.28	8.15	8.15

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 74.83				ASH % - 35.14					
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	MOIST	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	4.02	2.65	4.02	2.65	95.98	37.89						0.66	0.66
1.45	14.01	7.82	18.03	6.67	81.97	43.03						0.69	0.68
1.50	20.00	10.86	38.03	8.87	61.97	53.41						0.76	0.72
1.55	10.39	18.14	48.42	10.86	51.58	60.51						0.87	0.76
1.60	7.30	21.94	55.72	12.31	44.28	66.87						0.68	0.75
1.70	4.85	24.39	60.57	13.28	39.43	72.10						1.40	0.80
1.80	4.15	37.22	64.72	14.81	35.28	76.20						1.32	0.83
2.00	4.34	50.47	69.06	17.06	30.94	79.81						1.59	0.88
2.60	30.94	79.81	100.00	36.47								1.82	1.17

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 18.59				ASH % - 23.95					
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	MOIST	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	15.04	2.22	15.04	2.22	84.96	26.64						1.06	1.06
1.45	22.27	6.19	37.31	4.59	62.69	33.91						1.07	1.07
1.50	17.39	10.91	54.70	6.60	45.30	42.74						1.16	1.10
1.55	9.50	14.87	64.20	7.82	35.80	50.14						1.71	1.19
1.60	6.10	17.93	70.30	8.70	29.70	56.75						1.17	1.19
1.70	7.06	22.51	77.36	9.96	22.64	67.43						1.71	1.23
1.80	3.64	32.17	81.00	10.96	19.00	74.18						1.40	1.24
2.00	2.82	44.53	83.82	12.09	16.18	79.35						1.75	1.26
2.60	16.18	79.35	100.00	22.97								1.15	1.24

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ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % - 4.02				ASH % - 21.75						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	4.38	3.68	4.38	3.68	95.62	21.71							0.91	0.91
1.45	22.44	3.88	26.82	3.88	73.18	27.18							1.01	0.99
1.50	9.67	5.86	36.49	4.38	63.51	30.42							1.05	1.01
1.55	14.38	9.10	50.87	5.71	49.13	36.66							1.13	1.04
1.60	9.74	12.03	60.61	6.73	39.39	42.75							1.29	1.08
1.70	12.09	16.03	72.70	8.28	27.30	54.59							1.64	1.18
1.80	8.43	23.31	81.13	9.84	18.87	68.56							1.23	1.18
2.00	4.18	37.70	85.31	11.20	14.69	77.34							1.05	1.17
2.60	14.69	77.34	100.00	20.92									1.27	1.19

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % - 2.56				ASH % - 20.99						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	20.99	100.00	20.99									26.92	26.92
									0.40	0.40	6.56	6.56	1.38	1.38

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 53.54				ASH % - 10.73						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	25.61	6.02	25.61	6.02	74.39	13.53							0.53	0.53
1.45	37.85	6.49	63.46	6.30	36.54	20.82							0.67	0.61
1.50	15.71	11.46	79.17	7.32	20.83	27.89							0.86	0.66
1.55	5.87	16.18	85.04	7.94	14.96	32.48							0.82	0.67
1.60	4.70	22.70	89.74	8.71	10.26	36.96							1.03	0.69
1.70	3.42	23.73	93.16	9.26	6.84	43.58							0.66	0.69
1.80	0.22	23.81	93.38	9.29	6.62	44.23							0.94	0.69
2.00	2.68	37.58	96.06	10.08	3.94	48.76							0.64	0.69
2.60	3.94	48.76	100.00	11.61									0.58	0.69

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 37.20				ASH % - 10.83						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	27.02	2.79	27.02	2.79	72.98	13.18							0.61	0.61
1.45	38.61	5.42	65.63	4.34	34.37	21.90							0.81	0.73
1.50	13.83	9.84	79.46	5.29	20.54	30.02							0.92	0.76
1.55	6.33	13.81	85.79	5.92	14.21	37.24							1.06	0.78
1.60	2.95	16.89	88.74	6.29	11.26	42.57							1.25	0.80
1.70	2.86	22.32	91.60	6.79	8.40	49.47							1.47	0.82
1.80	1.29	29.96	92.89	7.11	7.11	53.01							1.29	0.83
2.00	1.55	39.55	94.44	7.64	5.56	56.76							1.25	0.83
2.60	5.56	56.76	100.00	10.37									1.09	0.85

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ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	0.50 X 0.15		CUM. FLOATS	CUM. SINKS	RELATIVE WEIGHT % - 5.65 ASH % - 13.08				CUM. MOIST					
		ELEMENTAL				CUM.	SINKS	CUM.	C.V.		CUM.	CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	31.50	4.62	31.50	4.62	68.50	16.24								0.84	0.84
1.45	18.88	5.76	50.38	5.05	49.62	20.22								0.91	0.87
1.50	17.07	7.41	67.45	5.65	32.55	26.94								0.98	0.90
1.55	9.87	11.77	77.32	6.43	22.68	33.55								1.12	0.92
1.60	4.80	14.01	82.12	6.87	17.88	38.79								1.39	0.95
1.70	6.16	17.49	88.28	7.61	11.72	49.99								1.79	1.01
1.80	2.58	25.89	90.86	8.13	9.14	56.79								1.03	1.01
2.00	1.63	35.86	92.49	8.62	7.51	61.33								1.01	1.01
2.60	7.51	61.33	100.00	12.58										1.65	1.06

ANALYSIS TYPE - FROTH

FRACTION	SIZE(MM)	0.15 X 0.00		CUM. FLOATS	CUM. SINKS	RELATIVE WEIGHT % - 3.61 ASH % - 16.02				CUM. MOIST					
		ELEMENTAL				CUM.	SINKS	CUM.	C.V.		CUM.	CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	16.02	100.00	16.02			28.95	28.95	0.45	0.45	7.02	7.02	1.18	1.18	

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: I
 Field sample no.: 05414 - 05415 Composite sample no.: 201
 Lab sample no.: 29606

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.44
 Contribution (%): 20.99
 Total yield (%): 20.99

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.73	
Ash (%):	6.04	6.08
Volatile matter (%):	5.50	5.54
Fixed carbon (%):	87.73	88.38
Total sulphur (%):	0.44	0.44
Combustible sulphur (%):	0.41	
Gross calorific value (cal/g):	7,825.00	7,883.00
Volatile matter (dmmf %):	5.30	
Hardgrove index:	31.00	
Phosphorous in coal (%):	0.046	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,294.00	1,235.00
Softening temperature (°C):	1,354.00	1,289.00
Hemispherical temperature (°C):	1,394.00	1,348.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	59.74	TiO2 (%):	1.09
Al2O3 (%):	23.82	Na2O (%):	2.27
Fe2O3 (%):	2.25	K2O (%):	1.02
CaO (%):	3.47	SO3 (%):	1.28
MgO (%):	1.64	P2O5 (%):	1.76

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: 1
 Field sample no.: 05414 - 05415 Composite sample no.: 201
 Lab sample no.: 29606

----- PRODUCT COAL ANALYSIS (SP5) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.52
 Contribution (%): 17.72
 Total yield (%): 17.72

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.94	
Ash (%):	12.04	12.15
Volatile matter (%):	6.14	6.20
Fixed carbon (%):	80.88	81.65
Total sulphur (%):	0.45	0.45
Combustible sulphur (%):	0.41	
Gross calorific value (cal/g):	7,309.00	7,378.00
Volatile matter (dmmf %):	5.90	
Hardgrove index:	40.00	
Phosphorous in coal (%):	0.035	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,308.00	1,241.00
Softening temperature (°C):	1,370.00	1,337.00
Hemispherical temperature (°C):	1,383.00	1,380.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	67.06	TiO2 (%):	0.82
Al2O3 (%):	19.66	Na2O (%):	1.83
Fe2O3 (%):	2.50	K2O (%):	0.97
CaO (%):	2.04	SO3 (%):	0.78
MgO (%):	1.86	P2O5 (%):	0.67

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: 1
 Field sample no.: 05416 Composite sample no.: 202
 Lab sample no.: 29553

----- PRODUCT COAL ANALYSIS (SP2) -----
 Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.45
 Contribution (%): 33.98
 Total yield (%): 33.98

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.85	
Ash (%):	6.03	6.08
Volatile matter (%):	5.75	5.80
Fixed carbon (%):	87.37	88.12
Total sulphur (%):	0.51	0.51
Combustible sulphur (%):	0.45	
Gross calorific value (cal/g):	7,873.00	7,940.00
Volatile matter (dmmf %):	5.50	
Hardgrove index:	38.00	
Phosphorous in coal (%):	0.212	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,268.00	1,235.00
Softening temperature (°C):	1,300.00	1,273.00
Hemispherical temperature (°C):	1,316.00	1,292.00
Final temperature (°C):	1,429.00	1,396.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	41.17	TiO2 (%):	1.78
Al2O3 (%):	28.64	Na2O (%):	2.67
Fe2O3 (%):	2.55	K2O (%):	1.02
CaO (%):	7.33	SO3 (%):	2.67
MgO (%):	1.45	P2O5 (%):	8.06

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A M S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: I
 Field sample no.: 05416 Composite sample no.: 202
 Lab sample no.: 29553

----- PRODUCT COAL ANALYSIS (SP5) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.82
 Contribution (%): 16.46
 Total yield (%): 16.46

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.99	
Ash (%):	15.95	16.11
Volatile matter (%):	7.65	7.73
Fixed carbon (%):	75.41	76.16
Total sulphur (%):	0.42	0.42
Combustible sulphur (%):	0.15	
Gross calorific value (cal/g):	6,881.00	6,950.00
Volatile matter (dmmf %):	7.70	
Hardgrove index:	43.00	
Phosphorous in coal (%):	0.195	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,276.00	1,238.00
Softening temperature (°C):	1,294.00	1,260.00
Hemispherical temperature (°C):	1,308.00	1,270.00
Final temperature (°C):	1,324.00	1,321.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO ₂ (%):	41.83	TiO ₂ (%):	1.23
Al ₂ O ₃ (%):	22.02	Na ₂ O (%):	2.23
Fe ₂ O ₃ (%):	6.08	K ₂ O (%):	0.99
CaO (%):	11.19	SO ₃ (%):	4.26
MgO (%):	5.02	P ₂ O ₅ (%):	2.80

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: 1
 Field sample no.: 05414 - 05416 Composite sample no.: 301
 Lab sample no.: 29606

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.68
 Contribution (%): 21.33
 Total yield (%): 21.33

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.95	
Ash (%):	7.24	7.31
Volatile matter (%):	6.53	6.59
Fixed carbon (%):	85.28	86.10
Total sulphur (%):	0.48	0.48
Combustible sulphur (%):	0.44	
Gross calorific value (cal/g):	7,708.00	7,782.00
Volatile matter (dmmf %):	6.40	
Hardgrove index:	40.00	
Phosphorous in coal (%):	0.115	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,294.00	1,251.00
Softening temperature (°C):	1,321.00	1,289.00
Hemispherical temperature (°C):	1,343.00	1,329.00
Final temperature (°C):	1,469.00	1,461.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	52.74	TiO2 (%):	1.64
Al2O3 (%):	25.95	Na2O (%):	2.11
Fe2O3 (%):	2.52	K2O (%):	1.05
CaO (%):	4.48	SO3 (%):	1.30
MgO (%):	2.11	P2O5 (%):	3.63

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86004 SEAM - H

SAMPLE ID - 8

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 64.25 ASH % - 32.11							
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	CUM. S	CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST
1.40	0.32	4.96	0.32	4.96	99.68	31.75										0.49	0.49
1.45	6.35	7.38	6.67	7.26	93.33	33.41										0.27	0.28
1.50	15.79	11.61	22.46	10.32	77.54	37.85										0.31	0.30
1.55	16.46	17.51	38.92	13.36	61.08	43.33										0.30	0.30
1.60	12.53	19.08	51.45	14.75	48.55	49.59										0.29	0.30
1.70	11.29	28.89	62.74	17.30	37.26	55.86										0.42	0.32
1.80	4.71	36.87	67.45	18.66	32.55	58.61										0.39	0.32
2.00	7.67	42.49	75.12	21.10	24.88	63.58										0.51	0.34
2.60	24.88	63.58	100.00	31.67												0.44	0.37

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

FRACTION SIZE(MM)		6.00 X 0.50		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 28.94 ASH % - 25.69							
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	CUM. S	CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST
1.40	3.64	2.45	3.64	2.45	96.36	26.15										0.59	0.59
1.45	27.15	6.29	30.79	5.84	69.21	33.94										0.30	0.33
1.50	19.68	10.86	50.47	7.80	49.53	43.11										0.40	0.36
1.55	10.45	16.00	60.92	9.20	39.08	50.35										0.52	0.39
1.60	6.63	19.93	67.55	10.26	32.45	56.57										0.74	0.42
1.70	7.05	25.44	74.60	11.69	25.40	65.21										0.92	0.47
1.80	3.38	34.08	77.98	12.66	22.02	69.99										1.28	0.50
2.00	3.90	43.46	81.88	14.13	18.12	75.70										1.83	0.57
2.60	18.12	75.70	100.00	25.28												0.85	0.62

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WASHABILITY ID - WA1

ANALYSIS TYPE - FLDAT

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % - 4.35				ASH % - 27.11						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	5.02	4.00	5.02	4.00	94.98	27.55							0.78	0.78
1.45	17.97	4.47	22.99	4.37	77.01	32.94							0.83	0.82
1.50	17.12	7.27	40.11	5.61	59.89	40.28							1.02	0.90
1.55	10.67	11.77	50.78	6.90	49.22	46.46							1.28	0.98
1.60	8.86	15.28	59.64	8.15	40.36	53.30							1.64	1.08
1.70	8.88	20.67	68.52	9.77	31.48	62.50							1.54	1.14
1.80	5.60	26.51	74.12	11.03	25.88	70.29							1.39	1.16
2.00	5.17	38.10	79.29	12.80	20.71	78.33							1.34	1.17
2.60	20.71	78.33	100.00	26.37									0.90	1.12

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % - 2.46				ASH % - 34.75						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	34.75	100.00	34.75									0.86	0.86

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: H
 Field sample no.: 05419 - 05420 Composite sample no.: 203
 Lab sample no.: 29606

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.53
 Contribution (%): 9.74
 Total yield (%): 9.74

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.81	
Ash (%):	11.14	11.23
Volatile matter (%):	6.56	6.61
Fixed carbon (%):	81.49	82.16
Total sulphur (%):	0.54	0.54
Combustible sulphur (%):	0.47	
Gross calorific value (cal/g):	7,428.00	7,489.00
Volatile matter (dmmf%):	6.30	
Hardgrove index:	46.00	
Phosphorous in coal (%):	0.229	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C):	1,276.00	1,230.00
Softening temperature(°C):	1,305.00	1,289.00
Hemispherical temperature(°C):	1,335.00	1,333.00
Final temperature(°C):	1,450.00	1,445.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	60.20	TiO2 (%):	2.14
Al2O3 (%):	20.07	Na2O (%):	1.92
Fe2O3 (%):	2.31	K2O (%):	0.99
CaO (%):	3.64	SO3 (%):	1.63
MgO (%):	1.84	P2O5 (%):	4.70

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86004
 Coal zone: H
 Field sample no.: 05419 - 05420 Composite sample no.: 303
 Lab sample no.: 29606

----- PRODUCT COAL ANALYSIS (SP3) -----

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.50
 Contribution (%): 7.86
 Total yield (%): 7.86
 Target Ash: 7.5 %

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.86	
Ash (%):	7.82	7.89
Volatile matter (%):	6.54	6.60
Fixed carbon (%):	84.78	85.51
Total sulphur (%):	0.58	0.59
Combustible sulphur (%):	0.56	
Gross calorific value (cal/g):	7,662.00	7,729.00
Volatile matter (dmmf %):	6.30	
Hardgrove index:	43.00	
Phosphorous in coal (%):	0.064	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,289.00	1,257.00
Softening temperature (°C):	1,316.00	1,314.00
Hemispherical temperature (°C):	1,362.00	1,360.00
Final temperature (°C):	1,469.00	1,460.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	59.32	TiO2 (%):	2.14
Al2O3 (%):	23.95	Na2O (%):	2.16
Fe2O3 (%):	2.61	K2O (%):	1.19
CaO (%):	3.78	SO3 (%):	0.60
MgO (%):	1.72	P2O5 (%):	1.86

GULF CANADA CORPORATION - COAL DIVISION

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SAMPLE ID - 9

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 71.09				ASH % - 64.15						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.24	8.04	0.24	8.04	99.76	64.95							0.31	0.31
1.45	0.80	6.59	1.04	6.92	98.96	65.42							0.43	0.40
1.50	1.67	11.76	2.71	9.90	97.29	66.34							0.42	0.41
1.55	5.41	17.68	8.12	15.08	91.88	69.21							0.46	0.44
1.60	5.56	22.68	13.68	18.17	86.32	72.21							0.36	0.41
1.70	5.69	28.82	19.37	21.30	80.63	75.27							0.48	0.43
1.80	7.81	29.43	27.18	23.64	72.82	80.18							0.75	0.52
2.00	6.64	46.04	33.82	28.03	66.18	83.61							1.31	0.68
2.60	66.18	83.61	100.00	64.81									0.73	0.71

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 22.58				ASH % - 37.48						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	7.07	2.69	7.07	2.69	92.93	39.73							0.75	0.75
1.45	12.40	5.78	19.47	4.66	80.53	44.96							0.57	0.64
1.50	10.88	11.27	30.35	7.03	69.65	50.22							0.61	0.63
1.55	8.77	16.33	39.12	9.11	60.88	55.10							0.44	0.58
1.60	5.80	20.77	44.92	10.62	55.08	58.72							0.50	0.57
1.70	3.01	24.86	47.93	11.51	52.07	60.68							0.92	0.60
1.80	6.62	27.93	54.55	13.51	45.45	65.45							1.38	0.69
2.00	15.96	47.68	70.51	21.24	29.49	75.06							1.98	0.98
2.60	29.49	75.06	100.00	37.11									1.34	1.09

GULF CANADA CORPORATION - COAL DIVISION

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SAMPLE ID - 9

WASHABILITY ID - WA1

ANALYSIS TYPE - FLDAT															
FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -		4.13 ASH % - 32.27							
ELEMENTAL		CUM. FLDATS		CUM. SINKS		CUM. C.V. CUM.		CUM. CUM.							
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	12.26	3.20	12.26	3.20	87.74	35.13								0.57	0.57
1.45	9.85	4.28	22.11	3.68	77.89	39.04								0.66	0.61
1.50	12.80	7.24	34.91	4.99	65.09	45.29								0.98	0.75
1.55	4.03	11.72	38.94	5.68	61.06	47.51								1.17	0.79
1.60	6.62	14.05	45.56	6.90	54.44	51.57								1.86	0.95
1.70	8.32	18.91	53.88	8.75	46.12	57.47								1.26	0.99
1.80	8.34	25.77	62.22	11.03	37.78	64.46								1.09	1.01
2.00	11.10	40.53	73.32	15.50	26.68	74.42								1.53	1.09
2.60	26.68	74.42	100.00	31.22										1.15	1.10

ANALYSIS TYPE - FROTH															
FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -		2.20 ASH % - 32.42							
ELEMENTAL		CUM. FLDATS		CUM. SINKS		CUM. C.V. CUM.		CUM. CUM.							
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	32.42	100.00	32.42			22.40	22.40	0.54	0.54	0.54	7.47	7.47	0.88	0.88

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DATA SOURCE - KPNLRDDH86005 SEAM - H

SAMPLE ID - 10

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 60.80				ASH % - 33.11						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	2.24	2.60	2.24	2.60	97.76	33.32							0.65	0.65
1.45	12.80	7.99	15.04	7.19	84.96	37.13							0.71	0.70
1.50	17.66	12.19	32.70	9.89	67.30	43.68							0.88	0.80
1.55	14.57	17.57	47.27	12.26	52.73	50.90							0.55	0.72
1.60	2.82	21.95	50.09	12.80	49.91	52.53							0.70	0.72
1.70	10.47	27.08	60.56	15.27	39.44	59.29							0.89	0.75
1.80	10.61	36.51	71.17	18.44	28.83	67.67							0.80	0.76
2.00	5.14	43.33	76.31	20.11	23.69	72.95							1.15	0.78
2.60	23.69	72.95	100.00	32.63									1.10	0.86

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 31.32				ASH % - 15.24						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	14.40	2.15	14.40	2.15	85.60	16.90							0.90	0.90
1.45	26.71	6.29	41.11	4.84	58.89	21.72							1.05	1.00
1.50	16.60	9.85	57.71	6.28	42.29	26.38							1.20	1.06
1.55	14.57	14.00	72.28	7.84	27.72	32.88							0.90	1.02
1.60	6.71	17.51	78.99	8.66	21.01	37.79							1.25	1.04
1.70	6.90	22.82	85.89	9.80	14.11	45.11							1.02	1.04
1.80	3.05	31.81	88.94	10.55	11.06	48.78							1.99	1.07
2.00	2.99	42.24	91.93	11.58	8.07	51.20							1.20	1.08
2.60	8.07	51.20	100.00	14.78									1.66	1.13

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DATA SOURCE - KPnlRDDH86005 SEAM - H

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WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -				5.34 ASH % - 19.82				
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	MOIST	CUM.	
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
1.40	5.87	3.03	5.87	3.03	94.13	19.98							1.27	1.27
1.45	20.14	3.97	26.01	3.76	73.99	24.34							1.43	1.39
1.50	15.28	7.05	41.29	4.98	58.71	28.85							1.97	1.61
1.55	16.70	10.33	57.99	6.52	42.01	36.21							1.64	1.62
1.60	8.20	13.26	66.19	7.35	33.81	41.77							1.11	1.55
1.70	11.54	16.87	77.73	8.77	22.27	54.67							1.43	1.54
1.80	4.76	24.23	82.49	9.66	17.51	62.95							1.73	1.55
2.00	5.06	34.16	87.55	11.07	12.45	74.65							1.15	1.52
2.60	12.45	74.65	100.00	18.99									1.51	1.52

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -				2.54 ASH % - 24.09				
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	MOIST	CUM.	
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
240.00	*****	24.09	100.00	24.09									0.63	0.63

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86005
 Coal zone: H
 Field sample no.: 04477 - 04478 Composite sample no.: 204
 Lab sample no.: 29606

----- PRODUCT COAL ANALYSIS (SP4) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.53
 Contribution (%): 10.80
 Total yield (%): 10.80

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.78	
Ash (%):	11.66	11.75
Volatile matter (%):	6.49	6.54
Fixed carbon (%):	81.07	81.71
Total sulphur (%):	0.49	0.49
Combustible sulphur (%):	0.43	
Gross calorific value (cal/g):	7,378.00	7,436.00
Volatile matter (dmmf %):	6.30	
Hardgrove index:	44.00	
Phosphorous in coal (%):	0.121	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,268.00	1,182.00
Softening temperature (°C):	1,284.00	1,200.00
Hemispherical temperature (°C):	1,297.00	1,268.00
Final temperature (°C):	1,413.00	1,407.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	58.20	TiO2 (%):	1.26
Al2O3 (%):	20.41	Na2O (%):	2.00
Fe2O3 (%):	4.58	K2O (%):	0.83
CaO (%):	4.48	SO3 (%):	1.36
MgO (%):	1.92	P2O5 (%):	2.37

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86005
 Coal zone: H
 Field sample no.: 04477 - 04478 Composite sample no.: 304
 Lab sample no.: 29606

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.53
 Contribution (%): 13.60
 Total yield (%): 13.60

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.86	
Ash (%):	7.75	7.82
Volatile matter (%):	6.60	6.66
Fixed carbon (%):	84.79	85.52
Total sulphur (%):	0.51	0.51
Combustible sulphur (%):	0.48	
Gross calorific value (cal/g):	7,701.00	7,768.00
Volatile matter (dmmf %):	6.40	
Hardgrove index:	42.00	
Phosphorous in coal (%):	0.055	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,273.00	1,214.00
Softening temperature (°C):	1,327.00	1,284.00
Hemispherical temperature (°C):	1,364.00	1,329.00
Final temperature (°C):	1,466.00	1,461.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	59.50	TiO2 (%):	1.78
Al2O3 (%):	23.06	Na2O (%):	2.08
Fe2O3 (%):	3.88	K2O (%):	0.83
CaO (%):	3.39	SO3 (%):	0.99
MgO (%):	1.91	P2O5 (%):	1.64

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DATA SOURCE - KPNLRDDH86006 SEAM - H

SAMPLE ID - 11

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 63.85				ASH % - 48.49						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.18	3.88	0.18	3.88	99.82	49.52							0.48	0.48
1.45	0.67	7.65	0.85	6.85	99.15	49.80							0.55	0.54
1.50	4.44	13.25	5.29	12.22	94.71	51.51							0.51	0.51
1.55	12.88	19.30	18.17	17.24	81.83	56.58							0.80	0.72
1.60	3.71	22.43	21.88	18.12	78.12	58.20							1.00	0.76
1.70	15.40	27.42	37.28	21.96	62.72	65.76							0.91	0.82
1.80	11.42	38.15	48.70	25.76	51.30	71.91							1.07	0.88
2.00	15.00	48.70	63.70	31.16	36.30	81.50							1.23	0.96
2.60	36.30	81.50	100.00	49.43									1.11	1.02

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 26.27				ASH % - 28.60						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	10.97	2.10	10.97	2.10	89.03	32.87							0.55	0.55
1.45	7.96	4.75	18.93	3.21	81.07	35.63							0.66	0.60
1.50	9.64	10.37	28.57	5.63	71.43	39.04							1.05	0.75
1.55	11.71	15.07	40.28	8.37	59.72	43.75							0.88	0.79
1.60	8.45	18.52	48.73	10.13	51.27	47.90							1.25	0.87
1.70	14.90	21.82	63.63	12.87	36.37	58.59							1.09	0.92
1.80	7.51	28.34	71.14	14.50	28.86	66.46							1.94	1.03
2.00	8.14	40.80	79.28	17.20	20.72	76.54							1.89	1.12
2.60	20.72	76.54	100.00	29.50									1.12	1.12

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DATA SOURCE - KPMLRDDH86006 SEAM - H

SAMPLE ID - 11

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -				6.07		ASH % - 23.52			
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	S	VOL.	VOL.	MOIST	MOIST	
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.							
1.40	21.02	1.44	21.02	1.44	78.98	28.74							1.33	1.33	
1.45	10.02	3.15	31.04	1.99	68.96	32.46							1.66	1.44	
1.50	11.34	5.54	42.38	2.94	57.62	37.76							1.90	1.56	
1.55	6.88	9.08	49.26	3.80	50.74	41.65							1.41	1.54	
1.60	8.01	10.39	57.27	4.72	42.73	47.51							1.13	1.48	
1.70	10.27	15.21	67.54	6.32	32.46	57.73							1.85	1.54	
1.80	6.74	23.12	74.28	7.84	25.72	66.80							1.23	1.51	
2.00	6.33	35.65	80.61	10.02	19.39	76.97							1.87	1.54	
2.60	19.39	76.97	100.00	23.00									1.28	1.49	

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -				3.81		ASH % - 26.04			
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	S	VOL.	VOL.	MOIST	MOIST	
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.							
240.00	*****	26.04	100.00	26.04			24.86	24.86	0.44	0.44	7.64	7.64	0.59	0.59	

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SAMPLE ID - 12

WASHABILITY ID - WA1

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

FRACTION	SIZE(MM) 35.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 75.74				ASH % - 35.13		CUM.	
	SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	1.12	3.18		1.12	3.18	98.88	36.25								0.51	0.51
1.45	4.39	6.10		5.51	9.27	94.49	37.65								0.54	0.53
1.50	23.56	10.80		29.07	20.80	70.93	46.57								0.64	0.62
1.55	8.49	16.49		37.56	37.31	62.44	50.66								0.65	0.63
1.60	8.98	21.88		46.54	59.35	53.46	55.49								0.66	0.63
1.70	15.44	28.58		61.98	87.93	38.02	66.42								0.79	0.67
1.80	2.00	34.43		63.98	122.36	36.02	68.20								0.69	0.67
2.00	10.35	46.01		74.33	168.37	25.67	77.14								0.77	0.69
2.60	25.67	77.14		100.00	245.88										0.87	0.73

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

FRACTION	SIZE(MM) 6.00 X 0.50		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 19.93				ASH % - 20.40		CUM.	
	SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	18.56	2.35		18.56	2.35	81.44	23.02								0.68	0.68
1.45	22.49	4.99		41.05	7.34	58.95	29.90								0.61	0.64
1.50	20.42	9.51		61.47	16.85	38.53	40.71								0.60	0.63
1.55	8.59	14.58		70.06	31.43	29.94	48.20								0.73	0.64
1.60	4.65	18.84		74.71	50.27	25.29	53.60								0.98	0.66
1.70	5.64	24.83		80.35	75.10	19.65	61.86								1.08	0.69
1.80	3.12	32.01		83.47	107.11	16.53	67.50								1.36	0.72
2.00	3.37	39.95		86.84	147.06	13.16	74.55								1.32	0.74
2.60	13.16	74.55		100.00	221.59										1.05	0.78

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WASHABILITY ID - WA1

----- ANALYSIS TYPE - FLDAT -----

FRACTION SIZE(MM)		0.50 X 0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -			2.88 ASH % - 25.12		CUM.		
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	CUM.	CUM.	MOIST	MOIST
1.40	16.82	2.14		16.82	2.14	83.18	28.52							0.75	0.75
1.45	13.80	2.71		30.62	2.40	69.38	33.65							0.87	0.80
1.50	19.54	5.68		50.16	3.68	49.84	44.61							1.14	0.93
1.55	7.45	9.01		57.61	4.37	42.39	50.87							1.49	1.01
1.60	5.94	12.49		63.55	5.13	36.45	57.13							1.16	1.02
1.70	6.04	17.77		69.59	6.22	30.41	64.94							1.84	1.09
1.80	4.23	25.10		73.82	7.30	26.18	71.38							1.09	1.09
2.00	3.63	37.16		77.45	8.70	22.55	76.89							1.03	1.09
2.60	22.55	76.89		100.00	24.08									1.26	1.13

----- ANALYSIS TYPE - FRGTH -----

FRACTION SIZE(MM)		0.15 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -			1.45 ASH % - 31.54		CUM.		
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	CUM.	CUM.	MOIST	MOIST
240.00	*****	31.54		100.00	31.54			22.59	22.59	0.36	0.36	8.80	8.80	0.64	0.64

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86006
 Coal zone: H
 Field sample no.: 04493 - 04494 Composite sample no.: 205
 Lab sample no.: 29606

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.52
 Contribution (%): 13.93
 Total yield (%): 13.93

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.92	
Ash (%):	11.26	11.36
Volatile matter (%):	6.29	6.35
Fixed carbon (%):	81.53	82.29
Total sulphur (%):	0.49	0.49
Combustible sulphur (%):	0.46	
Gross calorific value (cal/g):	7,368.00	7,437.00
Volatile matter (dmmf %):	6.00	
Hardgrove index:	39.00	
Phosphorous in coal (%):	0.079	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,311.00	1,262.00
Softening temperature (°C):	1,351.00	1,321.00
Hemispherical temperature (°C):	1,380.00	1,354.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	63.08	TiO2 (%):	1.64
Al2O3 (%):	22.30	Na2O (%):	2.24
Fe2O3 (%):	2.69	K2O (%):	0.66
CaO (%):	2.85	SO3 (%):	0.74
MgO (%):	1.66	P2O5 (%):	1.60

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86006
 Coal zone: H
 Field sample no.: 04493 - 04494 Composite sample no.: 305
 Lab sample no.: 29606

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.54
 Contribution (%): 11.26
 Total yield (%): 11.26

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.87	
Ash (%):	7.45	7.52
Volatile matter (%):	7.00	7.06
Fixed carbon (%):	84.68	85.42
Total sulphur (%):	0.52	0.52
Combustible sulphur (%):	0.50	
Gross calorific value (cal/g):	7,665.00	7,732.00
Volatile matter (dmmf %):	6.90	
Hardgrove index:	43.00	
Phosphorous in coal (%):	0.041	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,316.00	1,276.00
Softening temperature (°C):	1,354.00	1,332.00
Hemispherical temperature (°C):	1,370.00	1,348.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	65.88	TiO2 (%):	1.69
Al2O3 (%):	20.79	Na2O (%):	2.00
Fe2O3 (%):	2.40	K2O (%):	0.69
CaO (%):	2.60	SO3 (%):	0.73
MgO (%):	1.56	P2O5 (%):	1.27

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----- ANALYSIS TYPE - FLDAT -----

FRACTION SIZE(MM)		35.00 X		6.00		RELATIVE WEIGHT % - 69.56				ASH % - 32.69				
SG-TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. C.V.		CUM. VOL.		CUM. MOIST		
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	3.63	2.75	3.63	2.75	96.37	33.43							0.93	0.93
1.45	17.74	6.76	21.37	6.08	78.63	39.45							0.82	0.84
1.50	13.53	12.28	34.90	8.48	65.10	45.09							0.96	0.89
1.55	13.93	17.53	48.83	11.06	51.17	52.60							0.92	0.90
1.60	2.74	22.19	51.57	11.65	48.43	54.32							0.97	0.90
1.70	8.25	28.94	59.82	14.04	40.18	59.53							0.90	0.90
1.80	3.80	33.90	63.62	15.23	36.38	62.20							1.00	0.91
2.00	13.08	36.74	76.70	18.89	23.30	76.50							0.97	0.92
2.60	23.30	76.50	100.00	32.32									1.18	0.98

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

FRACTION SIZE(MM)		6.00 X		0.50		RELATIVE WEIGHT % - 24.59				ASH % - 15.73				
SG-TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. C.V.		CUM. VOL.		CUM. MOIST		
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	22.51	2.16	22.51	2.16	77.49	19.66							0.99	0.99
1.45	24.35	5.28	46.86	3.78	53.14	26.25							0.95	0.97
1.50	14.74	9.97	61.60	5.26	38.40	32.50							1.15	1.01
1.55	11.12	14.30	72.72	6.64	27.28	39.92							1.25	1.05
1.60	6.21	17.28	78.93	7.48	21.07	46.59							1.60	1.09
1.70	6.74	21.46	85.67	8.58	14.33	58.41							1.69	1.14
1.80	2.64	30.62	88.31	9.24	11.69	64.68							1.95	1.16
2.00	2.95	38.77	91.26	10.19	8.74	73.43							2.18	1.20
2.60	8.74	73.43	100.00	15.72									1.39	1.21

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

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -				3.77		ASH % -		17.39	
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	VOL.	VOL.	MOIST	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST	
1.40	19.97	2.65	19.97	2.65	80.03	20.14								1.13	1.13
1.45	16.97	3.74	36.94	3.15	63.06	24.56								1.10	1.12
1.50	15.54	7.65	52.48	4.48	47.52	30.08								1.30	1.17
1.55	11.19	10.95	63.67	5.62	36.33	35.98								1.60	1.25
1.60	7.13	15.62	70.80	6.63	29.20	40.95								1.20	1.24
1.70	11.26	18.10	82.06	8.20	17.94	55.29								1.83	1.32
1.80	4.73	26.46	86.79	9.20	13.21	65.61								1.67	1.34
2.00	3.08	37.61	89.87	10.17	10.13	74.13								1.60	1.35
2.60	10.13	74.13	100.00	16.65										1.82	1.40

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -				2.08		ASH % -		24.57	
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	VOL.	VOL.	MOIST	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST	
240.00	****	24.57	100.00	24.57			25.64	25.64	0.40	0.40	7.07	7.07	1.40	1.40	

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 59.60				ASH % - 36.57						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	F51	F51 (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	5.46	2.12	5.46	2.12	94.54	41.02							0.74	0.74
1.45	17.44	8.59	22.90	7.05	77.10	48.35							0.70	0.71
1.50	15.43	13.16	38.33	9.51	61.67	57.16							0.75	0.73
1.55	7.24	18.00	45.57	10.86	54.43	62.36							0.66	0.72
1.60	2.85	24.11	48.42	11.64	51.58	64.48							0.81	0.72
1.70	6.48	27.40	54.90	13.50	45.10	69.80							0.76	0.73
1.80	4.99	37.03	59.89	15.46	40.11	73.88							0.68	0.72
2.00	7.65	49.32	67.54	19.29	32.46	79.67							0.91	0.74
2.60	32.46	79.67	100.00	38.89									1.13	0.87

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 32.47				ASH % - 14.59						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	F51	F51 (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	26.89	1.67	26.89	1.67	73.11	19.57							0.74	0.74
1.45	24.44	5.59	51.33	3.54	48.67	26.59							0.73	0.74
1.50	18.07	10.60	69.40	5.38	30.60	36.03							0.77	0.74
1.55	9.24	14.96	78.64	6.50	21.36	45.15							0.78	0.75
1.60	3.73	18.59	82.37	7.05	17.63	50.77							0.93	0.76
1.70	4.38	23.55	86.75	7.88	13.25	59.77							1.17	0.78
1.80	2.70	32.03	89.45	8.61	10.55	66.87							1.50	0.80
2.00	2.89	43.40	92.34	9.70	7.66	75.72							1.96	0.84
2.60	7.66	75.72	100.00	14.76									1.89	0.92

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ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % - 5.02				ASH % - 18.47							
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V. CUM.		CUM. CUM.		CUM. CUM.					
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	27.63	2.39	27.63	2.39	72.37	24.19								1.12	1.12
1.45	18.19	4.04	45.82	3.05	54.18	30.96								1.23	1.16
1.50	10.34	7.17	56.16	3.80	43.84	36.57								1.44	1.21
1.55	11.33	10.75	67.49	4.97	32.51	45.57								1.80	1.31
1.60	4.04	15.00	71.53	5.54	28.47	49.90								1.24	1.31
1.70	8.07	18.21	79.60	6.82	20.40	62.44								2.00	1.38
1.80	3.87	26.71	83.47	7.74	16.53	70.81								1.90	1.40
2.00	3.32	41.32	86.79	9.03	13.21	78.22								1.74	1.42
2.60	13.21	78.22	100.00	18.17										1.47	1.42

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % - 2.91				ASH % - 24.32							
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V. CUM.		CUM. CUM.		CUM. CUM.					
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	24.32	100.00	24.32										25.65	1.70

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FRACTION SIZE(MM)		ANALYSIS TYPE - FLOAT				CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 64.99 ASH % - 12.54				CUM. MOIST			
ELEMENTAL		35.00 X		6.00						CUM. C.V.		CUM.		CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	5.04	2.16	5.04	2.16	94.96	13.69										0.76	0.76
1.45	66.74	6.02	71.78	5.75	28.22	31.82										0.70	0.70
1.50	11.91	10.89	83.69	6.48	16.31	47.10										0.73	0.71
1.55	2.33	17.20	86.02	6.77	13.98	52.08										0.91	0.71
1.60	1.78	23.22	87.80	7.10	12.20	56.29										0.68	0.71
1.70	1.26	26.75	89.06	7.38	10.94	59.70										0.74	0.71
1.80	0.25	33.98	89.31	7.46	10.69	60.30										0.67	0.71
2.00	3.97	48.94	93.28	9.22	6.72	67.01										0.56	0.71
2.60	6.72	67.01	100.00	13.11												0.82	0.71

FRACTION SIZE(MM)		ANALYSIS TYPE - FLOAT				CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 26.65 ASH % - 11.50				CUM. MOIST			
ELEMENTAL		6.00 X		0.50						CUM. C.V.		CUM.		CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	24.84	2.00	24.84	2.00	75.16	13.99										0.43	0.43
1.45	31.55	4.87	56.39	3.61	43.61	20.58										0.47	0.45
1.50	17.63	8.45	74.02	4.76	25.98	28.82										0.52	0.47
1.55	7.19	12.52	81.21	5.45	18.79	35.06										0.58	0.48
1.60	3.78	15.44	84.99	5.89	15.01	40.00										0.96	0.50
1.70	4.67	20.05	89.66	6.63	10.34	49.01										1.09	0.53
1.80	2.05	27.06	91.71	7.09	8.29	54.43										1.12	0.54
2.00	2.48	37.78	94.19	7.89	5.81	61.54										1.65	0.57
2.60	5.81	61.54	100.00	11.01												1.63	0.63

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ANALYSIS TYPE - FLDAT

FRACTION SIZE(MM)	0.50 X 0.15		RELATIVE WEIGHT % -				5.23 ASH % - 12.85								
	ELEMENTAL		CUM. FLDATS		CUM. SINKS		CUM. C.V. CUM.		CUM. CUM.		CUM. CUM.				
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	20.71	2.99	20.71	2.99	79.29	14.29								0.89	0.89
1.45	31.68	4.31	52.39	3.79	47.61	20.92								1.20	1.08
1.50	12.33	7.01	64.72	4.40	35.28	25.79								1.41	1.14
1.55	8.93	10.74	73.65	5.17	26.35	30.88								1.49	1.18
1.60	7.00	13.09	80.65	5.86	19.35	37.32								1.27	1.19
1.70	7.39	17.36	88.04	6.82	11.96	49.66								1.11	1.18
1.80	3.63	26.00	91.67	7.58	8.33	59.96								1.09	1.18
2.00	2.36	36.70	94.03	8.31	5.97	69.16								1.49	1.19
2.60	5.97	69.16	100.00	11.95										1.30	1.19

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X 0.00		RELATIVE WEIGHT % -				3.13 ASH % - 16.63								
	ELEMENTAL		CUM. FLDATS		CUM. SINKS		CUM. C.V. CUM.		CUM. CUM.		CUM. CUM.				
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	16.63	100.00	16.63			28.58	28.58	0.45	0.45	6.55	6.55	1.41	1.41	

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86007
 Coal zone: 1
 Field sample no.: 04481 - 04482 Composite sample no.: 206
 Lab sample no.: 29606

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.45
 Contribution (%): 11.87
 Total yield (%): 11.87

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.75	
Ash (%):	5.82	5.86
Volatile matter (%):	6.35	6.40
Fixed carbon (%):	87.08	87.74
Total sulphur (%):	0.49	0.49
Combustible sulphur (%):	0.44	
Gross calorific value (cal/g):	7,959.00	8,019.00
Volatile matter (dmmf %):	6.20	
Hardgrove index:	38.00	
Phosphorous in coal (%):	0.038	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,294.00	1,276.00
Softening temperature (°C):	1,316.00	1,289.00
Hemispherical temperature (°C):	1,343.00	1,316.00
Final temperature (°C):	1,469.00	1,461.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	58.94	TiO2 (%):	1.09
Al2O3 (%):	23.95	Na2O (%):	2.03
Fe2O3 (%):	1.94	K2O (%):	1.26
CaO (%):	4.34	SO3 (%):	2.09
MgO (%):	2.67	P2O5 (%):	1.49

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86007
 Coal zone: 1
 Field sample no.: 04481 - 04482 Composite sample no.: 206
 Lab sample no.: 29606

----- PRODUCT COAL ANALYSIS (SP5) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.49
 Contribution (%): 9.37
 Total yield (%): 9.37

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.84	
Ash (%):	11.53	11.63
Volatile matter (%):	5.75	5.80
Fixed carbon (%):	81.88	82.57
Total sulphur (%):	0.44	0.44
Combustible sulphur (%):	0.42	
Gross calorific value (cal/g):	7,340.00	7,402.00
Volatile matter (dmmf %):	5.40	
Hardgrove index:	42.00	
Phosphorous in coal (%):	0.062	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,364.00	1,360.00
Softening temperature (°C):	1,472.00	1,407.00
Hemispherical temperature (°C):	1,472.00	1,472.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	63.34	TiO2 (%):	0.82
Al2O3 (%):	25.58	Na2O (%):	2.16
Fe2O3 (%):	1.47	K2O (%):	1.26
CaO (%):	1.71	SO3 (%):	0.41
MgO (%):	1.56	P2O5 (%):	1.23

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86007
 Coal zone: I
 Field sample no.: 04483 Composite sample no.: 207
 Lab sample no.: 29553

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.48
 Contribution (%): 52.95
 Total yield (%): 52.95

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.79	
Ash (%) :	5.94	5.99
Volatile matter (%) :	5.90	5.95
Fixed carbon (%) :	87.37	88.06
Total sulphur (%) :	0.50	0.50
Combustible sulphur (%) :	0.47	
Gross calorific value (cal/g) :	7,901.00	7,965.00
Volatile matter (dmmf%) :	5.70	
Hardgrove index:	37.00	
Phosphorous in coal (%) :	0.250	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C) :	1,297.00	1,278.00
Softening temperature (°C) :	1,308.00	1,294.00
Hemispherical temperature (°C) :	1,316.00	1,300.00
Final temperature (°C) :	1,383.00	1,377.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	40.50	TiO2 (%) :	1.78
Al2O3 (%) :	28.63	Na2O (%) :	2.59
Fe2O3 (%) :	2.66	K2O (%) :	1.02
CaO (%) :	8.26	SO3 (%) :	1.32
MgO (%) :	1.19	P2O5 (%) :	9.63

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86007
 Coal zone: I
 Field sample no.: 04483 Composite sample no.: 207
 Lab sample no.: 29553

----- PRODUCT COAL ANALYSIS (SP5) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.60
 Contribution (%): 3.60
 Total yield (%): 3.60

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.98	
Ash (%):	16.26	16.42
Volatile matter (%):	6.94	7.01
Fixed carbon (%):	75.82	76.57
Total sulphur (%):	0.43	0.43
Combustible sulphur (%):	0.33	
Gross calorific value (cal/g):	6,869.00	6,937.00
Volatile matter (dmmf %):	6.80	
Phosphorous in coal (%):	0.429	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,289.00	1,281.00
Softening temperature (°C):	1,300.00	1,289.00
Hemispherical temperature (°C):	1,308.00	1,297.00
Final temperature (°C):	1,345.00	1,335.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	50.35	TiO2 (%):	1.57
Al2O3 (%):	23.02	Na2O (%):	2.09
Fe2O3 (%):	2.16	K2O (%):	1.18
CaO (%):	8.40	SO3 (%):	1.47
MgO (%):	1.66	P2O5 (%):	6.05

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86007
 Coal zone: 1
 Field sample no.: 04481 - 04483 Composite sample no.: 306
 Lab sample no.: 29606

----- PRODUCT COAL ANALYSIS (SP3) -----
 Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.65
 Contribution (%): 24.20
 Total yield (%): 24.20

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%)	0.96	
Ash (%)	7.09	7.16
Volatile matter (%)	6.25	6.31
Fixed carbon (%)	85.70	86.53
Total sulphur (%)	0.48	0.48
Combustible sulphur (%)	0.46	
Gross calorific value (cal/g)	7,732.00	7,807.00
Volatile matter (dmmf%)	6.10	
Hardgrove index	41.00	
Phosphorous in coal (%)	0.084	

----- ASH FUSION ANALYSIS (AF1) -----
OXIDIZING ATM REDUCING ATM

Initial temperature (°C):	1,327.00	1,233.00
Softening temperature (°C):	1,423.00	1,337.00
Hemispherical temperature (°C):	1,469.00	1,391.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	58.92	TiO2 (%):	1.50
Al2O3 (%):	25.46	Na2O (%):	2.16
Fe2O3 (%):	2.04	K2O (%):	1.21
CaO (%):	3.02	SO3 (%):	0.64
MgO (%):	1.62	P2O5 (%):	2.72

GULF CANADA CORPORATION - COAL DIVISION

MAR 30/87

WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRDDH86007 SEAM - H

SAMPLE ID - 16

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)	ELEMENTAL		0.50 X 0.15		CUM. WT%	SINKS ASH%	RELATIVE WEIGHT % -			7.88 ASH % - 24.46		CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST
	WT%	ASH%	WT%	ASH%			FSI	FSI (MJ/KG)	C.V.	S	S				
1.40	12.52	2.57	12.52	2.57	87.48	27.10								1.06	1.06
1.45	17.50	4.48	30.02	3.68	69.98	32.76								1.17	1.12
1.50	11.05	7.27	41.07	4.65	58.93	37.54								1.42	1.20
1.55	7.43	10.85	48.50	5.60	51.50	41.39								1.94	1.32
1.60	6.81	13.71	55.31	6.60	44.69	45.60								1.41	1.33
1.70	11.72	17.81	67.03	8.56	32.97	55.48								1.37	1.34
1.80	9.33	24.45	76.36	10.50	23.64	67.73								1.60	1.37
2.00	6.81	35.91	83.17	12.58	16.83	80.61								1.97	1.42
2.60	16.83	80.61	100.00	24.03										1.31	1.40

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)	ELEMENTAL		0.15 X 0.00		CUM. WT%	SINKS ASH%	RELATIVE WEIGHT % -			5.17 ASH % - 23.25		CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST
	WT%	ASH%	WT%	ASH%			FSI	FSI (MJ/KG)	C.V.	S	S				
240.00	*****	23.25	100.00	23.25			26.04	26.04	0.45	0.45	7.62	7.62	0.80	0.80	

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDHB6007 SEAM - H

SAMPLE ID - 17

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		0.50 X 0.15		CUM. SINKS		RELATIVE WEIGHT % - 7.32				ASH % - 15.40		CUM.		
SG-TME	ELEMENTAL	CUM. FLOATS		WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL. MOIST
1.40	15.39	2.74	15.39	2.74	84.61	15.30							1.04	1.04
1.45	31.82	3.76	47.21	3.43	52.79	22.25							1.90	1.62
1.50	12.07	6.30	59.28	4.01	40.72	26.98							1.05	1.50
1.55	11.73	9.96	71.01	4.99	28.99	33.87							1.23	1.46
1.60	4.41	11.64	75.42	5.38	24.58	37.86							1.58	1.47
1.70	7.36	16.34	82.78	6.36	17.22	47.05							1.97	1.51
1.80	4.80	19.67	87.58	7.09	12.42	57.64							1.79	1.53
2.00	4.32	31.42	91.90	8.23	8.10	71.62							1.74	1.54
2.60	8.10	71.62	100.00	13.37									1.86	1.56

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X 0.00		CUM. SINKS		RELATIVE WEIGHT % - 4.28				ASH % - 21.78		CUM.		
SG-TME	ELEMENTAL	CUM. FLOATS		WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL. MOIST
240.00	*****	21.78	100.00	21.78				26.72	26.72	0.45	0.45	7.91	7.91	0.89 0.89

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86007
 Coal zone: H
 Field sample no.: 04486 - 04487 Composite sample no.: 208
 Lab sample no.: 29606

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.55
 Contribution (%): 16.31
 Total yield (%): 16.31

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.85	
Ash (%):	10.94	11.03
Volatile matter (%):	5.72	5.77
Fixed carbon (%):	82.49	83.20
Total sulphur (%):	0.51	0.51
Combustible sulphur (%):	0.48	
Gross calorific value (cal/g):	7,428.00	7,492.00
Volatile matter (dmmf %):	5.40	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.244	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,273.00	1,241.00
Softening temperature (°C):	1,294.00	1,262.00
Hemispherical temperature (°C):	1,316.00	1,289.00
Final temperature (°C):	1,370.00	1,365.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	55.14	TiO2 (%):	1.50
Al2O3 (%):	23.57	Na2O (%):	2.48
Fe2O3 (%):	1.60	K2O (%):	0.85
CaO (%):	7.11	SO3 (%):	0.59
MgO (%):	1.18	P2O5 (%):	5.10

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLR00H86007
 Coal zone: H
 Field sample no.: 04486 - 04487 Composite sample no.: 308
 Lab sample no.: 29606

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.54
 Contribution (%): 14.37
 Total yield (%): 14.37

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.93	
Ash (%):	7.30	7.37
Volatile matter (%):	6.48	6.54
Fixed carbon (%):	85.29	86.09
Total sulphur (%):	0.52	0.52
Combustible sulphur (%):	0.50	
Gross calorific value (cal/g):	7,724.00	7,797.00
Volatile matter (dmmf %):	6.30	
Hardgrove index:	42.00	
Phosphorous in coal (%):	0.092	

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,262.00	1,235.00
Softening temperature (°C):	1,327.00	1,317.00
Hemispherical temperature (°C):	1,354.00	1,344.00
Final temperature (°C):	1,469.00	1,434.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	59.16	TiO2 (%):	2.14
Al2O3 (%):	24.57	Na2O (%):	2.06
Fe2O3 (%):	1.72	K2O (%):	0.86
CaO (%):	4.09	SO3 (%):	0.70
MgO (%):	1.38	P2O5 (%):	2.88

GULF CANADA CORPORATION - COAL DIVISION

MAR 30/87

WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86008 SEAM - I

SAMPLE ID - 18

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)	0.50 X		0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -				3.42 ASH % - 45.57			
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. FSI (MJ/KG)	CUM. C.V.	S	CUM. S	CUM. VOL.	CUM. VOL. MOIST	
1.40	4.55	3.33	4.55	3.33	95.45	45.93									0.92	0.92
1.45	8.98	4.04	13.53	3.80	86.47	50.28									0.95	0.94
1.50	9.94	6.55	23.47	4.97	76.53	55.96									1.10	1.01
1.55	6.00	10.10	29.47	6.01	70.53	59.86									1.11	1.03
1.60	6.12	14.09	35.59	7.40	64.41	64.21									1.37	1.09
1.70	7.24	17.88	42.83	9.17	57.17	70.07									1.73	1.20
1.80	5.88	24.78	48.71	11.06	51.29	75.27									1.72	1.26
2.00	5.03	38.18	53.74	13.59	46.26	79.30									1.89	1.32
2.60	46.26	79.30	100.00	43.99											1.32	1.32

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)	0.15 X		0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -				1.91 ASH % - 51.78				
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. FSI (MJ/KG)	CUM. C.V.	S	CUM. S	CUM. VOL.	CUM. VOL. MOIST		
240.00	*****	51.78	100.00	51.78					13.87	13.87	0.28	0.28	0.28	8.12	8.12	1.89	1.89

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDHDH86008 SEAM - I

SAMPLE ID - 19

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 52.66				ASH % - 13.88					
SG-TME	ELEMENTAL	CUM. FLOATS	CUM. SINKS	CUM. FSI	C.V. CUM.	CUM. FSI	C.V. CUM.	S	S	VOL.	VOL.	MOIST	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%						
1.40	34.09	5.92	34.09	5.92	65.91	18.81						0.74	0.74
1.45	26.10	7.00	60.19	6.39	39.81	26.55						0.91	0.81
1.50	14.59	11.97	74.78	7.48	25.22	34.98						1.13	0.88
1.55	7.14	15.05	81.92	8.14	18.08	42.86						1.24	0.91
1.60	1.95	21.69	83.87	8.45	16.13	45.42						1.01	0.91
1.70	5.40	26.05	89.27	9.52	10.73	55.16						1.32	0.93
1.80	2.89	35.88	92.16	10.34	7.84	62.27						1.32	0.95
2.00	2.02	41.72	94.18	11.02	5.82	69.40						1.44	0.96
2.60	5.82	69.40	100.00	14.41								1.03	0.96

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 38.47				ASH % - 8.71					
SG-TME	ELEMENTAL	CUM. FLOATS	CUM. SINKS	CUM. FSI	C.V. CUM.	CUM. FSI	C.V. CUM.	S	S	VOL.	VOL.	MOIST	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%						
1.40	49.63	4.53	49.63	4.53	50.37	13.06						0.84	0.84
1.45	18.69	5.93	68.32	4.91	31.68	17.27						0.91	0.86
1.50	15.10	9.46	83.42	5.74	16.58	24.38						0.96	0.88
1.55	5.73	13.34	89.15	6.22	10.85	30.22						1.15	0.89
1.60	3.02	16.14	92.17	6.55	7.83	35.65						1.54	0.92
1.70	3.03	21.00	95.20	7.01	4.80	44.89						1.03	0.92
1.80	1.42	28.33	96.62	7.32	3.38	51.85						1.87	0.93
2.00	0.81	41.32	97.43	7.61	2.57	55.17						1.86	0.94
2.60	2.57	55.17	100.00	8.83								1.77	0.96

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPFLRDDH8600B SEAM - I

SAMPLE ID - 19

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -				5.10 ASH % -		10.83	
SG-TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. S		CUM. S		CUM. CUM.	
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	25.31	2.73	25.31	2.73	74.69	13.07							0.95
1.45	29.85	3.50	55.16	3.15	44.84	19.45							1.36
1.50	17.75	7.19	72.91	4.13	27.09	27.48							1.44
1.55	6.84	12.68	79.75	4.86	20.25	32.48							1.14
1.60	4.28	13.28	84.03	5.29	15.97	37.63							1.55
1.70	6.11	15.86	90.14	6.01	9.86	51.11							1.43
1.80	2.08	26.64	92.22	6.47	7.78	57.66							1.04
2.00	1.89	35.62	94.11	7.06	5.89	64.73							1.61
2.60	5.89	64.73	100.00	10.46									1.99

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -				3.77 ASH % -		16.81	
SG-TME	ELEMENTAL	CUM. FLDATS		CUM. SINKS		CUM. C.V.		CUM. S		CUM. S		CUM. CUM.	
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
240.00	*****	16.81	100.00	16.81			28.58	28.58	0.45	0.45	7.06	7.06	1.31

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86008
 Coal zone: 1
 Field sample no.: 05423 - 05424 Composite sample no.: 209
 Lab sample no.: 29614

----- PRODUCT COAL ANALYSIS (SP2) -----
 Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size(mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.44
 Contribution(%): 21.72
 Total yield(%): 21.72

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture(%):	0.73	
Ash(%):	5.47	5.51
Volatile matter(%):	5.76	5.80
Fixed carbon(%):	88.04	88.69
Total sulphur(%):	0.48	0.48
Combustible sulphur(%):	0.46	
Gross calorific value(cal/g):	7,904.00	7,962.00
Volatile matter(dmmf%):	5.60	
Hardgrove index:	36.00	
Phosphorous in coal(%):	0.041	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C):	1,294.00	1,265.00
Softening temperature(°C):	1,353.00	1,332.00
Hemispherical temperature(°C):	1,423.00	1,375.00
Final temperature(°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2(%):	62.94	TiO2(%):	0.99
Al2O3(%):	22.68	Na2O(%):	1.72
Fe2O3(%):	2.67	K2O(%):	0.96
CaO(%):	2.85	SO3(%):	0.73
MgO(%):	1.72	P2O5(%):	1.72

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86008
 Coal zone: 1
 Field sample no.: 05423 - 05424 Composite sample no.: 209
 Lab sample no.: 29614

----- PRODUCT COAL ANALYSIS (SP5) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.51
 Contribution (%): 19.34
 Total yield (%): 19.34

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.95	
Ash (%):	12.34	12.46
Volatile matter (%):	6.66	6.72
Fixed carbon (%):	80.05	80.82
Total sulphur (%):	0.42	0.42
Combustible sulphur (%):	0.36	
Gross calorific value (cal/g):	7,306.00	7,376.00
Volatile matter (dmmf %):	6.50	
Hardgrove index:	40.00	
Phosphorous in coal (%):	0.044	

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,246.00	1,219.00
Softening temperature (°C):	1,273.00	1,241.00
Hemispherical temperature (°C):	1,305.00	1,268.00
Final temperature (°C):	1,407.00	1,402.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	62.52	TiO2 (%):	0.90
Al2O3 (%):	19.28	Na2O (%):	1.50
Fe2O3 (%):	4.10	K2O (%):	0.94
CaO (%):	3.53	SO3 (%):	1.26
MgO (%):	2.69	P2O5 (%):	0.81

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86008
 Coal zone: 1
 Field sample no.: 05425 Composite sample no.: 210
 Lab sample no.: 29553

----- PRODUCT COAL ANALYSIS (SP2) -----
 Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.43
 Contribution (%): 27.69
 Total yield (%): 27.69

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.86	
Ash (%):	5.96	6.01
Volatile matter (%):	6.25	6.30
Fixed carbon (%):	86.93	87.69
Total sulphur (%):	0.51	0.51
Combustible sulphur (%):	0.46	
Gross calorific value (cal/g):	7,894.00	7,963.00
Volatile matter (dmmf %):	6.10	
Hardgrove index:	37.00	
Phosphorous in coal (%):	0.157	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,276.00	1,262.00
Softening temperature (°C):	1,294.00	1,278.00
Hemispherical temperature (°C):	1,319.00	1,289.00
Final temperature (°C):	1,407.00	1,399.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	43.90	TiO2 (%):	1.75
Al2O3 (%):	27.65	Na2O (%):	2.26
Fe2O3 (%):	3.10	K2O (%):	1.08
CaO (%):	7.03	SO3 (%):	2.04
MgO (%):	2.21	P2O5 (%):	6.02

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86008
 Coal zone: 1
 Field sample no.: 05425 Composite sample no.: 210
 Lab sample no.: 29553

----- PRODUCT COAL ANALYSIS (SP5) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.66
 Contribution (%): 17.88
 Total yield (%): 17.88

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.19	
Ash (%):	13.14	13.30
Volatile matter (%):	8.27	8.37
Fixed carbon (%):	77.40	78.33
Total sulphur (%):	0.45	0.46
Combustible sulphur (%):	0.35	
Gross calorific value (cal/g):	7,098.00	7,183.00
Volatile matter (dmmf %):	8.40	
Hardgrove index:	44.00	
Phosphorous in coal (%):	0.315	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,284.00	1,251.00
Softening temperature (°C):	1,297.00	1,262.00
Hemispherical temperature (°C):	1,302.00	1,270.00
Final temperature (°C):	1,327.00	1,316.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	43.84	TiO2 (%):	1.58
Al2O3 (%):	23.52	Na2O (%):	2.13
Fe2O3 (%):	5.71	K2O (%):	1.13
CaO (%):	9.20	SO3 (%):	1.87
MgO (%):	3.23	P2O5 (%):	5.49

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86008
 Coal zone: 1
 Field sample no.: 05423 - 05425 Composite sample no.: 309
 Lab sample no.: 29614

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.63
 Contribution(%): 15.06
 Total yield(%): 15.06

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	1.19	
Ash (%) :	7.37	7.46
Volatile matter (%) :	6.51	6.59
Fixed carbon (%) :	84.93	85.95
Total sulphur (%) :	0.46	0.47
Combustible sulphur (%) :	0.44	
Gross calorific value (cal/g) :	7,696.00	7,788.00
Volatile matter (dmmf%) :	6.40	
Hardgrove index:	39.00	
Phosphorous in coal (%) :	0.075	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C) :	1,281.00	1,262.00
Softening temperature (°C) :	1,332.00	1,305.00
Hemispherical temperature (°C) :	1,351.00	1,340.00
Final temperature (°C) :	1,466.00	1,458.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	58.30	TiO2 (%) :	1.34
Al2O3 (%) :	23.06	Na2O (%) :	1.69
Fe2O3 (%) :	3.03	K2O (%) :	1.09
CaO (%) :	3.97	SO3 (%) :	0.78
MgO (%) :	2.05	P2O5 (%) :	2.33

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DATA SOURCE - KPNLRDDHB6008 SEAM - H

SAMPLE ID - 20

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 72.27				ASH % - 60.46						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.26	2.54	0.26	2.54	99.74	61.88							0.36	0.36
1.45	2.44	7.91	2.70	7.39	97.30	63.23							0.45	0.44
1.50	1.84	12.33	4.54	9.39	95.46	64.21							0.53	0.48
1.55	4.23	16.29	8.77	12.72	91.23	66.43							0.61	0.54
1.60	6.20	21.96	14.97	16.55	85.03	69.68							0.48	0.52
1.70	4.87	27.18	19.84	19.16	80.16	72.26							0.63	0.54
1.80	7.31	34.23	27.15	23.22	72.85	76.07							0.77	0.60
2.00	11.72	49.65	38.87	31.19	61.13	81.14							0.94	0.71
2.60	61.13	81.14	100.00	61.72									0.80	0.76

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 22.09				ASH % - 40.10						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	7.02	2.16	7.02	2.16	92.98	41.83							0.44	0.44
1.45	12.03	5.91	19.05	4.53	80.95	47.17							0.58	0.53
1.50	9.72	10.34	28.77	6.49	71.23	52.20							0.60	0.55
1.55	9.38	14.99	38.15	8.58	61.85	57.84							0.54	0.55
1.60	3.60	18.41	41.75	9.43	58.25	60.28							1.12	0.60
1.70	7.00	22.73	48.75	11.34	51.25	65.41							1.29	0.70
1.80	6.59	28.66	55.34	13.40	44.66	70.83							1.43	0.79
2.00	9.09	43.82	64.43	17.69	35.57	77.73							1.96	0.95
2.60	35.57	77.73	100.00	39.05									1.13	1.01

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SAMPLE ID - 20

WASHABILITY ID - WA1

----- ANALYSIS TYPE - FLOAT -----													
FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % -				3.81 ASH % - 33.00					
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	6.35	2.40	6.35	2.40	93.65	34.88							0.76
1.45	10.72	2.87	17.07	2.70	82.93	39.01							1.16
1.50	11.76	5.42	28.83	3.81	71.17	44.56							1.52
1.55	8.23	9.05	37.06	4.97	62.94	49.21							1.43
1.60	7.19	12.04	44.25	6.12	55.75	54.00							1.78
1.70	10.11	17.15	54.36	8.17	45.64	62.16							1.55
1.80	7.73	23.84	62.09	10.12	37.91	69.98							1.89
2.00	7.29	35.86	69.38	12.83	30.62	78.10							1.89
2.60	30.62	78.10	100.00	32.81									1.48

----- ANALYSIS TYPE - FROTH -----													
FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % -				1.83 ASH % - 41.07					
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
240.00	*****	41.07	100.00	41.07			18.77	18.77	0.38	0.38	8.81	8.81	0.98

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 72.27				ASH % - 39.63						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	1.49	2.38	1.49	2.38	98.51	39.17							0.25	0.25
1.45	5.40	9.79	6.89	8.19	93.11	40.87							0.30	0.29
1.50	6.77	13.62	13.66	10.88	86.34	43.01							0.31	0.30
1.55	13.40	17.55	27.06	14.18	72.94	47.69							0.29	0.29
1.60	11.76	22.07	38.82	16.57	61.18	52.61							0.38	0.32
1.70	14.44	29.02	53.26	19.95	46.74	59.90							0.44	0.35
1.80	12.34	37.81	65.60	23.31	34.40	67.82							0.57	0.39
2.00	11.62	40.84	77.22	25.95	22.78	81.59							0.56	0.42
2.60	22.78	81.59	100.00	38.62									0.69	0.48

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 20.91				ASH % - 24.09						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	16.49	2.30	16.49	2.30	83.51	27.16							0.37	0.37
1.45	17.05	6.25	33.54	4.31	66.46	32.53							0.53	0.45
1.50	15.49	10.40	49.03	6.23	50.97	39.25							0.66	0.52
1.55	9.71	14.87	58.74	7.66	41.26	44.99							0.57	0.53
1.60	5.74	18.28	64.48	8.61	35.52	49.31							0.91	0.56
1.70	8.38	22.43	72.86	10.20	27.14	57.60							1.27	0.64
1.80	5.54	29.08	78.40	11.53	21.60	64.92							1.56	0.71
2.00	5.51	39.31	83.91	13.35	16.09	73.69							1.27	0.74
2.60	16.09	73.69	100.00	23.06									1.73	0.90

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ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X 0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -		4.22 ASH % - 23.22		CUM. C.V. CUM.		CUM. C.V. CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	13.81	2.38	13.81	2.38	86.19	26.84										1.09	1.09
1.45	13.41	2.79	27.22	2.58	72.78	31.28										1.60	1.34
1.50	14.33	5.39	41.55	3.55	58.45	37.62										1.47	1.39
1.55	8.51	8.58	50.06	4.41	49.94	42.57										1.01	1.32
1.60	5.16	11.67	55.22	5.08	44.78	46.13										1.86	1.37
1.70	10.72	14.04	65.94	6.54	34.06	56.24										1.30	1.36
1.80	7.54	22.03	73.48	8.13	26.52	65.96										1.89	1.41
2.00	6.30	34.38	79.78	10.20	20.22	75.80										1.34	1.41
2.60	20.22	75.80	100.00	23.47												1.28	1.38

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -		2.60 ASH % - 30.36		CUM. C.V. CUM.		CUM. C.V. CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	30.36	100.00	30.36					20.68	20.68	0.41	0.41	0.41	10.95	10.95	0.84	0.84

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86008
 Coal zone: H
 Field sample no.: 05428 - 05431 Composite sample no.: 211
 Lab sample no.: 29614

----- PRODUCT COAL ANALYSIS (SP4) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.52
 Contribution (%): 9.12
 Total yield (%): 9.12

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.04	
Ash (%):	10.81	10.92
Volatile matter (%):	6.36	6.43
Fixed carbon (%):	81.79	82.65
Total sulphur (%):	0.50	0.51
Combustible sulphur (%):	0.47	
Gross calorific value (cal/g):	7,340.00	7,417.00
Volatile matter (dmmf %):	6.10	
Hardgrove index:	39.00	
Phosphorous in coal (%):	0.064	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,268.00	1,257.00
Softening temperature (°C):	1,329.00	1,300.00
Hemispherical temperature (°C):	1,364.00	1,332.00
Final temperature (°C):	1,456.00	1,449.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	67.34	TiO2 (%):	1.39
Al2O3 (%):	19.28	Na2O (%):	1.70
Fe2O3 (%):	1.95	K2O (%):	0.79
CaO (%):	2.94	SO3 (%):	0.62
MgO (%):	1.39	P2O5 (%):	1.35

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86008
 Coal zone: H
 Field sample no.: 05428 - 05431 Composite sample no.: 311
 Lab sample no.: 29614

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.53
 Contribution (%): 9.21
 Total yield (%): 9.21

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.00	
Ash (%):	7.28	7.35
Volatile matter (%):	6.65	6.72
Fixed carbon (%):	85.07	85.93
Total sulphur (%):	0.53	0.54
Combustible sulphur (%):	0.51	
Gross calorific value (cal/g):	7,660.00	7,737.00
Volatile matter (dmmf %):	6.50	
Hardgrove index:	38.00	
Phosphorous in coal (%):	0.056	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,278.00	1,257.00
Softening temperature (°C):	1,329.00	1,300.00
Hemispherical temperature (°C):	1,364.00	1,332.00
Final temperature (°C):	1,461.00	1,455.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	64.08	TiO2 (%):	1.78
Al2O3 (%):	21.93	Na2O (%):	1.68
Fe2O3 (%):	2.46	K2O (%):	0.87
CaO (%):	3.36	SO3 (%):	0.54
MgO (%):	1.35	P2O5 (%):	1.77

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPnlRDDH86008
 Coal zone: H REP
 Field sample no.: 05434 - 05437 Composite sample no.: 212
 Lab sample no.: 29614

----- PRODUCT COAL ANALYSIS (SP4) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.53
 Contribution (%): 10.13
 Total yield (%): 10.13

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.80	
Ash (%):	10.95	11.04
Volatile matter (%):	7.17	7.23
Fixed carbon (%):	81.08	81.73
Total sulphur (%):	0.46	0.46
Combustible sulphur (%):	0.41	
Gross calorific value (cal/g):	7,316.00	7,375.00
Volatile matter (dmmf %):	7.10	
Hardgrove index:	43.00	
Phosphorous in coal (%):	0.111	

----- ASH FUSION ANALYSIS (AF1) -----
OXIDIZING ATM REDUCING ATM

Initial temperature (°C):	1,281.00	1,265.00
Softening temperature (°C):	1,327.00	1,302.00
Hemispherical temperature (°C):	1,354.00	1,343.00
Final temperature (°C):	1,458.00	1,449.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	59.14	TiO2 (%):	1.34
Al2O3 (%):	22.68	Na2O (%):	2.24
Fe2O3 (%):	2.75	K2O (%):	0.79
CaO (%):	4.48	SO3 (%):	1.12
MgO (%):	1.66	P2O5 (%):	2.32

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86008
 Coal zone: H REP
 Field sample no.: 05434 - 05437 Composite sample no.: 312
 Lab sample no.: 29614

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.52
 Contribution (%): 14.83
 Total yield (%): 14.83

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.79	
Ash (%):	6.80	6.85
Volatile matter (%):	7.28	7.34
Fixed carbon (%):	85.13	85.81
Total sulphur (%):	0.47	0.47
Combustible sulphur (%):	0.44	
Gross calorific value (cal/g):	7,708.00	7,769.00
Volatile matter (dmmf %):	7.20	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.087	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,284.00	1,214.00
Softening temperature (°C):	1,321.00	1,268.00
Hemispherical temperature (°C):	1,354.00	1,337.00
Final temperature (°C):	1,442.00	1,440.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	60.32	TiO2 (%):	2.05
Al2O3 (%):	22.69	Na2O (%):	2.24
Fe2O3 (%):	2.82	K2O (%):	0.78
CaO (%):	5.12	SO3 (%):	1.03
MgO (%):	1.59	P2O5 (%):	2.92

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SAMPLE ID - 22

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 61.70				ASH % - 61.61						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.55	3.41	0.55	3.41	99.45	63.00							0.59	0.59
1.45	1.42	6.36	1.97	5.54	98.03	63.82							0.75	0.71
1.50	5.65	13.05	7.62	11.11	92.38	66.93							0.81	0.78
1.55	3.14	16.35	10.76	12.64	89.24	68.71							1.03	0.86
1.60	3.27	18.55	14.03	14.02	85.97	70.61							0.93	0.87
1.70	1.58	25.13	15.61	15.14	84.39	71.46							1.43	0.93
1.80	5.31	25.79	20.92	17.84	79.08	74.53							1.94	1.19
2.00	4.64	37.34	25.56	21.38	74.44	76.85							1.90	1.32
2.60	74.44	76.85	100.00	62.67									0.98	1.07

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 28.48				ASH % - 33.67						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	7.13	2.31	7.13	2.31	92.87	36.48							0.70	0.70
1.45	11.08	5.65	18.21	4.34	81.79	40.66							0.85	0.80
1.50	9.00	10.18	27.21	6.27	72.79	44.42							1.16	0.92
1.55	6.77	12.89	33.98	7.59	66.02	47.66							1.20	0.97
1.60	0.12	13.12	34.10	7.61	65.90	47.72							1.59	0.98
1.70	6.67	15.78	40.77	8.95	59.23	51.32							1.93	1.13
1.80	18.67	21.85	59.44	13.00	40.56	64.88							2.03	1.41
2.00	11.42	34.62	70.86	16.48	29.14	76.74							1.97	1.50
2.60	29.14	76.74	100.00	34.04									1.76	1.58

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SAMPLE ID - 22

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		0.50 X 0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 6.15 ASH % - 25.77				CUM. C.V. CUM.		CUM. CUM.		CUM. CUM.	
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST	
1.40	12.93	3.94		12.93	3.94	87.07	28.65								0.93	0.93	
1.45	16.20	4.08		29.13	4.02	70.87	34.26								1.08	1.01	
1.50	11.94	7.50		41.07	5.03	58.93	39.69								1.61	1.19	
1.55	6.16	10.46		47.23	5.74	52.77	43.10								1.80	1.27	
1.60	4.03	13.00		51.26	6.31	48.74	45.59								1.88	1.32	
1.70	10.42	16.94		61.68	8.11	38.32	53.38								1.95	1.42	
1.80	10.65	21.87		72.33	10.13	27.67	65.51								1.97	1.50	
2.00	7.98	32.68		80.31	12.37	19.69	78.81								1.72	1.52	
2.60	19.69	78.81		100.00	25.45										1.56	1.53	

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 3.67 ASH % - 24.83				CUM. C.V. CUM.		CUM. CUM.		CUM. CUM.	
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST	
240.00	*****	24.83		100.00	24.83			25.53	25.53	0.43	0.43	0.43	8.07	8.07	0.60	0.60	

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DATA SOURCE - KPNLRDDH86008 SEAM - PH

SAMPLE ID - 23

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 53.89 ASH % - 33.71				CUM.				
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM.	C.V.	CUM.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.85	4.77		0.85	4.77	99.15	34.95								0.48	0.48
1.45	3.17	7.39		4.02	6.84	95.98	35.86								0.61	0.58
1.50	6.01	12.24		10.03	10.07	89.97	37.44								0.70	0.65
1.55	9.24	16.57		19.27	13.19	80.73	39.83								0.74	0.69
1.60	6.40	20.04		25.67	14.90	74.33	41.53								0.69	0.69
1.70	16.20	27.09		41.87	19.61	58.13	45.55								0.67	0.68
1.80	20.77	35.79		62.64	24.98	37.36	50.98								0.91	0.76
2.00	12.72	43.30		75.36	28.07	24.64	54.95								0.90	0.78
2.60	24.64	54.95		100.00	34.69										0.70	0.76

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

FRACTION SIZE(MM)		6.00 X 0.50		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 34.10 ASH % - 20.64				CUM.				
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM.	C.V.	CUM.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	11.74	2.52		11.74	2.52	88.26	21.53								0.60	0.60
1.45	23.61	6.20		35.35	4.98	64.65	27.13								0.68	0.65
1.50	14.12	11.00		49.47	6.70	50.53	31.64								0.76	0.68
1.55	13.77	14.75		63.24	8.45	36.76	37.97								0.76	0.70
1.60	6.43	18.08		69.67	9.34	30.33	42.18								0.97	0.73
1.70	10.07	22.64		79.74	11.02	20.26	51.90								1.46	0.82
1.80	5.05	28.77		84.79	12.08	15.21	59.58								1.69	0.87
2.00	4.75	38.36		89.54	13.47	10.46	69.21								1.71	0.91
2.60	10.46	69.21		100.00	19.30										1.58	0.98

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DATA SOURCE - KPNLRDDH8600B SEAM - PH

SAMPLE ID - 23

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	0.50 X 0.15		CUM. FLOATS	CUM. SINKS	RELATIVE WEIGHT % -			8.33 ASH % - 15.67		CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST		
	ELEMENTAL	WT%			ASH%	CUM.	C.V.	CUM.	CUM.					CUM.	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	9.24	1.88	9.24	1.88	90.76	16.34								0.95	0.95
1.45	27.41	3.11	36.65	2.80	63.35	22.06								1.16	1.11
1.50	14.11	6.77	50.76	3.90	49.24	26.45								1.43	1.20
1.55	12.97	9.69	63.73	5.08	36.27	32.44								1.92	1.34
1.60	5.95	12.60	69.68	5.72	30.32	36.33								2.10	1.41
1.70	8.99	16.59	78.67	6.96	21.33	44.65								1.98	1.47
1.80	7.03	21.67	85.70	8.17	14.30	55.95								1.74	1.50
2.00	5.38	32.83	91.08	9.63	8.92	69.90								1.99	1.52
2.60	8.92	69.90	100.00	15.00										1.48	1.52

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X 0.00		CUM. FLOATS	CUM. SINKS	RELATIVE WEIGHT % -			3.68 ASH % - 23.28		CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST		
	ELEMENTAL	WT%			ASH%	CUM.	C.V.	CUM.	CUM.					CUM.	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	23.28	100.00	23.28			26.35	26.35	0.42	0.42	0.42	7.45	7.45	0.92	0.92

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DATA SOURCE - KPnlRDDH86008 SEAM - PH

SAMPLE ID - 24

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		0.50 X 0.15				RELATIVE WEIGHT % -		7.51 ASH % - 23.09						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	3.80	2.75	3.80	2.75	96.20	23.35							1.10	1.10
1.45	24.09	3.72	27.89	3.59	72.11	29.91							2.10	1.96
1.50	16.76	6.56	44.65	4.70	55.35	36.98							2.01	1.98
1.55	11.85	9.46	56.50	5.70	43.50	44.47							1.82	1.95
1.60	6.83	12.12	63.33	6.39	36.67	50.50							1.45	1.89
1.70	7.77	16.67	71.10	7.52	28.90	59.60							1.68	1.87
1.80	5.46	22.56	76.56	8.59	23.44	68.22							1.23	1.82
2.00	4.37	34.42	80.93	9.98	19.07	75.97							1.30	1.80
2.60	19.07	75.97	100.00	22.57									1.92	1.82

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X 0.00				RELATIVE WEIGHT % -		3.81 ASH % - 28.92						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	28.92	100.00	28.92									23.86	0.96

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DATA SOURCE - KPNLRDDH86009 SEAM - K

SAMPLE ID - 25

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 56.09 ASH % - 34.96								
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. (MJ/KG)	CUM. C.V.	S	CUM. S	VOL.	CUM. VOL.	MOIST	CUM. MOIST
1.40	0.95	2.70		0.95	2.70	99.05	35.83								0.84	0.84
1.45	9.34	8.18		10.29	7.67	89.71	38.71								0.84	0.84
1.50	10.90	12.29		21.19	10.05	78.81	42.36								0.99	0.92
1.55	11.69	16.44		32.88	12.32	67.12	46.88								1.01	0.95
1.60	5.47	21.04		38.35	13.56	61.65	49.17								1.31	1.00
1.70	9.69	26.28		48.04	16.13	51.96	53.44								1.26	1.05
1.80	10.50	35.97		58.54	19.69	41.46	57.87								1.50	1.13
2.00	17.63	41.64		76.17	24.77	23.83	69.87								1.33	1.18
2.60	23.83	69.87		100.00	35.52										1.67	1.30

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

FRACTION SIZE(MM)		6.00 X 0.50		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 31.54 ASH % - 19.15								
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. (MJ/KG)	CUM. C.V.	S	CUM. S	VOL.	CUM. VOL.	MOIST	CUM. MOIST
1.40	16.26	2.24		16.26	2.24	83.74	21.96								0.96	0.96
1.45	18.76	6.61		35.02	4.58	64.98	26.40								1.30	1.14
1.50	14.34	10.69		49.36	6.36	50.64	30.84								1.80	1.33
1.55	9.34	14.23		58.70	7.61	41.30	34.60								1.81	1.41
1.60	6.85	16.60		65.55	8.55	34.45	38.18								1.48	1.42
1.70	11.22	21.19		76.77	10.40	23.23	46.38								1.89	1.49
1.80	8.21	28.48		84.98	12.14	15.02	56.17								1.62	1.50
2.00	6.38	39.54		91.36	14.06	8.64	68.45								1.51	1.50
2.60	8.64	68.45		100.00	18.76										1.89	1.53

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ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	0.50 X 0.15		RELATIVE WEIGHT % -				8.01 ASH % - 15.45								
	ELEMENTAL	CUM. FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.					
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	18.77	2.00	18.77	2.00	81.23	17.84								1.22	1.22
1.45	23.53	3.42	42.30	2.79	57.70	23.72								1.50	1.38
1.50	14.71	6.08	57.01	3.64	42.99	29.75								1.90	1.51
1.55	10.45	9.56	67.46	4.56	32.54	36.24								1.91	1.57
1.60	4.43	12.51	71.89	5.05	28.11	39.98								1.40	1.56
1.70	7.51	16.60	79.40	6.14	20.60	48.50								1.52	1.56
1.80	6.32	22.43	85.72	7.34	14.28	60.04								1.60	1.56
2.00	4.14	36.48	89.86	8.68	10.14	69.66								1.20	1.54
2.60	10.14	69.66	100.00	14.87										1.35	1.52

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X 0.00		RELATIVE WEIGHT % -				4.36 ASH % - 18.85								
	ELEMENTAL	CUM. FLDATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.					
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	18.85	100.00	18.85			27.81	27.81	0.49	0.49	0.49	6.85	6.85	1.00	1.00

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DATA SOURCE - KPnlRDDH86009 SEAM - K

SAMPLE ID - 26

WASHABILITY ID - WA1

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

FRACTION	SIZE(MM)		35.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 63.02 ASH % - 73.46					
	SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.28	3.12	0.28	3.12	99.72	74.79									0.39	0.39
1.45	0.52	6.69	0.80	5.44	99.20	75.14									0.62	0.54
1.50	0.53	9.93	1.33	7.23	98.67	75.49									0.82	0.65
1.55	2.18	15.81	3.51	12.56	96.49	76.84									0.74	0.71
1.60	1.95	21.15	5.46	15.63	94.54	77.99									0.97	0.80
1.70	3.54	27.55	9.00	20.32	91.00	79.95									0.93	0.85
1.80	2.95	37.33	11.95	24.52	88.05	81.38									0.98	0.88
2.00	4.29	45.46	16.24	30.05	83.76	83.22									1.20	0.97
2.60	83.76	83.22	100.00	74.59											1.09	1.07

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

FRACTION	SIZE(MM)		6.00 X 0.50		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 25.76 ASH % - 43.52					
	SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	10.30	2.63	10.30	2.63	89.70	47.21									0.61	0.61
1.45	6.72	6.43	17.02	4.13	82.98	50.51									0.82	0.69
1.50	5.75	10.79	22.77	5.81	77.23	53.47									0.78	0.71
1.55	8.17	15.34	30.94	8.33	69.06	57.98									0.72	0.72
1.60	4.70	18.32	35.64	9.65	64.36	60.87									1.09	0.77
1.70	11.23	24.47	46.87	13.20	53.13	68.57									1.82	1.02
1.80	7.29	31.83	54.16	15.71	45.84	74.41									1.94	1.14
2.00	9.14	40.87	63.30	19.34	36.70	82.76									1.64	1.21
2.60	36.70	82.76	100.00	42.61											1.56	1.34

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ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % - 7.09				ASH % - 20.90							
ELEMENTAL		CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.				
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	25.11	1.02	25.11	1.02	74.89	26.84								0.94	0.94
1.45	25.27	2.65	50.38	1.84	49.62	39.16								1.07	1.01
1.50	4.33	6.26	54.71	2.19	45.29	42.31								1.43	1.04
1.55	7.95	9.01	62.66	3.05	37.34	49.39								1.94	1.15
1.60	5.04	12.36	67.70	3.75	32.30	55.17								1.89	1.21
1.70	4.74	17.36	72.44	4.64	27.56	61.68								2.01	1.26
1.80	4.89	23.83	77.33	5.85	22.67	69.84								1.42	1.27
2.00	5.20	34.80	82.53	7.67	17.47	80.27								1.66	1.30
2.60	17.47	80.27	100.00	20.36										1.51	1.33

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % - 4.13				ASH % - 21.57							
ELEMENTAL		CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.				
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	21.57	100.00	21.57			26.85	26.85	0.56	0.56	0.56	6.60	6.60	1.05	1.05

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86009
 Coal zone: K
 Field sample no.: 05444 - 05446 Composite sample no.: 213
 Lab sample no.: 29614

----- PRODUCT COAL ANALYSIS (SP4) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.54
 Contribution (%): 11.29
 Total yield (%): 11.29

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.78	
Ash (%):	10.90	10.99
Volatile matter (%):	7.21	7.27
Fixed carbon (%):	81.11	81.74
Total sulphur (%):	0.52	0.52
Combustible sulphur (%):	0.50	
Gross calorific value (cal/g):	7,342.00	7,400.00
Volatile matter (dmmf %):	7.10	
Hardgrove index:	42.00	
Phosphorous in coal (%):	0.125	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,297.00	1,260.00
Softening temperature (°C):	1,364.00	1,332.00
Hemispherical temperature (°C):	1,402.00	1,370.00
Final temperature (°C):	1,472.00	1,456.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	54.74	TiO2 (%):	1.63
Al2O3 (%):	25.33	Na2O (%):	2.18
Fe2O3 (%):	4.44	K2O (%):	1.11
CaO (%):	3.61	SO3 (%):	0.54
MgO (%):	1.43	P2O5 (%):	2.62

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86009
 Coal zone: K
 Field sample no.: 05444 - 05446 Composite sample no.: 313
 Lab sample no.: 29614

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.54
 Contribution (%): 12.97
 Total yield (%): 12.97

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.76	
Ash (%):	6.83	6.88
Volatile matter (%):	8.34	8.40
Fixed carbon (%):	84.07	84.72
Total sulphur (%):	0.55	0.55
Combustible sulphur (%):	0.53	
Gross calorific value (cal/g):	7,660.00	7,719.00
Volatile matter (dmmf %):	8.30	
Hardgrove index:	43.00	
Phosphorous in coal (%):	0.052	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,370.00	1,289.00
Softening temperature (°C):	1,472.00	1,370.00
Hemispherical temperature (°C):	1,472.00	1,396.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	57.64	TiO2 (%):	2.43
Al2O3 (%):	25.71	Na2O (%):	1.83
Fe2O3 (%):	3.22	K2O (%):	1.16
CaO (%):	2.66	SO3 (%):	0.63
MgO (%):	1.45	P2O5 (%):	1.75

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DATA SOURCE - KPNLRDDH86009 SEAM - H

SAMPLE ID - 30

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 38.27				ASH % - 41.70							
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V. CUM.		CUM.		CUM.					
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.33	5.10	0.33	5.10	99.67	41.37								0.46	0.46
1.45	1.99	7.52	2.32	7.18	97.68	42.06								0.59	0.57
1.50	2.82	18.17	5.14	13.21	94.86	42.77								0.69	0.64
1.55	5.29	18.43	10.43	15.86	89.57	44.20								0.60	0.62
1.60	11.62	23.22	22.05	19.74	77.95	47.33								0.70	0.68
1.70	16.34	28.36	38.39	23.41	61.61	52.36								0.65	0.66
1.80	8.44	33.23	46.83	25.18	53.17	55.40								0.95	0.71
2.00	34.12	49.14	80.95	35.28	19.05	66.61								1.20	0.92
2.60	19.05	66.61	100.00	41.25										1.02	0.94

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 42.44				ASH % - 29.16							
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V. CUM.		CUM.		CUM.					
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	7.32	2.12	7.32	2.12	92.68	30.31								0.38	0.38
1.45	12.06	5.32	19.38	4.11	80.62	34.05								0.34	0.36
1.50	9.05	10.15	28.43	6.03	71.57	37.07								0.42	0.38
1.55	8.03	15.06	36.46	8.02	63.54	39.85								0.57	0.42
1.60	7.12	18.26	43.58	9.69	56.42	42.58								0.81	0.48
1.70	11.96	23.73	55.54	12.72	44.46	47.65								1.28	0.65
1.80	7.68	31.35	63.22	14.98	36.78	51.05								1.69	0.78
2.00	22.94	41.80	86.16	22.12	13.84	66.38								1.89	1.08
2.60	13.84	66.38	100.00	28.25										1.84	1.18

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

FRACTION SIZE(MM)	0.50 X 0.15		CUM. FLOATS	CUM. SINKS	RELATIVE WEIGHT % - 12.61 ASH % - 19.48				CUM. MOIST	CUM. MOIST					
	ELEMENTAL				CUM.	SINKS	CUM. C.V.	CUM.			CUM.	CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	11.08	3.28	11.08	3.28	88.92	20.41								1.16	1.16
1.45	18.70	2.62	29.78	2.87	70.22	25.14								1.10	1.12
1.50	15.33	5.64	45.11	3.81	54.89	30.59								1.22	1.16
1.55	8.82	9.98	53.93	4.82	46.07	34.54								1.81	1.26
1.60	4.87	11.68	58.80	5.39	41.20	37.24								2.01	1.32
1.70	11.84	16.83	70.64	7.30	29.36	45.47								1.42	1.34
1.80	7.27	24.90	77.91	8.95	22.09	52.24								1.78	1.38
2.00	11.02	38.13	88.93	12.56	11.07	66.28								1.26	1.37
2.60	11.07	66.28	100.00	18.51										1.98	1.43

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)	0.15 X 0.00		CUM. FLOATS	CUM. SINKS	RELATIVE WEIGHT % - 6.68 ASH % - 23.67				CUM. MOIST	CUM. MOIST					
	ELEMENTAL				CUM.	SINKS	CUM. C.V.	CUM.			CUM.	CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	23.67	100.00	23.67			25.94	25.94	0.44	0.44	0.44	6.57	6.57	0.95	0.95

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ANALYSIS TYPE - FLOAT														
FRACTION SIZE(MM)		35.00 X 6.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 42.15 ASH % - 42.43						
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST
1.40	0.22	2.92	0.22	2.92	99.78	43.65							0.47	0.47
1.45	1.32	6.36	1.54	5.87	98.46	44.15							0.53	0.52
1.50	5.26	11.60	6.80	10.30	93.20	45.99							0.27	0.33
1.55	8.83	16.48	15.63	13.79	84.37	49.07							0.54	0.45
1.60	6.34	18.05	21.97	15.02	78.03	51.59							0.70	0.52
1.70	15.16	23.96	37.13	18.67	62.87	58.26							1.38	0.87
1.80	6.58	27.62	43.71	20.02	56.29	61.84							1.91	1.03
2.00	13.08	37.36	56.79	24.01	43.21	69.25							1.56	1.15
2.60	43.21	69.25	100.00	43.56									0.77	0.99

ANALYSIS TYPE - FLOAT														
FRACTION SIZE(MM)		6.00 X 0.50		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 40.51 ASH % - 27.50						
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST
1.40	4.27	1.68	4.27	1.68	95.73	27.09							0.56	0.56
1.45	9.49	5.19	13.76	4.10	86.24	29.50							1.40	1.14
1.50	9.35	9.85	23.11	6.43	76.89	31.89							0.52	0.89
1.55	9.93	12.80	33.04	8.34	66.96	34.72							0.62	0.81
1.60	4.66	15.15	37.70	9.18	62.30	36.19							1.23	0.86
1.70	19.79	17.55	57.49	12.06	42.51	44.87							2.11	1.29
1.80	13.79	24.35	71.28	14.44	28.72	54.72							1.73	1.38
2.00	14.46	37.78	85.74	18.38	14.26	71.89							1.72	1.43
2.60	14.26	71.89	100.00	26.01									1.32	1.42

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

FRACTION SIZE(MM)	0.50 X		0.15		CUM. SINKS		RELATIVE WEIGHT % - 11.11 ASH % - 19.32								
	ELEMENTAL	CUM.	FLOATS	CUM.	WT%	ASH%	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	5.00	1.45	5.00	1.45	95.00	19.02								0.52	0.52
1.45	14.88	2.20	19.88	2.01	80.12	22.15								0.58	0.56
1.50	13.84	4.74	33.72	3.13	66.28	25.78								1.03	0.76
1.55	4.30	7.47	38.02	3.62	61.98	27.06								0.99	0.78
1.60	9.17	8.80	47.19	4.63	52.81	30.23								1.75	0.97
1.70	17.53	12.42	64.72	6.74	35.28	39.07								1.87	1.21
1.80	12.19	19.42	76.91	8.75	23.09	49.45								1.17	1.21
2.00	12.58	31.60	89.49	11.96	10.51	70.81								1.35	1.23
2.60	10.51	70.81	100.00	18.15										1.26	1.23

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)	0.15 X		0.00		CUM. SINKS		RELATIVE WEIGHT % - 6.23 ASH % - 23.08								
	ELEMENTAL	CUM.	FLOATS	CUM.	WT%	ASH%	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	23.08	100.00	23.08										1.03	1.03

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ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		35.00 X		6.00		CUM. SINKS		RELATIVE WEIGHT % - 55.42 ASH % - 44.49				CUM. MOIST				
SG-TME	ELEMENTAL	CUM. FLOATS		WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. FSI (MJ/KG)	CUM. C.V.	S	CUM. S	VOL.	VOL.	MOIST	MOIST
	WT%	ASH%	WT%	ASH%												
1.40	1.04	3.05	1.04	3.05	98.96	44.01									0.59	0.59
1.45	3.47	7.02	4.51	6.10	95.49	45.36									0.59	0.59
1.50	4.71	12.34	9.22	9.29	90.78	47.07									0.72	0.66
1.55	8.44	15.75	17.66	12.38	82.34	50.28									0.74	0.70
1.60	10.74	22.62	28.40	16.25	71.60	54.43									1.03	0.82
1.70	15.97	28.42	44.37	20.63	55.63	61.89									1.50	1.07
1.80	7.59	34.58	51.96	22.67	48.04	66.21									1.70	1.16
2.00	13.00	45.91	64.96	27.32	35.04	73.74									1.57	1.24
2.60	35.04	73.74	100.00	43.59											0.93	1.13

ANALYSIS TYPE - FLDAT

FRACTION SIZE(MM)		6.00 X		0.50		CUM. SINKS		RELATIVE WEIGHT % - 32.61 ASH % - 28.33				CUM. MOIST				
SG-TME	ELEMENTAL	CUM. FLOATS		WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. FSI (MJ/KG)	CUM. C.V.	S	CUM. S	VOL.	VOL.	MOIST	MOIST
	WT%	ASH%	WT%	ASH%												
1.40	11.55	2.00	11.55	2.00	88.45	32.31									0.65	0.65
1.45	18.98	5.79	30.53	4.36	69.47	39.55									0.83	0.78
1.50	9.83	10.28	40.36	5.80	59.64	44.38									1.00	0.82
1.55	8.26	14.07	48.62	7.20	51.38	49.25									1.46	0.93
1.60	7.36	17.46	55.98	8.55	44.02	54.57									1.42	0.99
1.70	10.15	21.40	66.13	10.52	33.87	64.50									1.83	1.12
1.80	6.06	28.13	72.19	12.00	27.81	72.43									1.58	1.16
2.00	5.40	39.61	77.59	13.92	22.41	80.34									1.62	1.19
2.60	22.41	80.34	100.00	28.81											1.46	1.25

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

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -					7.50 ASH % - 28.84					
SG-TME	ELEMENTAL	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	WT%	ASH%	CUM. FSI	C.V. (MJ/KG)	CUM. S	CUM. S	VOL. VOL.	CUM. MOIST	CUM. MOIST
1.40	30.84	2.74		30.84	2.74		69.16	41.85							0.99	0.99
1.45	3.83	4.56		34.67	2.94		65.33	44.03							1.16	1.01
1.50	7.52	8.00		42.19	3.84		57.81	48.72							1.59	1.11
1.55	4.39	10.55		46.58	4.47		53.42	51.86							1.97	1.19
1.60	5.86	12.37		52.44	5.36		47.56	56.72							1.58	1.24
1.70	4.17	13.75		56.61	5.98		43.39	60.85							1.96	1.29
1.80	7.98	21.56		64.59	7.90		35.41	69.71							1.90	1.37
2.00	6.34	33.19		70.93	10.16		29.07	77.67							1.69	1.39
2.60	29.07	77.67		100.00	29.79										1.38	1.39

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -					4.47 ASH % - 26.55						
SG-TME	ELEMENTAL	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	WT%	ASH%	CUM. FSI	C.V. (MJ/KG)	CUM. S	CUM. S	VOL. VOL.	CUM. MOIST	CUM. MOIST	
240.00	*****	26.55		100.00	26.55					24.84	24.84	0.41	0.41	6.69	6.69	1.03	1.03

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86009
 Field sample no.: 05444 - Composite sample no.: 214
 Lab sample no.: 29614

----- PRODUCT COAL ANALYSIS (SP4) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.54
 Contribution (%): 6.76
 Total yield (%): 6.76

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.72	
Ash (%):	10.32	10.40
Volatile matter (%):	6.99	7.04
Fixed carbon (%):	81.97	82.56
Total sulphur (%):	0.50	0.50
Combustible sulphur (%):	0.46	
Gross calorific value (cal/g):	7,371.00	7,425.00
Volatile matter (dmmf %):	6.80	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.108	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,278.00	1,190.00
Softening temperature (°C):	1,337.00	1,294.00
Hemispherical temperature (°C):	1,354.00	1,332.00
Final temperature (°C):	1,461.00	1,450.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	63.74	TiO2 (%):	1.70
Al2O3 (%):	20.04	Na2O (%):	1.79
Fe2O3 (%):	2.20	K2O (%):	0.68
CaO (%):	3.78	SO3 (%):	0.86
MgO (%):	1.24	P2O5 (%):	2.39

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86009
 Field sample no.: 05444 - Composite sample no.: 314
 Lab sample no.: 29614

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.55
 Contribution (%): 14.71
 Total yield (%): 14.71

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.98	
Ash (%):	7.21	7.28
Volatile matter (%):	7.08	7.15
Fixed carbon (%):	84.73	85.57
Total sulphur (%):	0.51	0.52
Combustible sulphur (%):	0.49	
Gross calorific value (cal/g):	7,610.00	7,685.00
Volatile matter (dmmf %):	7.00	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.057	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,284.00	1,192.00
Softening temperature (°C):	1,359.00	1,327.00
Hemispherical temperature (°C):	1,407.00	1,375.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	64.22	TiO2 (%):	2.10
Al2O3 (%):	22.68	Na2O (%):	1.75
Fe2O3 (%):	1.89	K2O (%):	0.72
CaO (%):	2.80	SO3 (%):	0.58
MgO (%):	1.16	P2O5 (%):	1.80

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ANALYSIS TYPE - FLOAT																
FRACTION SIZE(MM)		35.00 X 6.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 61.55 ASH % - 50.95								
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	CUM.	CUM.	CUM.	CUM.	MOIST	MOIST
1.40	0.62	3.54	0.62	3.54	99.38	51.76									0.68	0.68
1.45	2.86	8.20	3.48	7.37	96.52	53.05									0.73	0.72
1.50	7.89	14.27	11.37	12.16	88.63	56.51									0.74	0.73
1.55	8.80	18.91	20.17	15.10	79.83	60.65									1.22	0.95
1.60	6.58	22.92	26.75	17.03	73.25	64.04									1.47	1.08
1.70	11.97	29.33	38.72	20.83	61.28	70.82									1.46	1.19
1.80	3.85	36.04	42.57	22.21	57.43	73.15									1.84	1.25
2.00	12.00	53.10	54.57	29.00	45.43	78.45									1.99	1.41
2.60	45.43	78.45	100.00	51.46											1.24	1.34

ANALYSIS TYPE - FLOAT																
FRACTION SIZE(MM)		6.00 X 0.50		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 26.70 ASH % - 23.48								
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	CUM.	CUM.	CUM.	CUM.	MOIST	MOIST
1.40	16.30	2.22	16.30	2.22	83.70	28.30									0.90	0.90
1.45	13.57	6.41	29.87	4.12	70.13	32.53									1.09	0.99
1.50	12.72	10.94	42.59	6.16	57.41	37.32									1.29	1.08
1.55	9.00	14.14	51.59	7.55	48.41	41.63									1.51	1.15
1.60	0.30	17.24	51.89	7.61	48.11	41.78									1.87	1.16
1.70	15.06	17.96	66.95	9.94	33.05	52.63									1.37	1.20
1.80	8.96	23.73	75.91	11.56	24.09	63.39									1.84	1.28
2.00	7.16	36.94	83.07	13.75	16.93	74.57									1.25	1.28
2.60	16.93	74.57	100.00	24.05											1.53	1.32

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

FRACTION SIZE(MM)		0.50 X 0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 6.96				ASH % - 17.85					
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	CUM.	CUM.	VOL.	VOL.	MOIST	MOIST
1.40	26.26	3.28		26.26	3.28	73.74	22.38									1.57	1.57
1.45	15.73	4.51		41.99	3.74	58.01	27.23									1.88	1.69
1.50	11.77	7.21		53.76	4.50	46.24	32.33									1.99	1.75
1.55	8.07	10.23		61.83	5.25	38.17	37.00									1.11	1.67
1.60	7.66	13.40		69.49	6.15	30.51	42.92									1.15	1.61
1.70	9.15	17.67		78.64	7.49	21.36	53.74									1.61	1.61
1.80	5.72	26.63		84.36	8.79	15.64	63.65									1.33	1.59
2.00	3.86	36.47		88.22	10.00	11.78	72.56									1.82	1.60
2.60	11.78	72.56		100.00	17.37											1.10	1.54

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 4.79				ASH % - 20.96					
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	CUM.	CUM.	VOL.	VOL.	MOIST	MOIST
240.00	*****	20.96		100.00	20.96											1.02	1.02

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 63.21 ASH % - 8.97												
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V. CUM.		CUM. C.V. CUM.		CUM. CUM.						
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI	(MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	33.42	4.08	33.42	4.08	66.58	10.81									0.80	0.80
1.45	44.09	6.66	77.51	5.55	22.49	18.94									0.82	0.84
1.50	10.99	10.43	88.50	6.15	11.50	27.06									1.22	0.86
1.55	3.22	13.90	91.72	6.43	8.28	32.18									0.92	0.86
1.60	2.34	18.55	94.06	6.73	5.94	37.55									0.95	0.87
1.70	2.65	24.64	96.71	7.22	3.29	47.95									0.97	0.87
1.80	0.97	27.72	97.68	7.42	2.32	56.41									1.02	0.87
2.00	0.74	37.71	98.42	7.65	1.58	65.17									1.13	0.87
2.60	1.58	65.17	100.00	8.56											1.17	0.88

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 26.12 ASH % - 8.49												
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V. CUM.		CUM. C.V. CUM.		CUM. CUM.						
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI	(MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	33.52	2.13	33.52	2.13	66.48	11.06									0.61	0.61
1.45	35.07	5.05	68.59	3.62	31.41	17.77									0.97	0.79
1.50	13.87	9.40	82.46	4.59	17.54	24.39									0.89	0.81
1.55	6.27	12.60	88.73	5.16	11.27	30.95									1.38	0.85
1.60	4.13	14.37	92.86	5.57	7.14	40.54									1.05	0.86
1.70	2.77	20.74	95.63	6.01	4.37	53.09									1.14	0.87
1.80	0.75	28.89	96.38	6.19	3.62	58.11									1.60	0.87
2.00	0.79	38.98	97.17	6.45	2.83	63.45									1.63	0.88
2.60	2.83	63.45	100.00	8.07											1.20	0.89

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86010 SEAM - 1

SAMPLE ID - 32

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -				6.37 ASH % -		8.01	
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	42.18	2.73	42.18	2.73	57.82	11.02							1.68
1.45	27.56	4.25	69.74	3.33	30.26	17.19							1.43
1.50	8.79	7.24	78.53	3.77	21.47	21.27							1.40
1.55	6.87	10.31	85.40	4.29	14.60	26.43							1.41
1.60	5.46	12.23	90.86	4.77	9.14	34.91							1.44
1.70	3.83	16.99	94.69	5.27	5.31	47.83							1.47
1.80	1.54	26.57	96.23	5.61	3.77	56.51							1.48
2.00	1.22	37.87	97.45	6.01	2.55	65.43							1.49
2.60	2.55	65.43	100.00	7.53									1.32

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -				4.30 ASH % -		11.87	
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST
240.00	*****	11.87	100.00	11.87			30.67	30.67	0.46	0.46	6.46	6.46	0.97

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86010
 Coal zone: I
 Field sample no.: 05293 Composite sample no.: 215
 Lab sample no.: 29614

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.49
 Contribution (%): 5.52
 Total yield (%): 5.52

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.72	
Ash (%):	9.23	9.30
Volatile matter (%):	6.19	6.24
Fixed carbon (%):	83.86	84.46
Total sulphur (%):	0.47	0.47
Combustible sulphur (%):	0.46	
Gross calorific value (cal/g):	7,414.00	7,468.00
Volatile matter (dmmf %):	6.00	
Hardgrove index:	58.00	
Phosphorous in coal (%):	0.044	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,332.00	1,322.00
Softening temperature (°C):	1,386.00	1,380.00
Hemispherical temperature (°C):	1,420.00	1,413.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	65.63	TiO2 (%):	1.25
Al2O3 (%):	21.23	Na2O (%):	1.63
Fe2O3 (%):	2.02	K2O (%):	1.07
CaO (%):	2.09	SO3 (%):	0.29
MgO (%):	1.48	P2O5 (%):	1.09

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86010
 Coal zone: 1
 Field sample no.: 05294 Composite sample no.: 216
 Lab sample no.: 29553

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.53
 Contribution (%): 57.11
 Total yield (%): 57.11

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.84	
Ash (%):	5.85	5.90
Volatile matter (%):	6.06	6.11
Fixed carbon (%):	87.25	87.99
Total sulphur (%):	0.48	0.48
Combustible sulphur (%):	0.45	
Gross calorific value (cal/g):	7,901.00	7,969.00
Volatile matter (dmmf %):	5.90	
Hardgrove index:	33.00	
Phosphorous in coal (%):	0.211	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,284.00	1,268.00
Softening temperature (°C):	1,297.00	1,281.00
Hemispherical temperature (°C):	1,316.00	1,292.00
Final temperature (°C):	1,415.00	1,410.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	41.40	TiO2 (%):	1.27
Al2O3 (%):	28.64	Na2O (%):	2.47
Fe2O3 (%):	3.44	K2O (%):	1.16
CaO (%):	8.06	SO3 (%):	1.20
MgO (%):	1.57	P2O5 (%):	8.27

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86010
 Coal zone: I
 Field sample no.: 05294 Composite sample no.: 216
 Lab sample no.: 29553

----- PRODUCT COAL ANALYSIS (SP5) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.56
 Contribution (%): 1.74
 Total yield (%): 1.74

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.83	
Ash (%):	16.46	16.60
Volatile matter (%):	10.98	11.07
Fixed carbon (%):	71.73	72.33
Total sulphur (%):	0.41	0.41
Combustible sulphur (%):	0.13	
Gross calorific value (cal/g):	6,673.00	6,729.00
Volatile matter (dmmf %):	11.80	
Phosphorous in coal (%):	0.115	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,278.00	1,155.00
Softening temperature (°C):	1,383.00	1,182.00
Hemispherical temperature (°C):	1,413.00	1,211.00
Final temperature (°C):	1,448.00	1,278.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	25.20	TiO2 (%):	0.85
Al2O3 (%):	12.85	Na2O (%):	1.58
Fe2O3 (%):	31.26	K2O (%):	0.58
CaO (%):	14.00	SO3 (%):	4.18
MgO (%):	7.63	P2O5 (%):	1.60

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86010
 Coal zone: 1
 Field sample no.: 05293 Composite sample no.: 315
 Lab sample no.: 29614

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.64
 Contribution (%): 21.05
 Total yield (%): 21.05

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.73	
Ash (%):	6.44	6.49
Volatile matter (%):	6.95	7.00
Fixed carbon (%):	85.88	86.51
Total sulphur (%):	0.46	0.46
Combustible sulphur (%):	0.44	
Gross calorific value (cal/g):	7,748.00	7,806.00
Volatile matter (dmmf %):	6.80	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.107	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,257.00	1,192.00
Softening temperature (°C):	1,321.00	1,316.00
Hemispherical temperature (°C):	1,375.00	1,364.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	56.84	TiO2 (%):	1.70
Al2O3 (%):	25.71	Na2O (%):	1.75
Fe2O3 (%):	2.26	K2O (%):	1.08
CaO (%):	4.00	SO3 (%):	0.89
MgO (%):	1.46	P2O5 (%):	3.82

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86010 SEAM - H

SAMPLE ID - 33

WASHABILITY ID - WA1

----- ANALYSIS TYPE - FLOAT -----														
FRACTION SIZE(MM) 35.00 X 6.00			RELATIVE WEIGHT % - 51.61 ASH % - 50.96											
SG-TME	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. WT%	SINKS ASH%	CUM. FSI	C.V. (MJ KG) C.V.	S	CUM. S	CUM. VOL.	CUM. VOL.	MOIST	CUM. MOIST
1.40	0.61	4.23	0.61	4.23	99.39	51.02							0.60	0.60
1.45	3.07	6.20	3.68	5.87	96.32	52.45							0.64	0.63
1.50	6.42	14.20	10.10	11.17	89.90	55.18							0.59	0.61
1.55	5.90	17.60	16.00	13.54	84.00	57.82							0.96	0.74
1.60	2.17	20.79	18.17	14.40	81.83	58.80							0.82	0.75
1.70	9.57	24.05	27.74	17.73	72.26	63.41							1.24	0.92
1.80	4.94	34.47	32.68	20.26	67.32	65.53							1.23	0.96
2.00	16.66	43.88	49.34	28.24	50.66	72.65							1.13	1.02
2.60	50.66	72.65	100.00	50.74									0.93	0.97

----- ANALYSIS TYPE - FLOAT -----														
FRACTION SIZE(MM) 6.00 X 0.50			RELATIVE WEIGHT % - 33.35 ASH % - 23.13											
SG-TME	ELEMENTAL WT%	ASH%	CUM. FLOATS WT%	ASH%	CUM. WT%	SINKS ASH%	CUM. FSI	C.V. (MJ KG) C.V.	S	CUM. S	CUM. VOL.	CUM. VOL.	MOIST	CUM. MOIST
1.40	11.81	2.86	11.81	2.86	88.19	24.78							0.42	0.42
1.45	23.15	6.66	34.96	5.38	65.04	31.22							0.61	0.55
1.50	13.83	11.09	48.79	7.00	51.21	36.66							0.81	0.62
1.55	9.90	14.43	58.69	8.25	41.31	41.99							0.96	0.68
1.60	6.65	16.75	65.34	9.12	34.66	46.83							1.26	0.74
1.70	11.43	20.58	76.77	10.82	23.23	59.75							1.23	0.81
1.80	4.65	29.32	81.42	11.88	18.58	67.36							1.54	0.85
2.00	4.16	41.17	85.58	13.30	14.42	74.92							1.93	0.90
2.60	14.42	74.92	100.00	22.19									1.61	1.01

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86010 SEAM - H

SAMPLE ID - 33

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X 0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 9.82 ASH % - 15.50				CUM. MOIST			
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V.	CUM. S	CUM. S	VOL.	VOL.	MOIST	MOIST
1.40	11.68	2.18		11.68	2.18	88.32	16.10							0.83	0.83
1.45	21.86	3.78		33.54	3.22	66.46	20.15							1.61	1.34
1.50	15.29	6.20		48.83	4.16	51.17	24.32							1.35	1.34
1.55	10.25	9.38		59.08	5.06	40.92	28.06							2.01	1.46
1.60	8.93	11.10		68.01	5.85	31.99	32.80							1.89	1.51
1.70	15.70	14.74		83.71	7.52	16.29	50.21							1.56	1.52
1.80	4.43	22.43		88.14	8.27	11.86	60.58							1.52	1.52
2.00	3.94	34.63		92.08	9.40	7.92	73.49							1.89	1.54
2.60	7.92	73.49		100.00	14.47									1.42	1.53

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 5.22 ASH % - 18.14				CUM. MOIST			
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V.	CUM. S	CUM. S	VOL.	VOL.	MOIST	MOIST
240.00	*****	18.14		100.00	18.14			28.30	28.30	0.46	0.46	6.81	6.81	0.51	0.51

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86010 SEAM - H

SAMPLE ID - 34

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT															
FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % - 9.66 ASH % - 18.35											
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM.		CUM.		CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	7.39	4.25	7.39	4.25	92.61	18.71								1.44	1.44
1.45	27.76	4.51	35.15	4.46	64.85	24.78								1.54	1.52
1.50	8.84	6.12	43.99	4.79	56.01	27.73								1.94	1.60
1.55	10.14	8.70	54.13	5.52	45.87	31.94								1.92	1.66
1.60	8.02	11.00	62.15	6.23	37.85	36.37								1.94	1.70
1.70	14.71	13.77	76.86	7.67	23.14	50.74								1.96	1.75
1.80	8.69	20.54	85.55	8.98	14.45	68.90								1.60	1.73
2.00	2.79	35.61	88.34	9.82	11.66	76.87								1.89	1.74
2.60	11.66	76.87	100.00	17.64										1.68	1.73

ANALYSIS TYPE - FROTH															
FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % - 6.07 ASH % - 18.77											
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM.		CUM.		CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	18.77	100.00	18.77			28.11	28.11	0.48	0.48	6.70	6.70	0.62	0.62	

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPMLRDDH86010
 Coal zone: H
 Field sample no.: 05297 - 05298 Composite sample no.: 217
 Lab sample no.: 29614

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.53
 Contribution (%): 4.95
 Total yield (%): 4.95

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.89	
Ash (%):	10.57	10.67
Volatile matter (%):	7.95	8.02
Fixed carbon (%):	80.59	81.31
Total sulphur (%):	0.48	0.48
Combustible sulphur (%):	0.40	
Gross calorific value (cal/g):	7,330.00	7,396.00
Volatile matter (dmmf %):	8.00	
Hardgrove index:	63.00	
Phosphorous in coal (%):	0.191	

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,268.00	1,241.00
Softening temperature (°C):	1,286.00	1,268.00
Hemispherical temperature (°C):	1,300.00	1,289.00
Final temperature (°C):	1,420.00	1,413.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	55.10	TiO2 (%):	1.49
Al2O3 (%):	21.93	Na2O (%):	1.97
Fe2O3 (%):	2.39	K2O (%):	0.92
CaO (%):	6.94	SO3 (%):	1.91
MgO (%):	1.62	P2O5 (%):	4.14

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86010
 Coal zone: H
 Field sample no.: 05297 - 05298 Composite sample no.: 317
 Lab sample no.: 29614

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.51
 Contribution (%): 12.80
 Total yield (%): 12.80

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.80	
Ash (%):	7.25	7.31
Volatile matter (%):	7.73	7.79
Fixed carbon (%):	84.22	84.90
Total sulphur (%):	0.48	0.48
Combustible sulphur (%):	0.44	
Gross calorific value (cal/g):	7,679.00	7,741.00
Volatile matter (dmmf %):	7.70	
Hardgrove index:	43.00	
Phosphorous in coal (%):	0.141	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,265.00	1,235.00
Softening temperature (°C):	1,300.00	1,276.00
Hemispherical temperature (°C):	1,343.00	1,316.00
Final temperature (°C):	1,456.00	1,450.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	52.42	TiO2 (%):	1.95
Al2O3 (%):	24.95	Na2O (%):	2.18
Fe2O3 (%):	2.77	K2O (%):	0.87
CaO (%):	6.24	SO3 (%):	1.31
MgO (%):	1.40	P2O5 (%):	4.46

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86011 SEAM - K/L?

SAMPLE ID - 35

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT															
FRACTION SIZE(MM)		35.00 X 6.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 52.81 ASH % - 55.84							
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. FSI (MJ/KG)	CUM. C.V.	S	CUM. S	VOL. VOL.	MOIST	CUM. MOIST
1.40	4.67	17.65		4.67	17.65	95.33	56.50							0.90	0.90
1.45	2.14	9.15		6.81	14.98	93.19	57.58							0.64	0.82
1.50	5.82	14.93		12.63	14.96	87.37	60.43							0.57	0.70
1.55	5.20	17.94		17.83	15.83	82.17	63.11							0.56	0.66
1.60	5.66	21.60		23.49	17.22	76.51	66.19							0.58	0.64
1.70	5.77	30.36		29.26	19.81	70.74	69.11							0.83	0.68
1.80	5.69	38.57		34.95	22.86	65.05	71.78							1.06	0.74
2.00	10.08	44.34		45.03	27.67	54.97	76.81							1.06	0.81
2.60	54.97	76.81		100.00	54.68									0.67	0.73

ANALYSIS TYPE - FLOAT															
FRACTION SIZE(MM)		6.00 X 0.50		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 32.56 ASH % - 22.76							
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. FSI (MJ/KG)	CUM. C.V.	S	CUM. S	VOL. VOL.	MOIST	CUM. MOIST
1.40	19.44	3.01		19.44	3.01	80.56	27.73							0.60	0.60
1.45	16.44	7.58		35.88	5.10	64.12	32.90							0.68	0.64
1.50	13.42	11.92		49.30	6.96	50.70	38.45							0.58	0.62
1.55	7.48	15.67		56.78	8.11	43.22	42.40							0.72	0.63
1.60	7.44	18.72		64.22	9.34	35.78	47.32							0.91	0.67
1.70	9.58	24.65		73.80	11.32	26.20	55.61							1.21	0.74
1.80	6.22	32.42		80.02	12.96	19.98	62.83							1.32	0.78
2.00	7.00	43.02		87.02	15.38	12.98	73.51							1.95	0.88
2.60	12.98	73.51		100.00	22.93									1.40	0.94

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPnlR00H86011 SEAM - K/L?

SAMPLE ID - 35

WASHABILITY ID - WA1

ANALYSIS TYPE - FLDAT

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % -				B.50 ASH % - 17.77							
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. C.V.		CUM. VOL.		CUM. MOIST			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	23.80	2.12	23.80	2.12	76.20	21.38								0.91	0.91
1.45	23.62	4.02	47.42	3.07	52.58	29.18								0.84	0.88
1.50	12.64	7.89	60.06	4.08	39.94	35.92								0.95	0.89
1.55	7.95	11.19	68.01	4.91	31.99	42.06								1.23	0.93
1.60	3.62	11.28	71.63	5.23	28.37	45.99								1.32	0.95
1.70	5.40	17.02	77.03	6.06	22.97	52.80								1.68	1.00
1.80	5.10	22.75	82.13	7.10	17.87	61.38								1.63	1.04
2.00	5.52	35.58	87.65	8.89	12.35	72.91								1.70	1.08
2.60	12.35	72.91	100.00	16.80										1.04	1.08

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % -				6.13 ASH % - 26.37							
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. C.V.		CUM. VOL.		CUM. MOIST			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	26.37	100.00	26.37			25.02	25.02	0.51	0.51	7.40	7.40	1.10	1.10	

===== GULF CANADA CORPORATION - COAL DIVISION =====

----- CLEAN SIMULATED PRODUCT REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86011
 Coal zone: K/L
 Field sample no.: 05275 Composite sample no.: 218
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.40
 Contribution (%): 0.55
 Total yield (%): 0.55

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.84	
Ash (%) :	10.45	10.54
Volatile matter (%) :	7.97	8.04
Fixed carbon (%) :	80.74	81.42
Total sulphur (%) :	0.64	0.65
Gross calorific value (cal/g) :	7,364.00	7,426.00
Volatile matter (dmmf%) :	7.90	
Initial temperature (°C) :	0.00	0.00
Softening temperature (°C) :	0.00	0.00
Hemispherical temperature (°C) :	0.00	0.00
Final temperature (°C) :	0.00	0.00
SiO2 (%) :	0.00	TiO2 (%) :
Al2O3 (%) :	0.00	Na2O (%) :
Fe2O3 (%) :	0.00	K2O (%) :
CaO (%) :	0.00	SO3 (%) :
MgO (%) :	0.00	P2O5 (%) :

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPMLRDDH86011
 Coal zone: K/L
 Field sample no.: 05275 Composite sample no.: 318
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.52
 Contribution (%): 16.71
 Total yield (%): 0.55

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.74	
Ash (%):	7.89	7.95
Volatile matter (%):	7.14	7.19
Fixed carbon (%):	84.23	84.86
Total sulphur (%):	0.62	0.62
Combustible sulphur (%):	0.57	
Gross calorific value (cal/g):	7,698.00	7,756.00
Volatile matter (dmmf %):	7.00	
Hardgrove index:	47.00	
Phosphorous in coal (%):	0.075	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,198.00	1,128.00
Softening temperature (°C):	1,286.00	1,208.00
Hemispherical temperature (°C):	1,313.00	1,233.00
Final temperature (°C):	1,413.00	1,409.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	55.74	TiO2 (%):	0.73
Al2O3 (%):	24.06	Na2O (%):	2.70
Fe2O3 (%):	3.88	K2O (%):	0.92
CaO (%):	3.83	SO3 (%):	1.50
MgO (%):	1.85	P2O5 (%):	2.19

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DATA SOURCE - KPnlRDDHB6012 SEAM - N

SAMPLE ID - 36

WASHABILITY ID - WA1

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

FRACTION	SIZE(MM)		35.00 X 6.00		CUM. WT%	SINKS ASH%	RELATIVE WEIGHT % - 56.11 ASH % - 45.56				CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST
	SG-TME	ELEMENTAL	WT%	ASH%			CUM. FLOATS	CUM. WT%	C.V.	CUM. S				
1.40	1.63	7.52	1.63	7.52	98.37	47.40							0.78	0.78
1.45	2.04	7.12	3.67	7.30	96.33	48.25							0.78	0.78
1.50	4.77	9.24	8.44	8.40	91.56	50.28							0.81	0.80
1.55	5.79	11.69	14.23	9.74	85.77	52.89							1.10	0.92
1.60	5.54	16.00	19.77	11.49	80.23	55.44							0.99	0.94
1.70	12.38	20.35	32.15	14.90	67.85	61.84							1.61	1.20
1.80	8.19	26.67	40.34	17.29	59.66	66.67							1.20	1.20
2.00	14.67	45.43	55.01	24.80	44.99	73.59							1.72	1.34
2.60	44.99	73.59	100.00	46.75									1.00	1.19

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

FRACTION	SIZE(MM)		6.00 X 0.50		CUM. WT%	SINKS ASH%	RELATIVE WEIGHT % - 31.26 ASH % - 31.71				CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST
	SG-TME	ELEMENTAL	WT%	ASH%			CUM. FLOATS	CUM. WT%	C.V.	CUM. S				
1.40	5.26	3.04	5.26	3.04	94.74	32.78							0.59	0.59
1.45	5.91	6.45	11.17	4.84	88.83	34.54							0.62	0.61
1.50	7.91	9.87	19.08	6.93	80.92	36.95							0.68	0.64
1.55	9.69	12.87	28.77	8.93	71.23	40.22							0.83	0.70
1.60	8.03	16.06	36.80	10.49	63.20	43.29							1.08	0.78
1.70	18.11	19.57	54.91	13.48	45.09	52.82							1.37	0.98
1.80	10.42	25.96	65.33	15.47	34.67	60.90							2.06	1.15
2.00	10.29	37.76	75.62	18.50	24.38	70.66							1.58	1.21
2.60	24.38	70.66	100.00	31.22									1.05	1.17

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DATA SOURCE - KPNLRDDH86012 SEAM - N

SAMPLE ID - 36

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT																		
FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -				7.50 ASH % - 20.99								
SG-TME	ELEMENTAL	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	WT%	ASH%	FSI	CUM. C.V.	CUM. C.V.	5	CUM. S	VOL. S	CUM. VOL.	MOIST	CUM. MOIST
1.40	10.12	2.86		10.12	2.86		89.88	21.62									1.05	1.05
1.45	10.09	4.88		20.21	3.87		79.79	23.74									1.26	1.15
1.50	14.95	6.49		35.16	4.98		64.84	27.72									1.77	1.42
1.55	11.73	9.35		46.89	6.08		53.11	31.78									2.14	1.60
1.60	6.61	13.52		53.50	7.00		46.50	34.37									1.90	1.63
1.70	15.97	16.33		69.47	9.14		30.53	43.81									1.85	1.68
1.80	10.09	21.56		79.56	10.72		20.44	54.79									1.76	1.69
2.00	7.46	32.75		87.02	12.61		12.98	67.46									1.97	1.72
2.60	12.98	67.46		100.00	19.73												1.87	1.74

ANALYSIS TYPE - FROTH																		
FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -				5.13 ASH % - 20.93								
SG-TME	ELEMENTAL	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	WT%	ASH%	FSI	CUM. C.V.	CUM. C.V.	5	CUM. S	VOL. S	CUM. VOL.	MOIST	CUM. MOIST
240.00	*****	20.93		100.00	20.93					27.18	27.18	1.90	1.90	1.90	6.69	6.69	1.14	1.14

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86012
 Coal zone: N
 Field sample no.: 05160 Composite sample no.: 219
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.61
 Contribution (%): 12.59
 Total yield (%): 12.59

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.81	
Ash (%):	12.50	12.60
Volatile matter (%):	9.92	10.00
Fixed carbon (%):	76.77	77.40
Total sulphur (%):	1.27	1.28
Combustible sulphur (%):	1.20	
Gross calorific value (cal/g):	7,027.00	7,084.00
Volatile matter (dmmf %):	9.90	
Hardgrove index:	82.00	
Phosphorous in coal (%):	0.148	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,246.00	1,128.00
Softening temperature (°C):	1,260.00	1,141.00
Hemispherical temperature (°C):	1,286.00	1,179.00
Final temperature (°C):	1,354.00	1,246.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	57.76	TiO2 (%):	1.16
Al2O3 (%):	20.14	Na2O (%):	1.61
Fe2O3 (%):	4.54	K2O (%):	0.92
CaO (%):	4.80	SO3 (%):	1.47
MgO (%):	2.34	P2O5 (%):	2.72

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86012
 Coal zone: N
 Field sample no.: 05160 Composite sample no.: 319
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.51
 Contribution (%): 6.79
 Total yield (%): 6.79

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%)	0.71	
Ash (%)	7.49	7.54
Volatile matter (%)	7.87	7.93
Fixed carbon (%)	83.93	84.53
Total sulphur (%)	1.12	1.13
Combustible sulphur (%)	1.09	
Gross calorific value (cal/g)	7,591.00	7,645.00
Volatile matter (dmmf%)	7.60	
Hardgrove index	55.00	
Phosphorous in coal (%)	0.092	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C)	1,235.00	1,155.00
Softening temperature (°C)	1,292.00	1,206.00
Hemispherical temperature (°C)	1,332.00	1,251.00
Final temperature (°C)	1,386.00	1,378.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%)	51.63	TiO2 (%)	2.23
Al2O3 (%)	25.99	Na2O (%)	1.58
Fe2O3 (%)	4.77	K2O (%)	1.31
CaO (%)	4.13	SO3 (%)	1.05
MgO (%)	1.91	P2O5 (%)	2.80

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDOH86013 SEAM - K

SAMPLE ID - 37

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)	ELEMENTAL		0.50 X 0.15 CUM. FLOATS		CUM. WT%	SINKS ASH%	RELATIVE WEIGHT % -				6.91 ASH % - 16.53		CUM.		
	WT%	ASH%	WT%	ASH%			FSI	FSI (MJ/KG)	C.V.	CUM.	S	S	VOL.	VOL.	MOIST
1.40	7.99	4.33	7.99	4.33	92.01	16.93									
1.45	22.33	3.96	30.32	4.06	69.68	21.09								1.18	1.18
1.50	16.67	4.88	46.99	4.35	53.01	26.19								1.25	1.23
1.55	11.39	6.74	58.38	5.21	41.62	30.96								1.75	1.42
1.60	9.61	10.75	67.99	5.99	32.01	37.03								2.02	1.53
1.70	8.08	15.70	76.07	7.02	23.93	44.23								2.10	1.61
1.80	8.06	20.53	84.13	8.32	15.87	56.27								1.59	1.61
2.00	3.96	29.88	88.09	9.28	11.91	65.04								1.20	1.57
2.60	11.91	65.04	100.00	15.93										1.34	1.56
														1.76	1.58

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)	ELEMENTAL		0.15 X 0.00 CUM. FLOATS		CUM. WT%	SINKS ASH%	RELATIVE WEIGHT % -				4.85 ASH % - 19.44		CUM.		
	WT%	ASH%	WT%	ASH%			FSI	FSI (MJ/KG)	C.V.	CUM.	S	S	VOL.	VOL.	MOIST
240.00	*****	19.44	100.00	19.44										0.49	1.04
														0.49	1.04

GULF CANADA CORPORATION - COAL DIVISION

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DATA SOURCE - KPNLRDDHB6013 SEAM - K

SAMPLE ID - 38

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 70.56 ASH % - 31.37			CUM. MOIST					
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	1.69	2.34		1.69	2.34	98.31	33.15								0.60	0.60
1.45	17.39	8.95		19.08	8.36	80.92	38.35								0.62	0.62
1.50	16.89	11.30		35.97	9.74	64.03	45.48								0.60	0.61
1.55	6.61	18.37		42.58	11.08	57.42	48.60								0.65	0.62
1.60	7.38	23.25		49.96	12.88	50.04	52.34								0.66	0.62
1.70	15.27	29.07		65.23	16.67	34.77	62.56								0.82	0.67
1.80	8.14	36.63		73.37	18.88	26.63	70.48								0.92	0.70
2.00	7.93	48.44		81.30	21.77	18.70	79.83								1.28	0.75
2.60	18.70	79.83		100.00	32.62										1.49	0.89

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

FRACTION SIZE(MM)		6.00 X 0.50		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 22.64 ASH % - 22.02			CUM. MOIST					
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	12.96	1.90		12.96	1.90	87.04	24.88								0.51	0.51
1.45	16.40	6.03		29.36	4.21	70.64	29.25								0.50	0.50
1.50	19.00	10.16		48.36	6.55	51.64	36.28								0.43	0.48
1.55	12.53	14.30		60.89	8.14	39.11	43.32								0.42	0.46
1.60	6.79	18.65		67.68	9.20	32.32	48.50								0.70	0.49
1.70	8.76	23.69		76.44	10.86	23.56	57.73								1.13	0.56
1.80	5.26	30.29		81.70	12.11	18.30	65.62								1.42	0.62
2.00	5.44	41.14		87.14	13.92	12.86	75.97								1.48	0.67
2.60	12.86	75.97		100.00	21.90										1.77	0.81

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DATA SOURCE - KPNLRDDH86013 SEAM - K

SAMPLE ID - 38

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -					4.08 ASH % - 22.42			
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	8.02	1.84	8.02	1.84	91.98								0.66	0.66
1.45	17.74	3.53	25.76	3.00	74.24								0.73	0.71
1.50	18.29	5.34	44.05	3.97	55.95								1.02	0.84
1.55	4.05	8.44	48.10	4.35	51.90								1.16	0.86
1.60	7.08	11.45	55.18	5.26	44.82								1.47	0.94
1.70	12.61	14.64	67.79	7.01	32.21								1.87	1.11
1.80	8.40	19.77	76.19	8.41	23.81								1.95	1.21
2.00	7.08	34.13	83.27	10.60	16.73								1.79	1.26
2.60	16.73	78.17	100.00	21.90									0.97	1.21

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -					2.72 ASH % - 26.30			
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	26.30	100.00	26.30									1.23	1.23

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DATA SOURCE - KPMLRDDH86013 SEAM - K

SAMPLE ID - 39

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT																			
FRACTION SIZE(MM)		0.50 X		0.15		CUM. SINKS		RELATIVE WEIGHT % -				4.77 ASH % - 25.89							
SG-TME	ELEMENTAL	WT%	ASH%	CUM. WT%	FLOATS	WT%	ASH%	CUM. WT%	SINKS	ASH%	CUM. FSI	C.V. FSI	CUM. C.V.	CUM. S	ASH %	CUM. VOL.	CUM. VOL.	MOIST	MOIST
1.40	9.05	4.19		9.05	4.19	90.95	27.21											0.82	0.82
1.45	23.23	3.55		32.28	3.73	67.72	35.33											1.10	1.02
1.50	11.01	5.12		43.29	4.08	56.71	41.20											1.40	1.12
1.55	8.68	10.43		51.97	5.14	48.03	46.76											1.64	1.20
1.60	4.20	11.14		56.17	5.59	43.83	50.17											0.85	1.18
1.70	8.77	15.00		64.94	6.86	35.06	58.97											1.44	1.21
1.80	6.25	23.13		71.19	8.29	28.81	66.74											1.66	1.25
2.00	7.37	32.88		78.56	10.60	21.44	78.38											1.92	1.32
2.60	21.44	78.38		100.00	25.13													1.28	1.31

ANALYSIS TYPE - FROTH																			
FRACTION SIZE(MM)		0.15 X		0.00		CUM. SINKS		RELATIVE WEIGHT % -				3.20 ASH % - 25.98							
SG-TME	ELEMENTAL	WT%	ASH%	CUM. WT%	FLOATS	WT%	ASH%	CUM. WT%	SINKS	ASH%	CUM. FSI	C.V. FSI	CUM. C.V.	CUM. S	ASH %	CUM. VOL.	CUM. VOL.	MOIST	MOIST
240.00	*****	25.98		100.00	25.98													0.76	0.76

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86013
 Coal zone: K
 Field sample no.: 05174 - 05177 Composite sample no.: 220
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.57
 Contribution (%): 19.38
 Total yield (%): 19.38

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.91	
Ash (%):	11.09	11.19
Volatile matter (%):	6.72	6.78
Fixed carbon (%):	81.28	82.03
Total sulphur (%):	0.54	0.54
Combustible sulphur (%):	0.47	
Gross calorific value (cal/g):	7,316.00	7,383.00
Volatile matter (dmmf %):	6.50	
Hardgrove index:	40.00	
Phosphorous in coal (%):	0.274	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,286.00	1,262.00
Softening temperature (°C):	1,294.00	1,270.00
Hemispherical temperature (°C):	1,305.00	1,281.00
Final temperature (°C):	1,321.00	1,294.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	44.82	TiO2 (%):	1.51
Al2O3 (%):	24.19	Na2O (%):	2.91
Fe2O3 (%):	3.37	K2O (%):	1.00
CaO (%):	12.54	SO3 (%):	1.61
MgO (%):	2.06	P2O5 (%):	5.65

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86013
 Coal zone: K
 Field sample no.: 05174 - 05177 Composite sample no.: 320
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.54
 Contribution(%): 11.90
 Total yield(%): 11.90

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture(%):	1.02	
Ash(%):	8.10	8.18
Volatile matter(%):	7.12	7.19
Fixed carbon(%):	83.76	84.63
Total sulphur(%):	0.56	0.57
Combustible sulphur(%):	0.53	
Gross calorific value(cal/g):	7,555.00	7,633.00
Volatile matter(dmmf%):	7.00	
Hardgrove index:	42.00	
Phosphorous in coal(%):	0.110	

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C):	1,197.00	1,139.00
Softening temperature(°C):	1,297.00	1,155.00
Hemispherical temperature(°C):	1,332.00	1,294.00
Final temperature(°C):	1,423.00	1,396.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2(%):	51.14	TiO2(%):	2.34
Al2O3(%):	26.08	Na2O(%):	2.75
Fe2O3(%):	3.24	K2O(%):	1.31
CaO(%):	4.95	SO3(%):	0.87
MgO(%):	1.72	P2O5(%):	3.12

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPMLRDDHB6013 SEAM - I

SAMPLE ID - 40

WASHABILITY ID - WA1

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

FRACTION	SIZE(MM)		35.00 X 6.00		CUM. FLDATS		CUM. SINKS		RELATIVE WEIGHT % - 39.40 ASH % - 56.77				CUM. MOIST			
	SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
1.40	0.48	3.32	0.48	3.32	99.52	57.83									0.67	0.67
1.45	6.05	8.67	6.53	8.28	93.47	61.01									0.80	0.79
1.50	13.61	11.11	20.14	10.19	79.86	69.52									0.90	0.86
1.55	4.24	15.24	24.38	11.07	75.62	72.56									0.91	0.87
1.60	1.96	18.59	26.34	11.63	73.66	74.00									1.07	0.89
1.70	6.96	27.51	33.30	14.95	66.70	78.85									1.29	0.97
1.80	5.28	35.45	38.58	17.75	61.42	82.58									1.20	1.00
2.00	5.06	41.82	43.64	20.54	56.36	86.24									1.02	1.00
2.60	56.36	86.24	100.00	57.57											1.44	1.25

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

FRACTION	SIZE(MM)		6.00 X 0.50		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 42.37 ASH % - 22.25				CUM. MOIST			
	SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
1.40	7.47	1.73	7.47	1.73	92.53	23.10									0.81	0.81
1.45	17.50	4.48	24.97	3.66	75.03	27.44									1.00	0.94
1.50	15.13	7.89	40.10	5.25	59.90	32.38									1.01	0.97
1.55	9.85	10.91	49.95	6.37	50.05	36.60									1.49	1.07
1.60	7.20	12.57	57.15	7.15	42.85	40.64									1.40	1.11
1.70	16.89	14.23	74.04	8.77	25.96	57.82									1.11	1.11
1.80	6.53	22.14	80.57	9.85	19.43	69.81									1.82	1.17
2.00	3.68	35.72	84.25	10.98	15.75	77.78									1.41	1.18
2.60	15.75	77.78	100.00	21.50											1.20	1.18

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DATA SOURCE - KPNLRDDH86013 SEAM - I

SAMPLE ID - 40

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	0.50 X 0.15		CUM.	SINKS	RELATIVE WEIGHT % - 10.58				ASH % - 17.64		CUM.	CUM.		
		ELEMENTAL				CUM. FLOATS		CUM.	C.V.	CUM.	S			S	VOL.
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	7.55	2.59	7.55	2.59	92.45	17.19								1.06	1.06
1.45	25.60	3.03	33.15	2.93	66.85	22.62								2.00	1.79
1.50	9.75	4.32	42.90	3.25	57.10	25.74								1.53	1.73
1.55	6.54	5.91	49.44	3.60	50.56	28.31								1.74	1.73
1.60	3.37	7.52	52.81	3.85	47.19	29.79								1.20	1.70
1.70	17.12	10.61	69.93	5.50	30.07	40.71								1.03	1.53
1.80	14.94	16.33	84.87	7.41	15.13	64.79								1.59	1.54
2.00	4.11	30.35	88.98	8.47	11.02	77.64								1.51	1.54
2.60	11.02	77.64	100.00	16.09										1.11	1.49

ANALYSIS TYPE - FROTH

FRACTION	SIZE(MM)	0.15 X 0.00		CUM.	SINKS	RELATIVE WEIGHT % - 7.65				ASH % - 18.03		CUM.	CUM.		
		ELEMENTAL				CUM. FLOATS		CUM.	C.V.	CUM.	S			S	VOL.
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	18.03	100.00	18.03										28.35	28.35
									0.43	0.43	6.68	6.68	1.12	1.12	

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DATA SOURCE - KPNLRDDH86013 SEAM - I

SAMPLE ID - 41

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -					8.26		ASH % - 18.63	
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	14.64	2.69	14.64	2.69	85.36	19.52							1.80	1.80
1.45	13.03	3.72	27.67	3.18	72.33	22.36							1.77	1.79
1.50	10.37	5.06	38.04	3.69	61.96	25.26							1.41	1.68
1.55	10.60	7.95	48.64	4.62	51.36	28.83							1.65	1.68
1.60	9.58	10.33	58.22	5.56	41.78	33.07							1.37	1.63
1.70	17.30	14.40	75.52	7.58	24.48	46.26							1.59	1.62
1.80	9.43	21.39	84.95	9.12	15.05	61.85							1.06	1.56
2.00	4.77	33.36	89.72	10.40	10.28	75.07							1.38	1.55
2.60	10.28	75.07	100.00	17.05									1.93	1.59

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -					4.99		ASH % - 22.55	
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	22.55	100.00	22.55			26.42	26.42	0.40	0.40	6.85	6.85	1.27	1.27

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86013
 Coal zone: 1
 Field sample no.: 05183 - 05184 Composite sample no.: 221

----- PRODUCT COAL ANALYSIS (SP2) -----
 Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.43
 Contribution (%): 1.08
 Total yield (%): 1.08

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.87	
Ash (%) :	4.41	4.45
Volatile matter (%) :	6.09	6.14
Fixed carbon (%) :	88.63	89.41
Total sulphur (%) :	0.49	0.49
Combustible sulphur (%) :	0.44	
Gross calorific value (cal/g) :	7,975.00	8,046.00
Volatile matter (dmmf%) :	5.90	
Phosphorous in coal (%) :	0.051	

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C) :	1,266.00	1,171.00
Softening temperature (°C) :	1,312.00	1,234.00
Hemispherical temperature (°C) :	1,343.00	1,284.00
Final temperature (°C) :	1,435.00	1,434.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%) :	56.20	TiO2 (%) :	2.04
Al2O3 (%) :	23.44	Na2O (%) :	2.64
Fe2O3 (%) :	2.87	K2O (%) :	0.93
CaO (%) :	4.20	SO3 (%) :	2.93
MgO (%) :	2.06	P2O5 (%) :	2.63

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86013
 Coal zone: 1
 Field sample no.: 05183 - 05184 Composite sample no.: 221

----- PRODUCT COAL ANALYSIS (SP5) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.56
 Contribution (%): 9.34
 Total yield (%): 9.34

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.83	
Ash (%):	11.56	11.66
Volatile matter (%):	8.06	8.13
Fixed carbon (%):	79.55	80.21
Total sulphur (%):	0.43	0.43
Combustible sulphur (%):	0.37	
Gross calorific value (cal/g):	7,235.00	7,295.00
Volatile matter (dmmf %):	8.10	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.057	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,286.00	1,198.00
Softening temperature (°C):	1,337.00	1,251.00
Hemispherical temperature (°C):	1,354.00	1,294.00
Final temperature (°C):	1,439.00	1,432.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	63.10	TiO2 (%):	0.83
Al2O3 (%):	19.66	Na2O (%):	1.60
Fe2O3 (%):	4.13	K2O (%):	0.96
CaO (%):	3.48	SO3 (%):	1.19
MgO (%):	2.26	P2O5 (%):	1.12

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86013
 Coal zone: I
 Field sample no.: 05185 Composite sample no.: 222
 Lab sample no.: 29553

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.50
 Contribution (%): 6.99
 Total yield (%): 6.99

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.01	
Ash (%):	6.30	6.36
Volatile matter (%):	7.31	7.38
Fixed carbon (%):	85.38	86.26
Total sulphur (%):	0.51	0.52
Combustible sulphur (%):	0.46	
Gross calorific value (cal/g):	7,715.00	7,794.00
Volatile matter (dmmf %):	7.20	
Phosphorous in coal (%):	0.293	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,294.00	1,241.00
Softening temperature (°C):	1,302.00	1,300.00
Hemispherical temperature (°C):	1,321.00	1,318.00
Final temperature (°C):	1,343.00	1,332.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	40.77	TiO2 (%):	1.26
Al2O3 (%):	24.04	Na2O (%):	2.06
Fe2O3 (%):	6.07	K2O (%):	1.24
CaO (%):	7.22	SO3 (%):	1.97
MgO (%):	2.67	P2O5 (%):	10.64

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86013
 Coal zone: 1
 Field sample no.: 05185 Composite sample no.: 222
 Lab sample no.: 29553

----- PRODUCT COAL ANALYSIS (SP5) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.59
 Contribution (%): 4.50
 Total yield (%): 4.50

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.57	
Ash (%):	11.74	11.93
Volatile matter (%):	9.14	9.29
Fixed carbon (%):	77.55	78.78
Total sulphur (%):	0.46	0.47
Combustible sulphur (%):	0.39	
Gross calorific value (cal/g):	7,058.00	7,171.00
Volatile matter (dmmf %):	9.40	
Phosphorous in coal (%):	0.267	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,297.00	1,262.00
Softening temperature (°C):	1,311.00	1,281.00
Hemispherical temperature (°C):	1,319.00	1,294.00
Final temperature (°C):	1,348.00	1,321.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	53.43	TiO2 (%):	1.09
Al2O3 (%):	22.00	Na2O (%):	1.72
Fe2O3 (%):	4.13	K2O (%):	1.23
CaO (%):	6.79	SO3 (%):	1.41
MgO (%):	2.51	P2O5 (%):	5.20

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86013
 Coal zone: 1
 Field sample no.: 05183 - 05185 Composite sample no.: 321
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP3) -----
 Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.62
 Contribution (%): 26.17
 Total yield (%): 26.17

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.81	
Ash (%):	7.15	7.21
Volatile matter (%):	8.18	8.25
Fixed carbon (%):	83.86	84.54
Total sulphur (%):	0.46	0.46
Combustible sulphur (%):	0.43	
Gross calorific value (cal/g):	7,598.00	7,660.00
Volatile matter (dmmf %):	8.20	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.073	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,260.00	1,225.00
Softening temperature (°C):	1,311.00	1,289.00
Hemispherical temperature (°C):	1,345.00	1,332.00
Final temperature (°C):	1,450.00	1,445.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	59.74	TiO2 (%):	1.61
Al2O3 (%):	22.68	Na2O (%):	1.71
Fe2O3 (%):	2.60	K2O (%):	1.00
CaO (%):	3.08	SO3 (%):	1.02
MgO (%):	1.69	P2O5 (%):	2.33

GULF CANADA CORPORATION - COAL DIVISION

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DATA SOURCE - KPNLRDDH86013 SEAM - 1

SAMPLE ID - 42

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 28.90				ASH % - 37.06						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	WT%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	1.92	1.92	1.53	98.08	36.04								0.73	0.73
1.45	11.58	13.50	4.95	86.50	40.20								0.73	0.73
1.50	10.71	24.21	8.61	75.79	44.67								0.82	0.77
1.55	11.59	35.80	12.18	64.20	50.53								1.18	0.90
1.60	7.86	43.66	15.79	56.34	55.38								1.51	1.01
1.70	7.79	51.45	20.05	48.55	61.05								1.85	1.14
1.80	7.96	59.41	30.44	40.59	67.05								1.12	1.14
2.00	7.40	66.81	42.56	33.19	72.51								1.36	1.16
2.60	33.19	100.00	72.51										1.63	1.32

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 47.25				ASH % - 15.04						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	WT%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	15.43	15.43	2.16	84.57	16.67								0.53	0.53
1.45	33.76	49.19	4.30	50.81	24.89								0.80	0.72
1.50	8.93	58.12	8.53	41.88	28.37								0.86	0.74
1.55	7.87	65.99	11.80	34.01	32.21								1.40	0.82
1.60	4.65	70.64	14.24	29.36	35.05								1.71	0.88
1.70	11.23	81.87	17.19	18.13	46.12								1.78	1.00
1.80	6.22	88.09	24.71	11.91	57.30								1.24	1.02
2.00	4.43	92.52	37.24	7.48	69.18								1.67	1.05
2.60	7.48	100.00	69.18										1.07	1.05

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRDDH86013 SEAM - I

SAMPLE ID - 42

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -				14.82 ASH % -		12.22			
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	VOL.	VOL.	MOIST	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S					
1.40	13.17	2.14	13.17	2.14	86.83	12.25								1.42	1.42
1.45	21.03	3.24	34.20	2.82	65.80	15.13								1.23	1.30
1.50	15.48	4.89	49.68	3.46	50.32	18.28								1.26	1.29
1.55	13.11	7.22	62.79	4.25	37.21	22.18								1.93	1.42
1.60	8.47	9.72	71.26	4.90	28.74	25.85								1.55	1.44
1.70	13.76	12.95	85.02	6.20	14.98	37.70								1.65	1.47
1.80	7.00	21.09	92.02	7.33	7.98	52.27								1.25	1.46
2.00	3.60	32.65	95.62	8.29	4.38	68.39								1.04	1.44
2.60	4.38	68.39	100.00	10.92										1.37	1.44

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -				9.03 ASH % -		16.52			
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	VOL.	VOL.	MOIST	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S					
240.00	*****	16.52	100.00	16.52			28.87	28.87	0.43	0.43	6.19	6.19	1.34	1.34	

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPnlRDDH86013 SEAM - 0 QVT

SAMPLE ID - 43

WASHABILITY ID - WAI

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

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % - 12.17				ASH % - 10.09			
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	MOIST	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	17.87	2.13	17.87	2.13	82.13	9.29						1.16	1.16
1.45	26.42	2.52	44.29	2.36	55.71	12.51						1.76	1.52
1.50	17.35	4.88	61.64	3.07	38.36	15.95						1.94	1.64
1.55	9.78	7.08	71.42	3.62	28.58	18.99						1.90	1.67
1.60	7.88	9.38	79.30	4.19	20.70	22.65						1.52	1.66
1.70	10.47	11.43	89.77	5.04	10.23	34.13						1.25	1.61
1.80	5.60	18.52	95.37	5.83	4.63	53.01						1.25	1.59
2.00	1.57	32.79	96.94	6.27	3.06	63.39						1.32	1.58
2.60	3.06	63.39	100.00	8.01								1.04	1.57

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % - 8.99				ASH % - 12.25				
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	MOIST	MOIST	
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
240.00	*****	12.25	100.00	12.25			30.53	30.53	0.45	0.45	6.24	6.24	1.36	1.36

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86013
 Coal zone: 1
 Field sample no.: 05188 Composite sample no.: 223
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP2) -----
 Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.52
 Contribution (%): 30.33
 Total yield (%): 30.33

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.88	
Ash (%):	6.26	6.32
Volatile matter (%):	6.67	6.73
Fixed carbon (%):	86.19	86.95
Total sulphur (%):	0.46	0.46
Combustible sulphur (%):	0.44	
Gross calorific value (cal/g):	7,787.00	7,856.00
Volatile matter (dmmf %):	6.50	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.199	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,300.00	1,284.00
Softening temperature (°C):	1,313.00	1,300.00
Hemispherical temperature (°C):	1,327.00	1,319.00
Final temperature (°C):	1,442.00	1,440.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	38.79	TiO2 (%):	1.64
Al2O3 (%):	29.49	Na2O (%):	3.20
Fe2O3 (%):	4.19	K2O (%):	1.35
CaO (%):	8.58	SO3 (%):	0.92
MgO (%):	1.74	P2O5 (%):	7.28

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRODH86013
 Coal zone: I
 Field sample no.: 05188 Composite sample no.: 323
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.64
 Contribution (%): 36.80
 Total yield (%): 36.80

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.97	
Ash (%):	5.79	5.85
Volatile matter (%):	7.49	7.56
Fixed carbon (%):	85.75	86.59
Total sulphur (%):	0.47	0.47
Combustible sulphur (%):	0.45	
Gross calorific value (cal/g):	7,782.00	7,858.00
Volatile matter (dmmf %):	7.40	
Hardgrove index:	42.00	
Phosphorous in coal (%):	0.156	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,294.00	1,257.00
Softening temperature (°C):	1,311.00	1,273.00
Hemispherical temperature (°C):	1,324.00	1,294.00
Final temperature (°C):	1,439.00	1,436.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	41.33	TiO2 (%):	1.83
Al2O3 (%):	29.71	Na2O (%):	2.97
Fe2O3 (%):	3.63	K2O (%):	1.34
CaO (%):	7.26	SO3 (%):	1.01
MgO (%):	1.79	P2O5 (%):	6.17

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLR0DH86014 SEAM - L OVT

SAMPLE ID - 44

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT																
FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 61.46				ASH % - 45.19								
SG-TME	WT%	ASH%	CUM. WT%	FLOATS ASH%	CUM. WT%	SINKS ASH%	FSI	CUM. FSI	C.V. (MJ/KG)	CUM. C.V.	S	CUM. S	VOL.	CUM. VOL.	MOIST	CUM. MOIST
1.40	0.32	2.29	0.32	2.29	99.68	44.81									0.68	0.68
1.45	5.57	8.93	5.89	8.57	94.11	46.93									0.70	0.70
1.50	6.28	11.26	12.17	9.96	87.83	49.48									0.71	0.70
1.55	4.46	15.47	16.63	11.44	83.37	51.30									0.66	0.69
1.60	1.88	16.71	18.51	11.97	81.49	52.10									0.73	0.70
1.70	11.56	28.70	30.07	18.40	69.93	55.97									0.74	0.71
1.80	9.61	38.32	39.68	23.23	60.32	58.78									0.89	0.76
2.00	24.33	45.77	64.01	31.80	35.99	67.58									0.80	0.77
2.60	35.99	67.58	100.00	44.67											0.70	0.75

ANALYSIS TYPE - FLOAT																
FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 27.85				ASH % - 27.62								
SG-TME	WT%	ASH%	CUM. WT%	FLOATS ASH%	CUM. WT%	SINKS ASH%	FSI	CUM. FSI	C.V. (MJ/KG)	CUM. C.V.	S	CUM. S	VOL.	CUM. VOL.	MOIST	CUM. MOIST
1.40	4.23	1.74	4.23	1.74	95.77	27.82									0.57	0.57
1.45	17.39	5.05	21.62	4.40	78.38	32.87									0.50	0.51
1.50	13.15	9.64	34.77	6.38	65.23	37.55									0.51	0.51
1.55	10.19	14.00	44.96	8.11	55.04	41.91									0.53	0.52
1.60	6.59	17.51	51.55	9.31	48.45	45.23									0.73	0.54
1.70	11.80	22.23	63.35	11.72	36.65	52.63									1.30	0.68
1.80	8.95	29.82	72.30	13.96	27.70	60.00									1.65	0.80
2.00	10.30	41.43	82.60	17.38	17.40	71.00									1.43	0.88
2.60	17.40	71.00	100.00	26.71											1.73	1.03

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86014 SEAM - L DVT

SAMPLE ID - 44

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % - 6.68				ASH % - 23.28							
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. C.V.		CUM. VOL.		CUM. MOIST			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	2.59	1.54	2.59	1.54	97.41	23.63								0.66	0.66
1.45	24.10	3.65	26.69	3.45	73.31	30.20								0.75	0.74
1.50	13.49	6.31	40.18	4.41	59.82	35.59								0.85	0.78
1.55	11.58	9.51	51.76	5.55	48.24	41.85								1.25	0.88
1.60	7.04	12.72	58.80	6.41	41.20	46.83								1.55	0.96
1.70	9.72	17.79	68.52	8.02	31.48	55.79								1.99	1.11
1.80	7.20	25.36	75.72	9.67	24.28	64.82								1.87	1.18
2.00	5.75	36.74	81.47	11.58	18.53	73.53								1.77	1.22
2.60	18.53	73.53	100.00	23.06										1.33	1.24

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % - 4.01				ASH % - 26.31							
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. C.V.		CUM. VOL.		CUM. MOIST			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	26.31	100.00	26.31										25.02	25.02
														0.46	0.46
														7.46	7.46
														0.72	0.72

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86014
 Coal zone: L
 Field sample no.: 10018 - 10020 Composite sample no.: 224
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.60
 Contribution(%): 13.71
 Total yield(%): 13.71

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.84	
Ash (%) :	11.30	11.40
Volatile matter (%) :	7.26	7.32
Fixed carbon (%) :	80.60	81.28
Total sulphur (%) :	0.58	0.58
Combustible sulphur (%) :	0.48	
Gross calorific value (cal/g) :	7,316.00	7,378.00
Volatile matter (dmmf%) :	7.10	
Hardgrove index:	44.00	
Phosphorous in coal (%) :	0.168	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C) :	1,262.00	1,227.00
Softening temperature (°C) :	1,278.00	1,235.00
Hemispherical temperature (°C) :	1,289.00	1,257.00
Final temperature (°C) :	1,348.00	1,339.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	53.22	TiO2 (%) :	1.90
Al2O3 (%) :	23.44	Na2O (%) :	2.75
Fe2O3 (%) :	2.79	K2O (%) :	1.22
CaO (%) :	6.66	SO3 (%) :	2.18
MgO (%) :	1.85	P2O5 (%) :	3.41

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86014
 Coal zone: L
 Field sample no.: 10018 - 10020 Composite sample no.: 324
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.53
 Contribution (%): 11.30
 Total yield (%): 11.30

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.96	
Ash (%):	7.19	7.26
Volatile matter (%):	6.67	6.73
Fixed carbon (%):	85.18	86.01
Total sulphur (%):	0.61	0.62
Combustible sulphur (%):	0.57	
Gross calorific value (cal/g):	7,724.00	7,799.00
Volatile matter (dmmf %):	6.50	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.171	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,225.00	1,221.00
Softening temperature (°C):	1,278.00	1,238.00
Hemispherical temperature (°C):	1,294.00	1,257.00
Final temperature (°C):	1,311.00	1,300.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	48.62	TiO2 (%):	2.87
Al2O3 (%):	22.98	Na2O (%):	2.62
Fe2O3 (%):	3.02	K2O (%):	1.01
CaO (%):	8.42	SO3 (%):	1.24
MgO (%):	1.51	P2O5 (%):	5.46

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86014 SEAM - K

SAMPLE ID - 45

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 79.45				ASH % - 43.28						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	1.11	2.48	1.11	2.48	98.89	44.66							0.71	0.71
1.45	6.99	7.58	8.10	6.88	91.90	47.49							0.61	0.62
1.50	4.76	11.73	12.86	8.68	87.14	49.44							0.67	0.64
1.55	7.58	18.83	20.44	12.44	79.56	52.35							0.63	0.64
1.60	7.95	21.42	28.39	14.96	71.61	55.79							0.81	0.69
1.70	5.72	27.68	34.11	17.09	65.89	58.23							0.81	0.71
1.80	10.13	33.07	44.24	20.75	55.76	62.80							1.35	0.85
2.00	17.31	47.34	61.55	28.23	38.45	69.76							1.20	0.95
2.60	38.45	69.76	100.00	44.20									0.84	0.91

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 16.99				ASH % - 29.76						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	12.70	2.19	12.70	2.19	87.30	33.00							0.52	0.52
1.45	17.37	6.23	30.07	4.52	69.93	39.65							0.44	0.47
1.50	10.44	10.87	40.51	6.16	59.49	44.70							0.60	0.51
1.55	7.24	15.72	47.75	7.61	52.25	48.71							0.67	0.53
1.60	5.23	19.57	52.98	8.79	47.02	51.95							0.77	0.55
1.70	7.23	24.19	60.21	10.64	39.79	57.00							1.21	0.63
1.80	7.22	31.70	67.43	12.89	32.57	62.61							1.47	0.72
2.00	9.32	43.01	76.75	16.55	23.25	70.46							1.84	0.86
2.60	23.25	70.46	100.00	29.08									1.91	1.10

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDHB6014 SEAM - K

SAMPLE ID - 45

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	0.50 X 0.15		CUM. FLOATS	CUM. SINKS	RELATIVE WEIGHT % - 2.36				ASH % - 36.17		CUM. MOIST	CUM. MOIST	
		ELEMENTAL				CUM.	C.V.	CUM.	S	S	VOL.			VOL.
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	6.50	3.29	6.50	3.29	93.50	37.77								0.77
1.45	18.09	3.60	24.59	3.52	75.41	45.97								0.80
1.50	6.72	7.17	31.31	4.30	68.69	49.76								0.89
1.55	7.58	10.29	38.89	5.47	61.11	54.66								1.11
1.60	5.20	15.90	44.09	6.70	55.91	58.26								1.59
1.70	7.37	19.93	51.46	8.59	48.54	64.08								1.68
1.80	5.96	26.69	57.42	10.47	42.58	69.32								1.95
2.00	7.26	38.36	64.68	13.60	35.32	75.68								1.96
2.60	35.32	75.68	100.00	35.53										1.50

ANALYSIS TYPE - FROTH

FRACTION	SIZE(MM)	0.15 X 0.00		CUM. FLOATS	CUM. SINKS	RELATIVE WEIGHT % - 1.20				ASH % - 39.42		CUM. MOIST	CUM. MOIST	
		ELEMENTAL				CUM.	C.V.	CUM.	S	S	VOL.			VOL.
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
240.00	*****	39.42	100.00	39.42			19.42	19.42	0.34	0.34	0.34	8.64	8.64	0.84

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86014
 Coal zone: K
 Field sample no.: 10024 - 10025 Composite sample no.: 225
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP4) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.54
 Contribution (%): 13.95
 Total yield (%): 13.95

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.89	
Ash (%):	9.00	9.08
Volatile matter (%):	6.18	6.24
Fixed carbon (%):	83.93	84.68
Total sulphur (%):	0.58	0.59
Combustible sulphur (%):	0.54	
Gross calorific value (cal/g):	7,505.00	7,572.00
Volatile matter (dmmf%):	5.90	
Hardgrove index:	39.00	
Phosphorous in coal (%):	0.160	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C):	1,257.00	1,203.00
Softening temperature(°C):	1,278.00	1,225.00
Hemispherical temperature(°C):	1,289.00	1,235.00
Final temperature(°C):	1,327.00	1,321.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	53.72	TiO2 (%):	1.61
Al2O3 (%):	21.93	Na2O (%):	2.72
Fe2O3 (%):	3.73	K2O (%):	0.81
CaO (%):	6.55	SO3 (%):	1.04
MgO (%):	1.62	P2O5 (%):	4.06

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86014
 Coal zone: K
 Field sample no.: 10024 - 10025 Composite sample no.: 325
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.54
 Contribution (%): 7.75
 Total yield (%): 7.75

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.89	
Ash (%) :	6.89	6.95
Volatile matter (%) :	6.75	6.81
Fixed carbon (%) :	85.47	86.24
Total sulphur (%) :	0.61	0.62
Combustible sulphur (%) :	0.58	
Gross calorific value (cal/g) :	7,724.00	7,794.00
Volatile matter (dmmf%) :	6.60	
Hardgrove index:	38.00	
Phosphorous in coal (%) :	0.085	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C) :	1,270.00	1,182.00
Softening temperature(°C) :	1,289.00	1,203.00
Hemispherical temperature(°C) :	1,300.00	1,233.00
Final temperature(°C) :	1,367.00	1,365.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	55.42	TiO2 (%) :	3.20
Al2O3 (%) :	23.04	Na2O (%) :	2.62
Fe2O3 (%) :	4.36	K2O (%) :	0.88
CaO (%) :	4.62	SO3 (%) :	1.11
MgO (%) :	1.91	P2O5 (%) :	2.83

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WASHABILITY REPORT 2

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DATA SOURCE - KPnlRDDH86015 SEAM - K

SAMPLE ID - 46

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X		6.00		RELATIVE WEIGHT % - 74.96				ASH % - 27.62				
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.	
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
1.40	3.77	3.35	3.77	3.35	96.23	29.05							0.64	0.64
1.45	14.63	8.57	18.40	7.50	81.60	32.72							0.61	0.62
1.50	30.17	12.28	48.57	10.47	51.43	44.72							0.65	0.64
1.55	11.23	17.50	59.80	11.79	40.20	52.32							0.65	0.64
1.60	4.28	22.13	64.08	12.48	35.92	55.92							0.68	0.64
1.70	6.08	29.12	70.16	13.92	29.84	61.38							0.79	0.66
1.80	4.98	34.55	75.14	15.29	24.86	66.75							0.81	0.67
2.00	6.34	51.77	81.48	18.13	18.52	71.88							1.00	0.69
2.60	18.52	71.88	100.00	28.08									0.93	0.74

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

FRACTION SIZE(MM)		6.00 X		0.50		RELATIVE WEIGHT % - 20.27				ASH % - 18.57				
SG-TME	ELEMENTAL	CUM.	FLDATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.	
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
1.40	22.04	2.11	22.04	2.11	77.96	23.06							0.40	0.40
1.45	23.61	6.52	45.65	4.39	54.35	30.24							0.45	0.43
1.50	16.24	11.12	61.89	6.16	38.11	38.39							0.42	0.42
1.55	7.39	15.12	69.28	7.11	30.72	43.98							0.60	0.44
1.60	5.38	18.46	74.66	7.93	25.34	49.40							0.81	0.47
1.70	6.65	23.76	81.31	9.23	18.69	58.53							1.02	0.52
1.80	3.49	31.70	84.80	10.15	15.20	64.69							1.37	0.55
2.00	4.09	42.27	88.89	11.63	11.11	72.94							1.90	0.62
2.60	11.11	72.94	100.00	18.44									1.73	0.74

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86015 SEAM - K

SAMPLE ID - 46

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		0.50 X 0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 3.01 ASH % - 23.17				CUM. MOIST				
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	10.40	1.38		10.40	1.38	89.60	25.26								0.75	0.75
1.45	28.09	3.13		38.49	2.66	61.51	35.36								0.92	0.87
1.50	13.24	5.70		51.73	3.44	48.27	43.50								0.94	0.89
1.55	5.53	9.73		57.26	4.04	42.74	47.87								1.41	0.94
1.60	5.91	12.70		63.17	4.85	36.83	53.51								1.91	1.03
1.70	6.05	21.26		69.22	6.29	30.78	59.85								1.60	1.08
1.80	6.34	25.59		75.56	7.91	24.44	68.73								1.88	1.15
2.00	5.15	33.39		80.71	9.53	19.29	78.17								1.84	1.19
2.60	19.29	78.17		100.00	22.77										1.02	1.16

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 1.76 ASH % - 31.38				CUM. MOIST				
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	31.38		100.00	31.38			22.95	22.95	0.40	0.40	0.40	8.41	8.41	0.74	0.74

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86015
 Coal zone: K
 Field sample no.: 05169 - 05171 Composite sample no.: 226
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.43
 Contribution (%): 9.76
 Total yield (%): 9.76

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.53	
Ash (%):	4.49	4.51
Volatile matter (%):	6.51	6.54
Fixed carbon (%):	88.47	88.95
Total sulphur (%):	0.59	0.59
Combustible sulphur (%):	0.56	
Gross calorific value (cal/g):	8,021.00	8,063.00
Volatile matter (dmmf %):	6.30	
Hardgrove index:	48.00	
Phosphorous in coal (%):	0.103	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,278.00	1,230.00
Softening temperature (°C):	1,289.00	1,246.00
Hemispherical temperature (°C):	1,300.00	1,262.00
Final temperature (°C):	1,351.00	1,346.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	44.46	TiO2 (%):	2.16
Al2O3 (%):	27.97	Na2O (%):	2.97
Fe2O3 (%):	4.90	K2O (%):	1.06
CaO (%):	7.53	SO3 (%):	1.60
MgO (%):	1.77	P2O5 (%):	5.27

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86015
 Coal zone: K
 Field sample no.: 05169 - 05171 Composite sample no.: 226
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP5) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.51
 Contribution (%): 31.36
 Total yield (%): 31.36

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.89	
Ash (%):	12.06	12.17
Volatile matter (%):	6.55	6.61
Fixed carbon (%):	80.50	81.22
Total sulphur (%):	0.54	0.54
Combustible sulphur (%):	0.50	
Gross calorific value (cal/g):	7,246.00	7,312.00
Volatile matter (dmmf %):	6.30	
Hardgrove index:	39.00	
Phosphorous in coal (%):	0.333	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,262.00	1,234.00
Softening temperature (°C):	1,281.00	1,257.00
Hemispherical temperature (°C):	1,297.00	1,270.00
Final temperature (°C):	1,321.00	1,319.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	43.28	TiO2 (%):	1.33
Al2O3 (%):	25.71	Na2O (%):	2.64
Fe2O3 (%):	3.88	K2O (%):	1.05
CaO (%):	10.97	SO3 (%):	0.80
MgO (%):	1.74	P2O5 (%):	6.32

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86015
 Coal zone: K
 Field sample no.: 05169 - 05171 Composite sample no.: 326
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.57
 Contribution (%): 14.38
 Total yield (%): 14.38

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.93	
Ash (%):	7.01	7.08
Volatile matter (%):	6.48	6.54
Fixed carbon (%):	85.58	86.38
Total sulphur (%):	0.57	0.58
Combustible sulphur (%):	0.54	
Gross calorific value (cal/g):	7,691.00	7,763.00
Volatile matter (dmmf %):	6.30	
Hardgrove index:	38.00	
Phosphorous in coal (%):	0.116	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,284.00	1,214.00
Softening temperature (°C):	1,297.00	1,235.00
Hemispherical temperature (°C):	1,311.00	1,262.00
Final temperature (°C):	1,364.00	1,359.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	46.48	TiO2 (%):	2.49
Al2O3 (%):	27.84	Na2O (%):	2.32
Fe2O3 (%):	4.35	K2O (%):	1.13
CaO (%):	6.05	SO3 (%):	0.93
MgO (%):	1.88	P2O5 (%):	3.78

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86016 SEAM - L

SAMPLE ID - 47

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X		6.00		CUM. SINKS		RELATIVE WEIGHT % - 47.82				ASH % - 38.23		CUM.		
SG-TME	ELEMENTAL	CUM. FLOATS		WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%								
1.40	2.74	4.97	2.74	4.97	97.26	40.15									1.14	1.14
1.45	1.63	3.77	4.37	4.52	95.63	40.77									0.77	1.00
1.50	3.44	5.82	7.81	5.09	92.19	42.08									0.73	0.88
1.55	7.19	12.72	15.00	8.75	85.00	44.56									1.13	1.00
1.60	9.37	17.35	24.37	12.06	75.63	47.93									1.10	1.04
1.70	15.96	24.69	40.33	17.06	59.67	54.15									1.36	1.17
1.80	10.79	29.59	51.12	19.70	48.88	59.57									1.81	1.30
2.00	17.97	40.97	69.09	25.23	30.91	70.38									1.91	1.46
2.60	30.91	70.38	100.00	39.19											1.41	1.44

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

FRACTION SIZE(MM)		6.00 X		0.50		CUM. SINKS		RELATIVE WEIGHT % - 34.38				ASH % - 27.43		CUM.		
SG-TME	ELEMENTAL	CUM. FLOATS		WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%								
1.40	3.04	2.76	3.04	2.76	96.96	27.17									0.56	0.56
1.45	14.55	4.16	17.59	3.92	82.41	31.23									0.50	0.51
1.50	11.18	8.33	28.77	5.63	71.23	34.82									0.52	0.51
1.55	8.99	12.50	37.76	7.27	62.24	38.05									0.68	0.55
1.60	6.60	15.56	44.36	8.50	55.64	40.72									1.06	0.63
1.70	12.20	20.45	56.56	11.08	43.44	46.41									1.61	0.84
1.80	4.83	23.11	61.39	12.03	38.61	49.32									1.80	0.92
2.00	17.09	33.66	78.48	16.74	21.52	61.76									1.92	1.13
2.60	21.52	61.76	100.00	26.43											1.80	1.28

GULF CANADA CORPORATION - COAL DIVISION

APR 02/87

WASHABILITY REPORT 2

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DATA SOURCE - KPNI RDDH86016 SEAM - L

SAMPLE ID - 47

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		0.50 X 0.15		CUM. SINKS		RELATIVE WEIGHT % - 11.14				ASH % - 20.57		CUM.			
SG-TME	ELEMENTAL	CUM. FLOATS	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. (MJ/KG)	CUM. C.V.	S	CUM. S	VOL.	CUM. VOL.	MOIST	CUM. MOIST
1.40	3.09	3.14	3.09	3.14	96.91	20.32								1.10	1.10
1.45	14.62	2.69	17.71	2.77	82.29	23.45								0.90	0.93
1.50	16.27	5.10	33.98	3.88	66.02	27.97								1.16	1.04
1.55	15.75	7.87	49.73	5.15	50.27	34.27								1.66	1.24
1.60	6.34	10.54	56.07	5.76	43.93	37.70								2.00	1.32
1.70	12.21	15.52	68.28	7.50	31.72	46.23								1.57	1.37
1.80	9.66	23.03	77.94	9.43	22.06	56.39								1.98	1.44
2.00	9.30	35.42	87.24	12.20	12.76	71.68								1.52	1.45
2.60	12.76	71.68	100.00	19.79										1.36	1.44

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X 0.00		CUM. SINKS		RELATIVE WEIGHT % - 6.66				ASH % - 26.42		CUM.			
SG-TME	ELEMENTAL	CUM. FLOATS	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. (MJ/KG)	CUM. C.V.	S	CUM. S	VOL.	CUM. VOL.	MOIST	CUM. MOIST
240.00	*****	26.42	100.00	26.42			24.69	24.69	0.44	0.44	7.20	7.20	0.67	0.67	

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86016
 Coal zone: L
 Field sample no.: 10027 Composite sample no.: 227
 Lab sample no.: 29623

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.60
 Contribution (%): 9.57
 Total yield (%): 9.57

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.87	
Ash (%):	11.03	11.13
Volatile matter (%):	9.53	9.61
Fixed carbon (%):	78.57	79.26
Total sulphur (%):	0.57	0.58
Combustible sulphur (%):	0.51	
Gross calorific value (cal/g):	7,098.00	7,161.00
Volatile matter (dmmf %):	9.70	
Hardgrove index:	76.00	
Phosphorous in coal (%):	0.088	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,225.00	1,128.00
Softening temperature (°C):	1,340.00	1,286.00
Hemispherical temperature (°C):	1,378.00	1,327.00
Final temperature (°C):	1,429.00	1,409.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	55.56	TiO2 (%):	2.65
Al2O3 (%):	24.57	Na2O (%):	1.12
Fe2O3 (%):	3.92	K2O (%):	1.19
CaO (%):	3.41	SO3 (%):	1.27
MgO (%):	2.86	P2O5 (%):	1.83

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86016
 Coal zone: L
 Field sample no.: 10027 Composite sample no.: 327
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.56
 Contribution (%): 13.48
 Total yield (%): 13.48

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.86	
Ash (%):	6.68	6.74
Volatile matter (%):	7.82	7.89
Fixed carbon (%):	84.64	85.37
Total sulphur (%):	0.61	0.62
Combustible sulphur (%):	0.58	
Gross calorific value (cal/g):	7,629.00	7,695.00
Volatile matter (dmmf %):	7.70	
Hardgrove index:	43.00	
Phosphorous in coal (%):	0.074	

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,203.00	1,131.00
Softening temperature (°C):	1,260.00	1,222.00
Hemispherical temperature (°C):	1,286.00	1,246.00
Final temperature (°C):	1,378.00	1,364.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	51.68	TiO2 (%):	4.19
Al2O3 (%):	23.82	Na2O (%):	1.41
Fe2O3 (%):	4.33	K2O (%):	1.54
CaO (%):	4.76	SO3 (%):	1.00
MgO (%):	2.69	P2O5 (%):	2.53

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRDDH86016 SEAM - K/L

SAMPLE ID - 48

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		0.50 X 0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -				6.42 ASH % - 29.40		
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. (MJ/KG)	CUM. C.V.	S	CUM. S	CUM. VOL.	CUM. VOL. MOIST
1.40	0.82	10.11		0.82	10.11	99.18	28.37						0.98	0.98
1.45	14.36	2.73		15.18	3.13	84.82	32.71						0.93	0.93
1.50	12.79	4.54		27.97	3.77	72.03	37.72						1.22	1.06
1.55	11.30	7.60		39.27	4.87	60.73	43.32						1.36	1.15
1.60	8.97	9.92		48.24	5.81	51.76	49.11						1.96	1.30
1.70	7.92	16.42		56.16	7.31	43.84	55.01						1.98	1.40
1.80	6.82	24.51		62.98	9.17	37.02	60.63						1.92	1.45
2.00	12.88	35.39		75.86	13.62	24.14	74.10						2.15	1.57
2.60	24.14	74.10		100.00	28.22								1.42	1.53

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -				3.89 ASH % - 28.47		
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. (MJ/KG)	CUM. C.V.	S	CUM. S	CUM. VOL.	CUM. VOL. MOIST
240.00	*****	28.47		100.00	28.47								6.90	0.70

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 52.02				ASH % - 54.77						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.29	5.92	0.29	5.92	99.71	54.33							0.62	0.62
1.45	0.91	4.71	1.20	5.00	98.80	54.79							0.59	0.60
1.50	0.94	6.27	2.14	5.56	97.86	55.25							0.65	0.62
1.55	1.70	11.97	3.84	8.40	96.16	56.02							0.81	0.70
1.60	1.89	12.63	5.73	9.79	94.27	56.89							0.70	0.70
1.70	12.68	26.37	18.61	21.27	81.39	61.72							1.92	1.55
1.80	11.08	30.36	29.69	24.66	70.31	66.66							1.73	1.61
2.00	9.49	36.85	39.18	27.61	60.82	71.31							1.40	1.56
2.60	60.82	71.31	100.00	54.19									1.21	1.35

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 33.20				ASH % - 36.21						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	1.19	2.77	1.19	2.77	98.81	35.98							0.60	0.60
1.45	9.39	3.57	10.58	3.48	89.42	39.39							0.61	0.61
1.50	2.10	5.21	12.68	3.77	87.32	40.21							0.72	0.63
1.55	6.52	8.00	19.20	5.20	80.80	42.81							0.65	0.63
1.60	5.17	10.38	24.37	6.30	75.63	45.02							0.90	0.69
1.70	11.75	15.21	36.12	9.20	63.88	50.51							1.49	0.95
1.80	14.72	21.54	50.84	12.77	49.16	59.18							1.95	1.24
2.00	17.87	33.16	68.71	18.08	31.29	74.04							1.28	1.25
2.60	31.29	74.04	100.00	35.59									1.52	1.33

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

FRACTION SIZE(MM)	0.50 X 0.15		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -			8.88 ASH % - 26.49		CUM.			
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM.	C.V.	CUM.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.39	8.00	0.39	8.00	99.61	25.55										0.83	0.83
1.45	10.55	2.55	10.94	2.74	89.06	28.27										0.82	0.82
1.50	11.73	5.39	22.67	4.11	77.33	31.74										0.91	0.87
1.55	8.51	7.40	31.18	5.01	68.82	34.75										1.26	0.97
1.60	7.08	10.22	38.26	5.97	61.74	37.56										1.71	1.11
1.70	13.52	12.95	51.78	7.80	48.22	44.46										1.45	1.20
1.80	11.82	19.97	63.60	10.06	36.40	52.42										1.58	1.27
2.00	16.02	29.71	79.62	14.01	20.38	70.27										1.77	1.37
2.60	20.38	70.27	100.00	25.48												1.81	1.46

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)	0.15 X 0.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -			5.90 ASH % - 26.48		CUM.		
	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM.	C.V.	CUM.	S	S	VOL.	VOL.	MOIST
240.00	*****	26.48	100.00	26.48					24.71	24.71	1.32	1.32	6.51	6.51	0.70	0.70

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

FRACTION SIZE(MM)		35.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 69.40 ASH % - 22.96				CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.04	1.23	0.04	1.23	99.96	23.71										0.34	0.34
1.45	12.75	4.63	12.79	4.62	87.21	26.50										0.66	0.66
1.50	27.05	8.62	39.84	7.34	60.16	34.54										0.77	0.73
1.55	18.17	14.00	58.01	9.42	41.99	43.42										1.09	0.85
1.60	8.32	20.98	66.33	10.87	33.67	48.97										1.34	0.91
1.70	12.08	27.03	78.41	13.36	21.59	61.24										1.46	0.99
1.80	3.61	35.58	82.02	14.34	17.98	66.39										1.96	1.04
2.00	6.97	46.86	88.99	16.89	11.01	78.76										1.09	1.04
2.60	11.01	78.76	100.00	23.70												1.19	1.06

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

FRACTION SIZE(MM)		6.00 X 0.50		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 24.46 ASH % - 26.84				CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.37	1.64	0.37	1.64	99.63	26.32										0.65	0.65
1.45	30.87	3.35	31.24	3.33	68.76	36.63										0.61	0.61
1.50	14.71	5.66	45.95	4.08	54.05	45.06										1.48	0.89
1.55	9.18	12.95	55.13	5.55	44.87	51.63										1.04	0.91
1.60	6.16	17.38	61.29	6.74	38.71	57.08										1.67	0.99
1.70	7.91	22.87	69.20	8.59	30.80	65.87										1.84	1.09
1.80	4.41	31.70	73.61	9.97	26.39	71.58										1.63	1.12
2.00	5.33	42.96	78.94	12.20	21.06	78.82										1.60	1.15
2.60	21.06	78.82	100.00	26.23												1.08	1.14

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ANALYSIS TYPE - FLDAT

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -				4.20 ASH % -		35.66	
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	1.06	2.36	1.06	2.36	98.94	34.87							0.42
1.45	12.31	3.31	13.37	3.23	86.63	39.35							0.80
1.50	14.42	5.64	27.79	4.48	72.21	46.08							0.81
1.55	10.55	10.10	38.34	6.03	61.66	52.24							0.85
1.60	6.10	13.86	44.44	7.10	55.56	56.46							0.86
1.70	9.50	18.52	53.94	9.11	46.06	64.28							1.05
1.80	7.85	25.63	61.79	11.21	38.21	72.22							1.29
2.00	6.10	39.06	67.89	13.71	32.11	78.52							1.50
2.60	32.11	78.52	100.00	34.52									1.60

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -				1.94 ASH % -		38.67	
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
240.00	*****	38.67	100.00	38.67			19.46	19.46	0.33	0.33	7.56	7.56	1.60

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ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % - 2.69 ASH % - 41.24									
ELEMENTAL		CUM. FLOATS		CUM.		SINKS		CUM. C.V. CUM.			2.69 ASH % - 41.24				
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.45	16.37	3.74	16.37	3.74	83.63	46.83								0.89	0.89
1.50	10.88	5.87	27.25	4.59	72.75	52.95								0.90	0.89
1.55	7.47	8.10	34.72	5.35	65.28	58.08								0.75	0.86
1.60	5.93	14.57	40.65	6.69	59.35	62.43								0.96	0.88
1.70	7.25	19.02	47.90	8.56	52.10	68.47								1.16	0.92
1.80	5.93	27.91	53.83	10.69	46.17	73.68								1.25	0.96
2.00	6.04	39.21	59.87	13.57	40.13	78.87								1.45	1.01
2.60	40.13	78.87	100.00	39.77										1.53	1.22

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % - 1.26 ASH % - 46.51									
ELEMENTAL		CUM. FLOATS		CUM.		SINKS		CUM. C.V. CUM.			1.26 ASH % - 46.51				
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	46.51	100.00	46.51										1.78	1.78

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WASHABILITY ID - WA1

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

FRACTION	SIZE(MM)		35.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 74.24 ASH % - 7.85					
	SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	CUM. S	CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST
1.40	0.04	2.41	0.04	2.41	99.96	8.74									1.27	1.27
1.45	46.19	4.39	46.23	4.39	53.77	12.48									0.91	0.91
1.50	35.94	7.23	82.17	5.63	17.83	23.06									0.92	0.91
1.55	9.84	13.13	92.01	6.43	7.99	35.28									1.02	0.93
1.60	2.93	18.27	94.94	6.80	5.06	45.13									0.95	0.93
1.70	2.76	24.17	97.70	7.29	2.30	70.28									1.30	0.94
1.80	0.23	30.72	97.93	7.34	2.07	74.67									1.26	0.94
2.00	0.43	34.96	98.36	7.46	1.64	85.09									1.17	0.94
2.60	1.64	85.09	100.00	8.74											0.90	0.94

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

FRACTION	SIZE(MM)		6.00 X 0.50		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 21.59 ASH % - 8.36					
	SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	CUM. S	CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST
1.40	0.29	2.47	0.29	2.47	99.71	8.29									0.59	0.59
1.45	52.25	3.43	52.54	3.42	47.46	13.63									0.63	0.63
1.50	26.38	7.82	78.92	4.89	21.08	20.90									0.77	0.68
1.55	9.51	12.10	88.43	5.67	11.57	28.14									0.78	0.69
1.60	3.69	15.13	92.12	6.05	7.88	34.23									1.31	0.71
1.70	3.79	18.68	95.91	6.55	4.09	48.64									1.91	0.76
1.80	1.16	26.91	97.07	6.79	2.93	57.25									1.91	0.77
2.00	0.96	38.72	98.03	7.10	1.97	66.28									1.24	0.78
2.60	1.97	66.28	100.00	8.27											1.65	0.80

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

FRACTION	SIZE(MM)	0.50 X 0.15		CUM.	SINKS	RELATIVE WEIGHT % - 2.34 ASH % - 16.03				CUM.	VOL.	VOL.	CUM.	
		ELEMENTAL				FLOATS		CUM.	C.V.					CUM.
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S			
1.40	1.01	4.82	1.01	4.82	98.99	15.10							0.86	0.86
1.45	26.03	2.39	27.04	2.48	72.96	19.63							0.93	0.93
1.50	20.44	4.93	47.48	3.54	52.52	25.35							1.10	1.00
1.55	14.95	7.64	62.43	4.52	37.57	32.40							1.59	1.14
1.60	6.85	11.84	69.28	5.24	30.72	36.99							1.10	1.14
1.70	11.73	16.80	81.01	6.92	18.99	49.45							1.91	1.25
1.80	5.74	21.93	86.75	7.94	13.25	61.38							1.04	1.24
2.00	3.73	33.04	90.48	8.95	9.52	72.48							1.95	1.27
2.60	9.52	72.48	100.00	14.99									1.74	1.31

----- ANALYSIS TYPE - FROTH -----

FRACTION	SIZE(MM)	0.15 X 0.00		CUM.	SINKS	RELATIVE WEIGHT % - 1.83 ASH % - 22.44				CUM.	VOL.	VOL.	CUM.	
		ELEMENTAL				FLOATS		CUM.	C.V.					CUM.
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S			
240.00	*****	22.44	100.00	22.44			26.23	26.23	0.40	0.40	7.31	7.31	1.23	1.23

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86017
 Coal zone: 1
 Field sample no.: 10007 - 10008 Composite sample no.: 228
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP2) -----
 Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.47
 Contribution (%): 22.51
 Total yield (%): 22.51

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.83	
Ash (%):	5.07	5.11
Volatile matter (%):	5.31	5.35
Fixed carbon (%):	88.79	89.54
Total sulphur (%):	0.51	0.51
Combustible sulphur (%):	0.49	
Gross calorific value (cal/g):	7,851.00	7,917.00
Volatile matter (dmmf %):	5.10	
Hardgrove index:	38.00	
Phosphorous in coal (%):	0.018	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,284.00	1,235.00
Softening temperature (°C):	1,429.00	1,380.00
Hemispherical temperature (°C):	1,472.00	1,450.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO ₂ (%):	57.28	TiO ₂ (%):	2.25
Al ₂ O ₃ (%):	27.60	Na ₂ O (%):	1.77
Fe ₂ O ₃ (%):	2.98	K ₂ O (%):	1.05
CaO (%):	2.04	S ₂ O ₃ (%):	0.93
MgO (%):	2.20	P ₂ O ₅ (%):	0.83

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86017
 Coal zone: I
 Field sample no.: 10007 - 10008 Composite sample no.: 228
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP5) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.55
 Contribution (%): 9.23
 Total yield (%): 9.23

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.06	
Ash (%):	12.29	12.42
Volatile matter (%):	7.15	7.23
Fixed carbon (%):	79.50	80.35
Total sulphur (%):	0.51	0.52
Combustible sulphur (%):	0.46	
Gross calorific value (cal/g):	7,103.00	7,179.00
Volatile matter (dmmf %):	7.00	
Hardgrove index:	43.00	
Phosphorous in coal (%):	0.023	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,243.00	1,222.00
Softening temperature (°C):	1,343.00	1,340.00
Hemispherical temperature (°C):	1,396.00	1,380.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	58.44	TiO2 (%):	1.35
Al2O3 (%):	25.71	Na2O (%):	1.71
Fe2O3 (%):	4.42	K2O (%):	1.04
CaO (%):	2.13	SO3 (%):	1.00
MgO (%):	3.11	P2O5 (%):	0.43

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPnlRDDH86017
 Coal zone: 1
 Field sample no.: 10009 Composite sample no.: 229
 Lab sample no.: 29553

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.54
 Contribution (%): 66.81
 Total yield (%): 66.81

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.96	
Ash (%):	5.85	5.91
Volatile matter (%):	5.09	5.14
Fixed carbon (%):	88.10	88.95
Total sulphur (%):	0.51	0.51
Combustible sulphur (%):	0.48	
Gross calorific value (cal/g):	7,844.00	7,920.00
Volatile matter (dmmf %):	4.80	
Hardgrove index:	38.00	
Phosphorous in coal (%):	0.193	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,286.00	1,246.00
Softening temperature (°C):	1,300.00	1,276.00
Hemispherical temperature (°C):	1,308.00	1,289.00
Final temperature (°C):	1,421.00	1,419.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	40.32	TiO2 (%):	1.53
Al2O3 (%):	30.21	Na2O (%):	2.39
Fe2O3 (%):	3.86	K2O (%):	1.17
CaO (%):	7.06	SO3 (%):	1.28
MgO (%):	2.04	P2O5 (%):	7.54

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86017
 Coal zone: I
 Field sample no.: 10009 Composite sample no.: 229
 Lab sample no.: 29553

----- PRODUCT COAL ANALYSIS (SP5) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.59
 Contribution (%): 2.98
 Total yield (%): 2.98

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.97	
Ash (%):	16.70	16.86
Volatile matter (%):	7.73	7.81
Fixed carbon (%):	74.60	75.33
Total sulphur (%):	0.43	0.43
Combustible sulphur (%):	0.29	
Gross calorific value (cal/g):	6,697.00	6,762.00
Volatile matter (dmmf %):	7.80	
Phosphorous in coal (%):	0.184	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,278.00	1,219.00
Softening temperature (°C):	1,292.00	1,235.00
Hemispherical temperature (°C):	1,311.00	1,249.00
Final temperature (°C):	1,370.00	1,348.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	42.46	TiO2 (%):	1.68
Al2O3 (%):	25.59	Na2O (%):	2.23
Fe2O3 (%):	8.06	K2O (%):	1.15
CaO (%):	7.40	SO3 (%):	2.08
MgO (%):	4.74	P2O5 (%):	2.53

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRBDH86017
 Coal zone: I
 Field sample no.: 10007 - 10009 Composite sample no.: 328
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP3) -----
 Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp-g. 1.65
 Contribution (%): 17.55
 Total yield (%): 17.55

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%)	0.80	
Ash (%)	7.01	7.07
Volatile matter (%)	5.40	5.44
Fixed carbon (%)	86.79	87.49
Total sulphur (%)	0.49	0.49
Combustible sulphur (%)	0.47	
Gross calorific value (cal/g)	7,674.00	7,736.00
Volatile matter (dmmf %)	5.10	
Hardgrove index	40.00	
Phosphorous in coal (%)	0.080	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C)	1,278.00	1,235.00
Softening temperature (°C)	1,332.00	1,327.00
Hemispherical temperature (°C)	1,413.00	1,394.00
Final temperature (°C)	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%)	50.90	TiO2 (%)	2.19
Al2O3 (%)	29.11	Na2O (%)	1.81
Fe2O3 (%)	2.90	K2O (%)	1.22
CaO (%)	3.64	SO3 (%)	0.86
MgO (%)	2.27	P2O5 (%)	2.61

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRDDH86017 SEAM - H

SAMPLE ID - 54

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 74.43		ASH % - 35.62		CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.32	1.70	0.32	1.70	99.68	36.72										0.91	0.91
1.45	4.50	4.02	4.82	3.87	95.18	38.27										0.86	0.86
1.50	10.18	10.68	15.00	8.49	85.00	41.57										0.74	0.78
1.55	8.55	15.93	23.55	11.19	76.45	44.44										0.77	0.78
1.60	10.00	21.60	33.55	14.29	66.45	47.88										0.82	0.79
1.70	18.92	29.02	52.47	19.60	47.53	55.38										0.80	0.79
1.80	13.44	35.83	65.91	22.91	34.09	63.09										0.90	0.81
2.00	10.66	43.49	76.57	25.78	23.43	72.01										0.82	0.82
2.60	23.43	72.01	100.00	36.61												0.88	0.83

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

FRACTION SIZE(MM)		6.00 X 0.50		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 20.66		ASH % - 26.58		CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	2.03	1.08	2.03	1.08	97.97	25.73										0.87	0.87
1.45	14.61	3.31	16.64	3.04	83.36	29.65										0.77	0.78
1.50	16.22	8.54	32.86	5.75	67.14	34.75										0.88	0.83
1.55	6.32	13.71	39.18	7.04	60.82	36.94										1.01	0.86
1.60	5.35	15.27	44.53	8.03	55.47	39.03										1.01	0.88
1.70	9.74	18.08	54.27	9.83	45.73	43.49										1.18	0.93
1.80	17.71	23.42	71.98	13.17	28.02	56.18										1.90	1.17
2.00	11.13	35.53	83.11	16.17	16.89	69.79										1.46	1.21
2.60	16.89	69.79	100.00	25.22												1.81	1.31

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRDDH06017 SEAM - H

SAMPLE ID - 54

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT																	
FRACTION SIZE(MM)		0.50 X 0.15		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 3.23 ASH % - 27.40							
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.45	14.64	2.41	14.64	2.41	85.36	31.06										0.73	0.73
1.50	12.69	5.86	27.33	4.01	72.67	35.46										0.97	0.84
1.55	12.74	8.16	40.07	5.33	59.93	41.26										1.32	0.99
1.60	6.99	12.88	47.06	6.45	52.94	45.01										1.36	1.05
1.70	14.88	17.66	61.94	9.14	38.06	55.70										1.82	1.23
1.80	7.41	24.96	69.35	10.83	30.65	63.13										1.98	1.31
2.00	8.54	36.22	77.89	13.62	22.11	73.53										1.99	1.39
2.60	22.11	73.53	100.00	26.86												1.14	1.33

ANALYSIS TYPE - FROTH																	
FRACTION SIZE(MM)		0.15 X 0.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 1.68 ASH % - 35.36							
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	35.36	100.00	35.36					21.19	21.19	0.33	0.33	0.33	7.43	7.43	0.44	0.44

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86017
 Coal zone: H
 Field sample no.: 10013 - 10015 Composite sample no.: 230
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.56
 Contribution (%): 20.48
 Total yield (%): 20.48

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.76	
Ash (%):	11.12	11.21
Volatile matter (%):	5.29	5.33
Fixed carbon (%):	82.83	83.46
Total sulphur (%):	0.47	0.47
Combustible sulphur (%):	0.42	
Gross calorific value (cal/g):	7,352.00	7,408.00
Volatile matter (dmmf %):	4.90	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.029	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,284.00	1,246.00
Softening temperature (°C):	1,380.00	1,370.00
Hemispherical temperature (°C):	1,415.00	1,402.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	68.26	TiO2 (%):	1.42
Al2O3 (%):	19.66	Na2O (%):	1.54
Fe2O3 (%):	1.56	K2O (%):	1.05
CaO (%):	2.24	SO3 (%):	1.21
MgO (%):	1.62	P2O5 (%):	0.59

===== GULF CANADA CORPORATION - COAL DIVISION =====

----- CLEAN SIMULATED PRODUCT REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86017
 Coal zone: H
 Field sample no.: 10013 - 10015 Composite sample no.: 330
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.56
 Contribution (%): 9.20
 Total yield (%): 9.20

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.72	
Ash (%):	7.59	7.65
Volatile matter (%):	5.82	5.86
Fixed carbon (%):	85.87	86.49
Total sulphur (%):	0.52	0.52
Combustible sulphur (%):	0.49	
Gross calorific value (cal/g):	7,605.00	7,660.00
Volatile matter (dmmf %):	5.60	
Hardgrove index:	39.00	
Phosphorous in coal (%):	0.019	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,251.00	1,248.00
Softening temperature (°C):	1,370.00	1,362.00
Hemispherical temperature (°C):	1,413.00	1,402.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	66.54	TiO2 (%):	2.35
Al2O3 (%):	20.04	Na2O (%):	1.49
Fe2O3 (%):	1.77	K2O (%):	1.02
CaO (%):	2.07	SO3 (%):	0.88
MgO (%):	1.66	P2O5 (%):	0.58

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRDDHB6019 SEAM - M/N

SAMPLE ID - 55

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 64.33 ASH % - 45.93			CUM.		
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL. MOIST
1.40	0.11	10.42	0.11	10.42	99.89	45.29								0.65	0.65
1.45	0.85	2.90	0.96	3.76	99.04	45.65								0.87	0.84
1.50	1.46	6.47	2.42	5.40	97.58	46.24								0.93	0.90
1.55	4.67	12.42	7.09	10.02	92.91	47.94								1.13	1.05
1.60	4.95	16.75	12.04	12.79	87.96	49.69								1.54	1.25
1.70	19.69	25.95	31.73	20.96	68.27	56.54								1.85	1.62
1.80	11.89	34.15	43.62	24.55	56.38	61.27								1.79	1.67
2.00	14.15	44.33	57.77	29.40	42.23	66.94								1.75	1.69
2.60	42.23	66.94	100.00	45.25										1.15	1.46

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

FRACTION SIZE(MM)		6.00 X 0.50		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 26.99 ASH % - 31.85			CUM.		
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL. MOIST
1.40	1.03	2.39	1.03	2.39	98.97	31.55								0.67	0.57
1.45	8.30	4.24	9.33	4.04	90.67	34.05								0.64	0.63
1.50	9.43	8.23	18.76	6.14	81.24	37.04								0.72	0.68
1.55	10.87	12.61	29.63	8.52	70.37	40.82								0.86	0.74
1.60	8.27	16.14	37.90	10.18	62.10	44.10								1.34	0.87
1.70	14.71	21.20	52.61	13.26	47.39	51.21								1.97	1.18
1.80	10.23	26.99	62.84	15.50	37.16	57.88								1.23	1.19
2.00	10.51	39.40	73.35	18.92	26.65	65.17								2.00	1.30
2.60	26.65	65.17	100.00	31.25										1.20	1.28

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRDDH86019 SEAM - M/N

SAMPLE ID - 55

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT														
FRACTION SIZE(MM)		0.50 X 0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -				5.59 ASH % - 24.31		
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	CUM. MOIST
1.40	3.51	4.03	3.51	4.03	96.49	24.02								0.98 0.98
1.45	16.56	3.47	20.07	3.57	79.93	28.27								0.97 0.97
1.50	10.29	5.66	30.36	4.28	69.64	31.62								1.04 0.99
1.55	5.14	6.45	35.50	4.59	64.50	33.62								1.27 1.03
1.60	7.03	8.81	42.53	5.29	57.47	36.66								1.86 1.17
1.70	11.79	12.80	54.32	6.92	45.68	42.81								1.37 1.21
1.80	12.67	17.50	66.99	8.92	33.01	52.53								1.78 1.32
2.00	14.30	29.11	81.29	12.47	18.71	70.43								1.77 1.40
2.60	18.71	70.43	100.00	23.32										1.49 1.42

ANALYSIS TYPE - FROTH														
FRACTION SIZE(MM)		0.15 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -				3.09 ASH % - 26.84		
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	CUM. MOIST
240.00	*****	26.84	100.00	26.84				24.66	24.66	0.45	0.45	7.79	7.79	0.66 0.66

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: M/N
 Field sample no.: 05192 Composite sample no.: 231
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.59
 Contribution(%): 5.95
 Total yield(%): 5.95

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	1.02	
Ash (%) :	11.00	11.11
Volatile matter (%) :	9.32	9.42
Fixed carbon (%) :	78.66	79.47
Total sulphur (%) :	0.60	0.61
Combustible sulphur (%) :	0.52	
Gross calorific value (cal/g) :	7,230.00	7,304.00
Volatile matter (dmmf%) :	9.50	
Hardgrove index:	46.00	
Phosphorous in coal (%) :	0.174	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C) :	1,241.00	1,192.00
Softening temperature (°C) :	1,260.00	1,230.00
Hemispherical temperature (°C) :	1,270.00	1,246.00
Final temperature (°C) :	1,354.00	1,344.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	57.82	TiO2 (%) :	2.18
Al2O3 (%) :	17.77	Na2O (%) :	1.16
Fe2O3 (%) :	3.20	K2O (%) :	0.78
CaO (%) :	6.75	SO3 (%) :	1.72
MgO (%) :	2.28	P2O5 (%) :	3.63

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: M/N
 Field sample no.: 05192 Composite sample no.: 331
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.53
 Contribution(%): 6.20
 Total yield(%): 6.20

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture(%):	0.83	
Ash(%):	6.59	6.65
Volatile matter(%):	9.07	9.15
Fixed carbon(%):	83.51	84.20
Total sulphur(%):	0.60	0.61
Combustible sulphur(%):	0.56	
Gross calorific value(cal/g):	7,519.00	7,582.00
Volatile matter(dmmf%):	9.10	
Hardgrove index:	43.00	
Phosphorous in coal(%):	0.149	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C):	1,257.00	1,250.00
Softening temperature(°C):	1,268.00	1,262.00
Hemispherical temperature(°C):	1,281.00	1,276.00
Final temperature(°C):	1,362.00	1,354.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	48.38	TiO2 (%):	3.16
Al2O3 (%):	23.44	Na2O (%):	1.35
Fe2O3 (%):	3.11	K2O (%):	1.02
CaO (%):	8.40	SO3 (%):	1.54
MgO (%):	2.20	P2O5 (%):	5.18

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRDDH86019 SEAM - L

SAMPLE ID - 56

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 69.54				ASH % - 43.26						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.45	2.27	0.45	2.27	99.55	43.08							0.53	0.53
1.45	1.05	5.18	1.50	4.31	98.50	43.48							0.60	0.58
1.50	2.09	9.16	3.59	7.13	96.41	44.23							0.56	0.57
1.55	4.01	13.17	7.60	10.32	92.40	45.58							0.61	0.59
1.60	5.79	19.25	13.39	14.18	86.61	47.34							0.62	0.60
1.70	12.25	26.32	25.64	19.98	74.36	50.80							0.68	0.64
1.80	11.44	37.11	37.08	25.27	62.92	53.29							0.66	0.65
2.00	24.69	45.60	61.77	33.39	38.23	58.25							0.96	0.77
2.60	38.23	58.25	100.00	42.90									0.64	0.72

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 23.89				ASH % - 30.19						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	4.89	2.18	4.89	2.18	95.11	30.52							0.49	0.49
1.45	10.62	4.53	15.51	3.79	84.49	33.79							0.42	0.44
1.50	14.01	8.63	29.52	6.09	70.48	38.79							0.40	0.42
1.55	9.76	12.85	39.28	7.77	60.72	42.96							0.40	0.42
1.60	6.59	16.68	45.87	9.05	54.13	46.16							0.54	0.43
1.70	4.01	19.76	49.88	9.91	50.12	48.27							1.01	0.48
1.80	9.90	24.26	59.78	12.29	40.22	54.18							1.59	0.66
2.00	15.62	36.54	75.40	17.31	24.60	65.38							1.34	0.80
2.60	24.60	65.38	100.00	29.14									1.82	1.05

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GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPCLRDDHB6019 SEAM - L

SAMPLE ID - 56

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % - 4.40				ASH % - 32.98						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	MOIST	MOIST	
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
1.40	2.16	2.61	2.16	2.61	97.84	32.95							0.43	0.43
1.45	11.31	3.08	13.47	3.00	86.53	36.85							0.49	0.48
1.50	8.78	5.35	22.25	3.93	77.75	40.41							0.56	0.51
1.55	11.83	7.90	34.08	5.31	65.92	46.25							0.88	0.64
1.60	0.74	10.97	34.82	5.43	65.18	46.65							1.90	0.67
1.70	9.00	12.66	43.82	6.91	56.18	52.09							1.94	0.93
1.80	11.61	17.86	55.43	9.21	44.57	61.01							1.37	1.02
2.00	12.35	33.84	67.78	13.69	32.22	71.42							1.91	1.18
2.60	32.22	71.42	100.00	32.29									1.18	1.18

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % - 2.17				ASH % - 44.08						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	MOIST	MOIST	
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
240.00	*****	44.08	100.00	44.08			17.71	17.71	0.31	0.31	8.33	8.33	0.62	0.62

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: L
 Field sample no.: 05198 Composite sample no.: 232
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.57
 Contribution (%): 7.61
 Total yield (%): 7.61

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.11	
Ash (%):	10.21	10.32
Volatile matter (%):	7.36	7.44
Fixed carbon (%):	81.32	82.24
Total sulphur (%):	0.58	0.59
Combustible sulphur (%):	0.52	
Gross calorific value (cal/g):	7,268.00	7,349.00
Volatile matter (dmmf %):	7.30	
Hardgrove index:	44.00	
Phosphorous in coal (%):	0.090	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,241.00	1,179.00
Softening temperature (°C):	1,265.00	1,206.00
Hemispherical temperature (°C):	1,278.00	1,219.00
Final temperature (°C):	1,351.00	1,345.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	52.38	TiO2 (%):	2.18
Al2O3 (%):	27.90	Na2O (%):	2.00
Fe2O3 (%):	2.27	K2O (%):	1.69
CaO (%):	3.36	SO3 (%):	1.44
MgO (%):	2.32	P2O5 (%):	2.03

===== GULF CANADA CORPORATION - COAL DIVISION =====

----- CLEAN SIMULATED PRODUCT REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: L
 Field sample no.: 05198 Composite sample no.: 332
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.54
 Contribution (%): 9.21
 Total yield (%): 9.21

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.82	
Ash (%):	7.46	7.52
Volatile matter (%):	6.67	6.73
Fixed carbon (%):	85.05	85.75
Total sulphur (%):	0.59	0.59
Combustible sulphur (%):	0.56	
Gross calorific value (cal/g):	7,583.00	7,646.00
Volatile matter (dmmf %):	6.50	
Hardgrove index:	40.00	
Phosphorous in coal (%):	0.033	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,230.00	1,166.00
Softening temperature (°C):	1,348.00	1,340.00
Hemispherical temperature (°C):	1,407.00	1,370.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	56.88	TiO2 (%):	1.85
Al2O3 (%):	26.08	Na2O (%):	2.00
Fe2O3 (%):	2.32	K2O (%):	1.55
CaO (%):	2.66	SO3 (%):	1.14
MgO (%):	2.39	P2O5 (%):	1.02

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GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRODH86019 SEAM - K/L

SAMPLE ID - 57

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 65.10 ASH % - 41.30			CUM. MOIST					
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.69	2.67	0.69	2.67	99.31	41.50									0.66	0.66
1.45	3.05	4.71	3.74	4.33	96.26	42.67									0.68	0.68
1.50	3.59	10.72	7.33	7.46	92.67	43.90									0.66	0.67
1.55	5.41	15.13	12.74	10.72	87.26	45.69									0.67	0.67
1.60	9.27	21.87	22.01	15.41	77.99	48.52									0.64	0.66
1.70	18.44	29.22	40.45	21.71	59.55	54.49									0.78	0.71
1.80	16.11	36.69	56.56	25.98	43.44	61.10									0.95	0.78
2.00	18.35	47.68	74.91	31.29	25.09	70.91									0.95	0.82
2.60	25.09	70.91	100.00	41.23											1.00	0.87

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

FRACTION SIZE(MM)		6.00 X 0.50		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 27.44 ASH % - 28.18			CUM. MOIST					
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	6.94	1.69	6.94	1.69	93.06	29.84									0.50	0.50
1.45	15.43	4.66	22.37	3.74	77.63	34.84									0.44	0.46
1.50	12.83	9.77	35.20	5.94	64.80	39.80									0.42	0.44
1.55	8.89	14.79	44.09	7.72	55.91	43.78									0.49	0.45
1.60	7.62	18.70	51.71	9.34	48.29	47.74									0.59	0.47
1.70	11.55	24.07	63.26	12.03	36.74	55.18									0.81	0.54
1.80	8.16	31.14	71.42	14.21	28.58	62.04									1.26	0.62
2.00	10.20	40.69	81.62	17.52	18.38	73.89									2.09	0.80
2.60	18.38	73.89	100.00	27.88											2.03	1.03

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPnlRDDHB6019 SEAM - K/L

SAMPLE ID - 57

WASHABILITY ID - WA1

ANALYSIS TYPE - FLDAT

FRACTION SIZE(MM)		0.50 X 0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 4.62 ASH % - 31.83				CUM.		
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	7.45	2.67	7.45	2.67	92.55	33.55								0.75 0.75
1.45	12.80	2.71	20.25	2.70	79.75	38.50								0.87 0.83
1.50	10.89	6.54	31.14	4.04	68.86	43.56								0.84 0.83
1.55	7.45	9.81	38.59	5.15	61.41	47.65								0.92 0.85
1.60	5.33	13.41	43.92	6.16	56.08	50.91								1.00 0.87
1.70	8.64	17.97	52.56	8.10	47.44	56.91								1.48 0.97
1.80	7.88	25.07	60.44	10.31	39.56	63.25								1.29 1.01
2.00	9.54	34.95	69.98	13.67	30.02	72.24								1.83 1.12
2.60	30.02	72.24	100.00	31.25										1.16 1.13

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 2.84 ASH % - 38.76				CUM.		
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
240.00	*****	38.76	100.00	38.76				19.93	19.93	0.42	0.42	8.25	8.25	0.56 0.56

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPnlRDDH86019
 Coal zone: K/L
 Field sample no.: 10041 - 10042 Composite sample no.: 233
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.56
 Contribution (%): 11.45
 Total yield (%): 11.45

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.75	
Ash (%):	10.44	10.52
Volatile matter (%):	6.60	6.65
Fixed carbon (%):	82.21	82.83
Total sulphur (%):	0.59	0.59
Combustible sulphur (%):	0.51	
Gross calorific value (cal/g):	7,321.00	7,376.00
Volatile matter (dmmf %):	6.40	
Hardgrove index:	40.00	
Phosphorous in coal (%):	0.062	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,254.00	1,214.00
Softening temperature (°C):	1,284.00	1,235.00
Hemispherical temperature (°C):	1,305.00	1,260.00
Final temperature (°C):	1,413.00	1,405.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	55.68	TiO2 (%):	2.17
Al2O3 (%):	25.62	Na2O (%):	2.04
Fe2O3 (%):	2.34	K2O (%):	1.35
CaO (%):	3.09	SO3 (%):	1.82
MgO (%):	2.21	P2O5 (%):	1.35

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: K/L
 Field sample no.: 10041 - 10042 Composite sample no.: 333
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.54
 Contribution (%): 11.87
 Total yield (%): 11.87

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.76	
Ash (%):	7.08	7.13
Volatile matter (%):	5.89	5.94
Fixed carbon (%):	86.27	86.93
Total sulphur (%):	0.60	0.60
Combustible sulphur (%):	0.57	
Gross calorific value (cal/g):	7,672.00	7,731.00
Volatile matter (dmmf %):	5.60	
Hardgrove index:	39.00	
Phosphorous in coal (%):	0.060	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,273.00	1,241.00
Softening temperature (°C):	1,300.00	1,273.00
Hemispherical temperature (°C):	1,335.00	1,313.00
Final temperature (°C):	1,429.00	1,425.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	53.32	TiO2 (%):	2.71
Al2O3 (%):	26.08	Na2O (%):	2.10
Fe2O3 (%):	3.42	K2O (%):	1.46
CaO (%):	3.89	SO3 (%):	0.98
MgO (%):	2.38	P2O5 (%):	1.95

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86019 SEAM - K

SAMPLE ID - 58

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X		6.00		RELATIVE WEIGHT % - 71.58				ASH % - 35.94					
SG-TME	ELEMENTAL	CUM. FLDATS		CUM. SINKS		CUM. C.V.		CUM. C.V.		CUM. S		CUM. S		CUM. MOIST	
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST	
1.40	1.30	1.88	1.30	1.88	98.70	36.02							0.57	0.57	
1.45	4.94	5.87	6.24	5.04	93.76	37.61							0.70	0.67	
1.50	8.76	11.16	15.00	8.61	85.00	40.34							0.72	0.70	
1.55	13.81	16.95	28.81	12.61	71.19	44.87							0.69	0.70	
1.60	11.48	19.72	40.29	14.64	59.71	49.71							0.69	0.69	
1.70	14.84	25.72	55.13	17.62	44.87	57.64							1.04	0.79	
1.80	6.69	33.46	61.82	19.33	38.18	61.88							1.52	0.87	
2.00	8.11	45.15	69.93	22.33	30.07	66.39							1.51	0.94	
2.60	30.07	66.39	100.00	35.58									0.61	0.84	

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

FRACTION SIZE(MM)		6.00 X		0.50		RELATIVE WEIGHT % - 22.40				ASH % - 24.98					
SG-TME	ELEMENTAL	CUM. FLDATS		CUM. SINKS		CUM. C.V.		CUM. C.V.		CUM. S		CUM. S		CUM. MOIST	
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST	
1.40	9.71	1.31	9.71	1.31	90.29	26.68							0.58	0.58	
1.45	14.99	4.05	24.70	2.97	75.30	31.18							0.61	0.60	
1.50	16.08	8.84	40.78	5.29	59.22	37.25							0.63	0.61	
1.55	10.04	13.52	50.82	6.91	49.18	42.09							0.59	0.61	
1.60	4.55	17.52	55.37	7.78	44.63	44.59							0.61	0.61	
1.70	9.13	21.51	64.50	9.73	35.50	50.53							0.64	0.61	
1.80	6.42	27.89	70.92	11.37	29.08	55.53							0.90	0.64	
2.00	7.66	37.35	78.58	13.90	21.42	62.03							1.80	0.75	
2.60	21.42	62.03	100.00	24.21									1.82	0.98	

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86019 SEAM - K

SAMPLE ID - 58

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -				4.01 ASH % - 27.60			
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	2.58	2.59	2.58	2.59	97.42	27.75							0.90
1.45	18.21	3.04	20.79	2.96	79.21	33.44							0.71
1.50	14.26	7.55	35.05	4.83	64.95	39.13							0.73
1.55	12.59	11.95	47.64	6.71	52.36	45.66							0.91
1.60	4.86	16.90	52.50	7.65	47.50	48.60							1.05
1.70	7.59	22.21	60.09	9.49	39.91	53.62							1.35
1.80	7.13	28.22	67.22	11.48	32.78	59.15							1.43
2.00	9.26	34.55	76.48	14.27	23.52	68.83							1.74
2.60	23.52	68.83	100.00	27.10									1.10

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -				2.01 ASH % - 33.75			
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
240.00	*****	33.75	100.00	33.75			21.82	21.82	2.95	2.95	8.30	8.30	0.66

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GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPnlRDDH86019 SEAM - K

SAMPLE ID - 59

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 68.16		ASH % - 57.97		CUM. C.V.		CUM. VOL.		CUM. MOIST	
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI	C.V.	S	S	VOL.	VOL.	MOIST	MOIST	
1.40	0.34	2.64	0.34	2.64	99.66	56.72									0.68	0.68	
1.45	1.81	5.78	2.15	5.28	97.85	57.66									0.61	0.62	
1.50	1.15	10.57	3.30	7.13	96.70	58.22									0.98	0.75	
1.55	1.69	15.10	4.99	9.83	95.01	58.99									0.90	0.80	
1.60	2.65	20.96	7.64	13.69	92.36	60.08									1.03	0.88	
1.70	18.98	29.12	26.62	24.69	73.38	68.09									0.90	0.89	
1.80	11.83	36.66	38.45	28.37	61.55	74.13									1.22	0.99	
2.00	16.21	49.50	54.66	34.64	45.34	82.94									1.13	1.03	
2.60	45.34	82.94	100.00	56.54											0.95	1.00	

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

FRACTION SIZE(MM)		6.00 X 0.50		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 25.89		ASH % - 34.72		CUM. C.V.		CUM. VOL.		CUM. MOIST	
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI	C.V.	S	S	VOL.	VOL.	MOIST	MOIST	
1.40	5.10	3.33	5.10	3.33	94.90	35.73									0.72	0.72	
1.45	11.06	3.93	16.16	3.74	83.84	39.92									0.79	0.77	
1.50	10.76	9.25	26.92	5.94	73.08	44.44									0.78	0.77	
1.55	10.88	14.14	37.80	8.30	62.20	49.74									0.89	0.81	
1.60	7.78	18.78	45.58	10.09	54.42	54.16									0.96	0.83	
1.70	12.38	24.13	57.96	13.09	42.04	63.01									1.05	0.88	
1.80	1.21	27.03	59.17	13.37	40.83	64.07									1.18	0.89	
2.00	13.07	36.13	72.24	17.49	27.76	77.23									1.12	0.93	
2.60	27.76	77.23	100.00	34.07											1.63	1.12	

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GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86019 SEAM - K

SAMPLE ID - 59

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	0.50 X 0.15		CUM. FLOATS	CUM. SINKS	RELATIVE WEIGHT % - 3.88 ASH % - 32.03				CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST			
	ELEMENTAL				CUM.	SINKS	CUM.	C.V.					CUM.	ASH %	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	2.44	3.46	2.44	3.46	97.56	32.26								0.78	0.78
1.45	8.43	3.94	10.87	3.83	89.13	34.94								0.90	0.87
1.50	15.52	5.70	26.39	4.93	73.61	41.11								0.94	0.91
1.55	8.43	10.14	34.82	6.19	65.18	45.11								1.48	1.05
1.60	9.98	13.80	44.80	7.89	55.20	50.77								1.57	1.17
1.70	7.98	18.03	52.78	9.42	47.22	56.31								1.96	1.29
1.80	8.88	23.06	61.66	11.38	38.34	64.01								1.91	1.38
2.00	8.86	34.96	70.52	14.35	29.48	72.74								1.65	1.41
2.60	29.48	72.74	100.00	31.56										1.59	1.46

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X 0.00		CUM. FLOATS	CUM. SINKS	RELATIVE WEIGHT % - 2.07 ASH % - 39.20				CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST			
	ELEMENTAL				CUM.	SINKS	CUM.	C.V.					CUM.	ASH %	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	39.20	100.00	39.20			19.91	19.91	0.49	0.49	0.49	7.47	7.47	0.61	0.61

GULF CANADA CORPORATION - COAL DIVISION

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DATA SOURCE - KPnlRD0H86019 SEAM - K

SAMPLE ID - 60

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 73.40 ASH % - 64.42				CUM. MOIST				
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. FSI (MJ/KG)	CUM. C.V.	S	CUM. S	VOL.	VOL.	MOIST	MOIST
1.40	0.38	7.26		0.38	7.26	99.62	63.89								0.79	0.79
1.45	0.90	5.65		1.28	6.13	98.72	64.42								0.84	0.83
1.50	6.82	12.36		8.10	11.38	91.90	68.28								0.74	0.75
1.55	3.01	15.96		11.11	12.62	88.89	70.05								0.86	0.78
1.60	3.47	18.97		14.58	14.13	85.42	72.13								0.89	0.81
1.70	4.53	27.93		19.11	17.40	80.89	74.60								0.84	0.82
1.80	2.97	36.14		22.08	19.92	77.92	76.07								1.00	0.84
2.00	6.38	46.46		28.46	25.87	71.54	78.71								1.10	0.90
2.60	71.54	78.71		100.00	63.67										0.79	0.82

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

FRACTION SIZE(MM)		6.00 X 0.50		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 21.58 ASH % - 37.47				CUM. MOIST				
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. FSI (MJ/KG)	CUM. C.V.	S	CUM. S	VOL.	VOL.	MOIST	MOIST
1.40	3.13	2.30		3.13	2.30	96.87	37.97								0.80	0.80
1.45	19.17	4.49		22.30	4.18	77.70	46.23								0.93	0.91
1.50	12.47	10.35		34.77	6.39	65.23	53.09								0.84	0.89
1.55	10.01	14.48		44.78	8.20	55.22	60.09								0.94	0.90
1.60	6.13	18.40		50.91	9.43	49.09	65.30								0.94	0.90
1.70	8.59	25.37		59.50	11.73	40.50	73.76								1.02	0.92
1.80	0.78	30.99		60.28	11.98	39.72	74.60								1.29	0.92
2.00	5.90	41.15		66.18	14.58	33.82	80.44								1.69	0.99
2.60	33.82	80.44		100.00	36.85										1.40	1.13

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DATA SOURCE - KPnlR0DH86019 SEAM - K

SAMPLE ID - 60

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ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -				3.34 ASH % - 37.05				
	SG-TME	ELEMENTAL	WT%	ASH%	CUM. FLOATS	CUM. SINKS	FSI	FSI (MJ/KG)	C.V.	S	CUM. S	CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST
1.40	0.18	2.30	0.18	2.30	99.82	38.16								1.02	1.02
1.45	13.00	5.10	13.18	5.06	86.82	43.11								0.93	0.93
1.50	11.90	7.06	25.08	6.01	74.92	48.83								0.89	0.91
1.55	9.16	10.43	34.24	7.19	65.76	54.18								1.08	0.96
1.60	6.23	12.62	40.47	8.03	59.53	58.53								1.28	1.01
1.70	10.26	18.63	50.73	10.17	49.27	66.84								1.36	1.08
1.80	5.49	27.33	56.22	11.85	43.78	71.79								1.28	1.10
2.00	6.96	36.80	63.18	14.60	36.82	78.41								1.77	1.17
2.60	36.82	78.41	100.00	38.09										1.09	1.14

ANALYSIS TYPE - FROTH

FRACTION	SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -				1.68 ASH % - 44.81				
	SG-TME	ELEMENTAL	WT%	ASH%	CUM. FLOATS	CUM. SINKS	FSI	FSI (MJ/KG)	C.V.	S	CUM. S	CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST
240.00	*****	44.81	100.00	44.81										17.33	0.64

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: K
 Field sample no.: 10045 - 10047 Composite sample no.: 234
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP4) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size(mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.54
 Contribution(%): 10.31
 Total yield(%): 10.31

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture(%) :	0.81	
Ash(%) :	9.68	9.76
Volatile matter(%) :	6.28	6.33
Fixed carbon(%) :	83.23	83.91
Total sulphur(%) :	0.63	0.64
Combustible sulphur(%) :	0.58	
Gross calorific value(cal/g) :	7,469.00	7,530.00
Volatile matter(dmmf%) :	6.00	
Hardgrove index:	40.00	
Phosphorous in coal(%) :	0.109	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C) :	1,262.00	1,227.00
Softening temperature(°C) :	1,273.00	1,241.00
Hemispherical temperature(°C) :	1,286.00	1,260.00
Final temperature(°C) :	1,343.00	1,339.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2(%) :	49.50	TiO2(%) :	2.71
Al2O3(%) :	26.08	Na2O(%) :	2.05
Fe2O3(%) :	4.24	K2O(%) :	1.55
CaO(%) :	4.59	SO3(%) :	1.22
MgO(%) :	2.50	P2O5(%) :	2.58

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: K
 Field sample no.: 10045 - 10047 Composite sample no.: 334
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.55
 Contribution(%): 9.96
 Total yield(%): 9.96

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.54	
Ash (%):	6.65	6.69
Volatile matter (%):	6.47	6.50
Fixed carbon (%):	86.34	86.81
Total sulphur (%):	0.68	0.68
Combustible sulphur (%):	0.66	
Gross calorific value (cal/g):	7,660.00	7,701.00
Volatile matter (dmmf %):	6.20	
Hardgrove index:	40.00	
Phosphorous in coal (%):	0.125	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,246.00	1,163.00
Softening temperature (°C):	1,268.00	1,235.00
Hemispherical temperature (°C):	1,281.00	1,257.00
Final temperature (°C):	1,340.00	1,313.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	51.76	TiO2 (%):	2.35
Al2O3 (%):	23.30	Na2O (%):	1.77
Fe2O3 (%):	3.34	K2O (%):	1.22
CaO (%):	7.08	SO3 (%):	0.86
MgO (%):	2.07	P2O5 (%):	4.32

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86019 SEAM - I

SAMPLE ID - 61

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 41.14				ASH % - 36.81						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.08	4.79	0.08	4.79	99.92	36.49							0.68	0.68
1.45	7.23	3.57	7.31	3.58	92.69	39.05							0.74	0.74
1.50	9.68	8.88	16.99	6.60	83.01	42.57							1.04	0.91
1.55	8.24	14.15	25.23	9.07	74.77	45.70							1.59	1.13
1.60	10.04	19.60	35.27	12.07	64.73	49.75							1.51	1.24
1.70	16.90	24.09	52.17	15.96	47.83	58.82							1.71	1.39
1.80	11.77	30.98	63.94	18.73	36.06	67.91							1.03	1.33
2.00	13.49	46.05	77.43	23.49	22.57	80.97							1.53	1.36
2.60	22.57	80.97	100.00	36.46									1.19	1.32

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 39.11				ASH % - 19.50						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.81	2.39	0.81	2.39	99.19	18.54							0.85	0.85
1.45	31.47	2.56	32.28	2.56	67.72	25.97							0.67	0.67
1.50	19.46	7.92	51.74	4.57	48.26	33.25							1.34	0.92
1.55	9.23	12.93	60.97	5.84	39.03	38.05							1.12	0.95
1.60	0.38	15.18	61.35	5.90	38.65	38.27							1.20	0.96
1.70	9.00	17.00	70.35	7.32	29.65	44.73							1.40	1.01
1.80	9.51	22.17	79.86	9.09	20.14	55.39							1.75	1.10
2.00	8.23	33.31	88.09	11.35	11.91	70.64							1.90	1.18
2.60	11.91	70.64	100.00	18.41									1.23	1.18

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GULF CANADA CORPORATION - COAL DIVISION

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DATA SOURCE - KPNLRDOHB6019 SEAM - I

SAMPLE ID - 61

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT															
FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % - 11.13								ASH % - 19.61	
SG-TME	WT%	ASH%	CUM. FLOATS		CUM. SINKS		CUM.	C.V.	CUM.	S	S	CUM.	CUM.	CUM.	
			WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.			VOL.	VOL.	MOIST	
1.40	2.66	4.01	2.66	4.01	97.34	18.87								0.75	0.75
1.45	19.46	3.78	22.12	3.81	77.88	22.64								1.16	1.11
1.50	15.17	4.78	37.29	4.20	62.71	26.97								0.78	0.98
1.55	0.52	5.01	37.81	4.21	62.19	27.15								0.82	0.97
1.60	2.64	7.11	40.45	4.40	59.55	28.04								1.16	0.99
1.70	14.75	9.39	55.20	5.74	44.80	34.18								1.37	1.09
1.80	21.13	15.93	76.33	8.56	23.67	50.47								1.07	1.08
2.00	10.42	30.49	86.75	11.19	13.25	66.18								1.58	1.14
2.60	13.25	66.18	100.00	18.48										0.98	1.12

ANALYSIS TYPE - FROTH															
FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % - 8.62								ASH % - 20.45	
SG-TME	WT%	ASH%	CUM. FLOATS		CUM. SINKS		CUM.	C.V.	CUM.	S	S	CUM.	CUM.	CUM.	
			WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.			VOL.	VOL.	MOIST	
240.00	*****	20.45	100.00	20.45			26.49	26.49	0.40	0.40	6.68	6.68	1.20	1.20	

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GULF CANADA CORPORATION - COAL DIVISION

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DATA SOURCE - KPNLRDDH86019 SEAM - I

SAMPLE ID - 62

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X		6.00		RELATIVE WEIGHT % - 50.52				ASH % - 50.47			
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	MOIST	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	0.20	2.02	0.20	2.02	99.80	51.34						1.08	1.08
1.45	1.08	4.71	1.28	4.29	98.72	51.85						1.03	1.04
1.50	4.30	10.69	5.58	9.22	94.42	53.72						1.66	1.52
1.55	7.69	12.40	13.27	11.06	86.73	57.39						1.55	1.54
1.60	10.33	16.61	23.60	13.49	76.40	62.90						1.08	1.34
1.70	11.44	20.03	35.04	15.63	64.96	70.45						1.38	1.35
1.80	6.67	30.99	41.71	18.08	58.29	74.97						1.59	1.39
2.00	6.11	44.36	47.82	21.44	52.18	78.55						1.40	1.39
2.60	52.18	78.55	100.00	51.24								1.46	1.43

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

FRACTION SIZE(MM)		6.00 X		0.50		RELATIVE WEIGHT % - 32.74				ASH % - 20.50			
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	MOIST	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	0.31	1.71	0.31	1.71	99.69	19.41						1.56	1.56
1.45	15.17	2.50	15.48	2.48	84.52	22.44						0.75	0.77
1.50	25.44	6.18	40.92	4.78	59.08	29.44						1.46	1.20
1.55	16.95	10.96	57.87	6.59	42.13	36.88						1.49	1.28
1.60	7.72	14.72	65.59	7.55	34.41	41.85						1.47	1.31
1.70	12.49	18.17	78.08	9.25	21.92	55.34						1.46	1.33
1.80	6.00	25.24	84.08	10.39	15.92	66.68						1.90	1.37
2.00	4.13	37.75	88.21	11.67	11.79	76.82						1.36	1.37
2.60	11.79	76.82	100.00	19.35								1.08	1.34

GULF CANADA CORPORATION - COAL DIVISION

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DATA SOURCE - KPDLRDDH86019 SEAM - I

SAMPLE ID - 62

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 10.58 ASH % - 17.63				CUM. MOIST				
	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	2.81	3.68	2.81	3.68	97.19	17.26								0.77	0.77
1.45	10.17	2.26	12.98	2.57	87.02	19.02								0.71	0.72
1.50	14.84	3.94	27.82	3.30	72.18	22.11								0.97	0.85
1.55	16.64	6.19	44.46	4.38	55.54	26.89								1.26	1.01
1.60	8.96	8.51	53.42	5.07	46.58	30.42								1.29	1.05
1.70	16.05	12.46	69.47	6.78	30.53	39.86								1.97	1.27
1.80	12.56	18.94	82.03	8.64	17.97	54.49								1.52	1.30
2.00	6.76	31.03	88.79	10.35	11.21	68.63								1.02	1.28
2.60	11.21	68.63	100.00	16.88										1.16	1.27

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 6.16 ASH % - 24.16				CUM. MOIST				
	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	24.16	100.00	24.16										1.42	1.42

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: 1
 Field sample no.: 10050 - 10051 Composite sample no.: 235
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP2) -----
 Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.48
 Contribution(%): 3.25
 Total yield(%): 3.25

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.69	
Ash (%) :	4.83	4.86
Volatile matter (%) :	7.67	7.72
Fixed carbon (%) :	86.81	87.42
Total sulphur (%) :	0.52	0.52
Combustible sulphur (%) :	0.50	
Gross calorific value (cal/g) :	7,870.00	7,925.00
Volatile matter (dmmf%) :	7.60	
Hardgrove index:	43.00	
Phosphorous in coal (%) :	0.045	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C) :	1,235.00	1,160.00
Softening temperature (°C) :	1,290.00	1,233.00
Hemispherical temperature (°C) :	1,302.00	1,265.00
Final temperature (°C) :	1,378.00	1,362.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	58.78	TiO2 (%) :	2.71
Al2O3 (%) :	21.41	Na2O (%) :	1.71
Fe2O3 (%) :	2.97	K2O (%) :	1.18
CaO (%) :	4.42	SO3 (%) :	1.13
MgO (%) :	1.65	P2O5 (%) :	2.14

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: I
 Field sample no.: 10050 - 10051 Composite sample no.: 235
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP5) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.54
 Contribution (%): 3.43
 Total yield (%): 3.43

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.92	
Ash (%):	10.19	10.28
Volatile matter (%):	10.31	10.41
Fixed carbon (%):	78.58	79.31
Total sulphur (%):	0.45	0.45
Combustible sulphur (%):	0.39	
Gross calorific value (cal/g):	7,192.00	7,258.00
Volatile matter (dmmf %):	10.70	
Hardgrove index:	42.00	
Phosphorous in coal (%):	0.170	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C):	1,289.00	1,273.00
Softening temperature(°C):	1,348.00	1,340.00
Hemispherical temperature(°C):	1,407.00	1,370.00
Final temperature(°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	48.48	TiO2 (%):	3.10
Al2O3 (%):	21.41	Na2O (%):	1.97
Fe2O3 (%):	6.61	K2O (%):	0.91
CaO (%):	7.08	SO3 (%):	1.53
MgO (%):	2.73	P2O5 (%):	3.82

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: I
 Field sample no.: 10052 Composite sample no.: 236
 Lab sample no.: 29553

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.49
 Contribution (%): 40.82
 Total yield (%): 40.82

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.84	
Ash (%):	5.84	5.89
Volatile matter (%):	6.06	6.11
Fixed carbon (%):	87.26	88.00
Total sulphur (%):	0.50	0.50
Combustible sulphur (%):	0.46	
Gross calorific value (cal/g):	7,844.00	7,911.00
Volatile matter (dmmf %):	5.90	
Hardgrove index:	37.00	
Phosphorous in coal (%):	0.181	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,292.00	1,268.00
Softening temperature (°C):	1,300.00	1,284.00
Hemispherical temperature (°C):	1,305.00	1,289.00
Final temperature (°C):	1,386.00	1,364.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	43.59	TiO2 (%):	1.86
Al2O3 (%):	27.89	Na2O (%):	2.39
Fe2O3 (%):	2.78	K2O (%):	1.70
CaO (%):	6.62	SO3 (%):	1.64
MgO (%):	1.99	P2O5 (%):	7.09

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: I
 Field sample no.: 10052 Composite sample no.: 236
 Lab sample no.: 29553

----- PRODUCT COAL ANALYSIS (SP5) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.59
 Contribution (%): 15.24
 Total yield (%): 15.24

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.03	
Ash (%):	14.51	14.66
Volatile matter (%):	7.34	7.42
Fixed carbon (%):	77.12	77.92
Total sulphur (%):	0.43	0.43
Combustible sulphur (%):	0.32	
Gross calorific value(cal/g):	6,905.00	6,977.00
Volatile matter (dmmf%):	7.30	
Hardgrove index:	45.00	
Phosphorous in coal (%):	0.200	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C):	1,289.00	1,257.00
Softening temperature(°C):	1,302.00	1,278.00
Hemispherical temperature(°C):	1,311.00	1,289.00
Final temperature(°C):	1,429.00	1,423.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	46.94	TiO2 (%):	1.16
Al2O3 (%):	26.22	Na2O (%):	2.15
Fe2O3 (%):	3.45	K2O (%):	1.90
CaO (%):	7.24	SO3 (%):	1.94
MgO (%):	3.26	P2O5 (%):	3.16

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86019
 Coal zone: I
 Field sample no.: 10050 - 10052 Composite sample no.: 335
 Lab sample no.: 29632

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.66
 Contribution (%): 23.01
 Total yield (%): 23.01

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.69	
Ash (%):	7.28	7.33
Volatile matter (%):	7.22	7.27
Fixed carbon (%):	84.81	85.40
Total sulphur (%):	0.47	0.47
Combustible sulphur (%):	0.43	
Gross calorific value (cal/g):	7,574.00	7,626.00
Volatile matter (dmmf %):	7.10	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.092	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,241.00	1,171.00
Softening temperature (°C):	1,260.00	1,214.00
Hemispherical temperature (°C):	1,278.00	1,235.00
Final temperature (°C):	1,337.00	1,327.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	51.54	TiO2 (%):	2.47
Al2O3 (%):	21.79	Na2O (%):	2.02
Fe2O3 (%):	6.21	K2O (%):	0.92
CaO (%):	5.88	SO3 (%):	1.31
MgO (%):	2.49	P2O5 (%):	2.88

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 70.22		ASH % - 16.14				
SG-TME	ELEMENTAL	CUM. FLOATS	CUM. SINKS	CUM. FSI	C.V. CUM.	CUM. S	CUM. S	VOL. VOL.	CUM. CUM.	
WT%	ASH%	WT%	ASH%	FSI	(MJ/KG) C.V.	S	S		MOIST MOIST	
1.40	0.58	3.07	0.58	3.07	99.42	15.41			0.71	0.71
1.45	31.39	4.29	31.97	4.27	68.03	20.54			0.89	0.89
1.50	31.57	9.00	63.54	6.62	36.46	30.52			0.82	0.85
1.55	12.72	14.80	76.26	7.98	23.74	38.95			1.02	0.88
1.60	4.18	18.24	80.44	8.52	19.56	43.38			1.14	0.89
1.70	6.62	25.16	87.06	9.78	12.94	52.70			1.04	0.91
1.80	3.98	31.96	91.04	10.75	8.96	61.91			1.30	0.92
2.00	2.64	44.35	93.68	11.70	6.32	69.24			1.21	0.93
2.60	6.32	69.24	100.00	15.34					1.01	0.94

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 23.36		ASH % - 12.65				
SG-TME	ELEMENTAL	CUM. FLOATS	CUM. SINKS	CUM. FSI	C.V. CUM.	CUM. S	CUM. S	VOL. VOL.	CUM. CUM.	
WT%	ASH%	WT%	ASH%	FSI	(MJ/KG) C.V.	S	S		MOIST MOIST	
1.40	1.98	1.26	1.98	1.26	98.02	11.98			0.62	0.62
1.45	50.64	3.47	52.62	3.39	47.38	21.08			0.58	0.58
1.50	22.50	8.67	75.12	4.97	24.88	32.30			0.87	0.67
1.55	7.48	13.29	82.60	5.72	17.40	40.48			0.79	0.68
1.60	2.94	17.13	85.54	6.11	14.46	45.22			1.35	0.70
1.70	3.26	21.79	88.80	6.69	11.20	52.04			1.83	0.74
1.80	1.49	28.89	90.29	7.06	9.71	55.60			1.39	0.75
2.00	2.21	37.67	92.50	7.79	7.50	60.88			0.96	0.76
2.60	7.50	60.88	100.00	11.77					0.83	0.76

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ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	0.50 X 0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -				4.16 ASH % - 17.94				
	ELEMENTAL		WT%	ASH%	WT%	ASH%	CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	6.57	3.19	6.57	3.19	93.43	18.44								0.72	0.72
1.45	21.21	3.68	27.78	3.56	72.22	22.77								0.67	0.68
1.50	25.03	5.71	52.81	4.58	47.19	31.82								0.85	0.76
1.55	9.22	10.36	62.03	5.44	37.97	37.04								0.92	0.79
1.60	6.88	13.03	68.91	6.20	31.09	42.35								0.87	0.79
1.70	5.30	15.68	74.21	6.88	25.79	47.83								1.18	0.82
1.80	6.53	20.12	80.74	7.95	19.26	57.22								1.38	0.87
2.00	4.40	31.83	85.14	9.18	14.86	64.74								1.38	0.89
2.60	14.86	64.74	100.00	17.44										0.91	0.90

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % -				2.26 ASH % - 25.31				
	ELEMENTAL		WT%	ASH%	WT%	ASH%	CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	25.31	100.00	25.31										1.20	1.20

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ANALYSIS TYPE - FLDAT

FRACTION SIZE(MM)		35.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 65.00			ASH % - 40.22		CUM.		
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.14	3.02	0.14	3.02	99.86	38.27										0.86	0.86
1.45	5.82	8.16	5.96	8.04	94.04	40.14										0.58	0.59
1.50	8.38	12.23	14.34	10.49	85.66	42.87										0.52	0.55
1.55	20.33	14.34	34.67	12.75	65.33	51.74										0.88	0.74
1.60	0.21	17.83	34.88	12.78	65.12	51.85										1.14	0.74
1.70	13.98	21.08	48.86	15.15	51.14	60.26										2.40	1.22
1.80	8.76	29.99	57.62	17.41	42.38	66.52										2.13	1.36
2.00	12.50	48.50	70.12	22.95	29.88	74.06										2.37	1.54
2.60	29.88	74.06	100.00	38.22												1.81	1.62

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		6.00 X 0.50		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 25.71			ASH % - 25.05		CUM.		
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	2.17	1.53	2.17	1.53	97.83	24.57										0.50	0.50
1.45	22.39	3.72	24.56	3.53	75.44	30.76										0.56	0.55
1.50	13.18	8.36	37.74	5.21	62.26	35.50										0.87	0.66
1.55	9.75	11.89	47.49	6.59	52.51	39.89										1.07	0.75
1.60	7.44	16.26	54.93	7.90	45.07	43.79										1.40	0.84
1.70	13.35	20.33	68.28	10.33	31.72	53.66										2.35	1.13
1.80	7.85	26.96	76.13	12.04	23.87	62.44										2.19	1.24
2.00	6.98	40.05	83.11	14.39	16.89	71.69										2.18	1.32
2.60	16.89	71.69	100.00	24.07												2.03	1.44

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

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % -				5.78 ASH % - 23.78					
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	0.09	1.91	0.09	1.91	99.91	22.73							0.77
1.45	12.49	1.88	12.58	1.88	87.42	25.70							0.88
1.50	16.65	3.61	29.23	2.87	70.77	30.90							1.12
1.55	11.45	5.81	40.68	3.69	59.32	35.74							1.17
1.60	9.37	9.19	50.05	4.72	49.95	40.73							1.42
1.70	11.35	13.19	61.40	6.29	38.60	48.82							2.01
1.80	10.98	20.18	72.38	8.40	27.62	60.21							2.35
2.00	8.70	34.85	81.08	11.23	18.92	71.87							2.32
2.60	18.92	71.87	100.00	22.71									1.39

----- ANALYSIS TYPE - FRDTH -----

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % -				3.51 ASH % - 35.05					
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
240.00	*****	35.05	100.00	35.05			21.11	21.11	0.35	0.35	7.25	7.25	1.05

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 65.59				ASH % - 45.43						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.51	1.72	0.51	1.72	99.49	46.67							0.58	0.58
1.45	4.49	7.81	5.00	7.19	95.00	48.51							0.57	0.57
1.50	7.68	10.30	12.68	9.07	87.32	51.87							0.42	0.48
1.55	5.87	16.22	18.55	11.33	81.45	54.44							0.89	0.61
1.60	4.78	21.86	23.33	13.49	76.67	56.47							0.87	0.66
1.70	13.43	26.87	36.76	18.38	63.24	62.76							0.89	0.75
1.80	13.22	34.33	49.98	22.60	50.02	70.27							0.70	0.73
2.00	16.56	40.83	66.54	27.14	33.46	84.84							0.68	0.72
2.60	33.46	84.84	100.00	46.44									1.05	0.83

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 27.69				ASH % - 30.50						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	1.76	1.46	1.76	1.46	98.24	30.68							0.93	0.93
1.45	16.07	4.31	17.83	4.03	82.17	35.84							0.55	0.59
1.50	13.16	9.18	30.99	6.22	69.01	40.92							0.60	0.59
1.55	10.40	13.39	41.39	8.02	58.61	45.81							0.85	0.66
1.60	7.97	16.70	49.36	9.42	50.64	50.39							1.18	0.74
1.70	14.47	21.43	63.83	12.14	36.17	61.97							1.79	0.98
1.80	9.20	28.22	73.03	14.17	26.97	73.48							1.92	1.10
2.00	5.73	37.88	78.76	15.89	21.24	83.09							2.14	1.17
2.60	21.24	83.09	100.00	30.17									1.91	1.33

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

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -				4.48 ASH % -		30.62				
SG-TME	ELEMENTAL	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	WT%	ASH%	CUM. FSI	C.V. (MJ/KG)	CUM. S	CUM. S	VOL. VOL.	MOIST	MOIST
1.40	2.68	2.62		2.68	2.62		97.32	30.75							1.23	1.23
1.45	10.25	3.08		12.93	2.98		87.07	34.00							1.10	1.13
1.50	10.90	5.63		23.83	4.19		76.17	38.07							1.11	1.12
1.55	11.86	8.74		35.69	5.71		64.31	43.47							1.26	1.17
1.60	6.81	12.54		42.50	6.80		57.50	47.14							1.24	1.18
1.70	12.62	15.78		55.12	8.86		44.88	55.95							1.79	1.32
1.80	12.47	22.51		67.59	11.38		32.41	68.82							1.48	1.35
2.00	8.83	35.45		76.42	14.16		23.58	81.32							2.11	1.44
2.60	23.58	81.32		100.00	29.99										1.80	1.52

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -				2.24 ASH % -		33.51					
SG-TME	ELEMENTAL	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	WT%	ASH%	CUM. FSI	C.V. (MJ/KG)	CUM. S	CUM. S	VOL. VOL.	MOIST	MOIST	
240.00	*****	33.51		100.00	33.51					22.05	22.05	0.37	0.37	6.86	6.86	1.47	1.47

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

FRACTION SIZE(MM)		35.00 X 6.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 76.26		ASH % - 8.88				
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. CUM.	CUM. S	CUM. S	VOL.	CUM. MOIST	
1.40	0.53	2.01		0.53	2.01	99.47	8.30						0.96	0.96
1.45	74.83	5.28		75.36	5.26	24.64	17.46						0.64	0.64
1.50	12.05	10.92		87.41	6.04	12.59	23.71						0.49	0.62
1.55	8.00	16.08		95.41	6.88	4.59	37.02						0.76	0.63
1.60	1.22	21.12		96.63	7.06	3.37	42.78						1.16	0.64
1.70	0.25	23.51		96.88	7.10	3.12	44.32						1.32	0.64
1.80	0.26	24.30		97.14	7.15	2.86	46.14						0.94	0.64
2.00	0.44	33.44		97.58	7.27	2.42	48.45						0.91	0.64
2.60	2.42	48.45		100.00	8.26								0.66	0.64

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

FRACTION SIZE(MM)		6.00 X 0.50		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 21.46		ASH % - 8.44				
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. CUM.	CUM. S	CUM. S	VOL.	CUM. MOIST	
1.40	2.08	1.45		2.08	1.45	97.92	8.86						0.98	0.98
1.45	51.98	4.43		54.06	4.32	45.94	13.88						0.54	0.56
1.50	25.56	7.81		79.62	5.44	20.38	21.49						0.58	0.56
1.55	10.03	11.75		89.65	6.14	10.35	30.92						0.93	0.61
1.60	2.83	15.33		92.48	6.42	7.52	36.79						1.32	0.63
1.70	2.76	20.60		95.24	6.84	4.76	46.18						1.44	0.65
1.80	1.21	27.20		96.45	7.09	3.55	52.65						1.12	0.66
2.00	0.78	34.93		97.23	7.31	2.77	57.64						1.21	0.66
2.60	2.77	57.64		100.00	8.71								0.90	0.67

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRDDH86021 SEAM - I REP

SAMPLE ID - 66

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % -				1.05 ASH % - 20.31						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	1.74	2.64	1.74	2.64	98.26	18.81							1.16	1.16
1.45	24.13	3.21	25.87	3.17	74.13	23.88							1.23	1.23
1.50	21.98	5.77	47.85	4.37	52.15	31.52							1.50	1.35
1.55	12.17	9.79	60.02	5.47	39.98	38.13							1.40	1.36
1.60	8.59	12.98	68.61	6.41	31.39	45.02							1.66	1.40
1.70	7.46	18.68	76.07	7.61	23.93	53.23							1.57	1.42
1.80	5.11	26.50	81.18	8.80	18.82	60.48							2.03	1.45
2.00	4.29	31.78	85.47	9.95	14.53	68.96							2.52	1.51
2.60	14.53	68.96	100.00	18.53									1.20	1.46

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % -				1.23 ASH % - 35.60						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	35.60	100.00	35.60			20.81	20.81	0.33	0.33	7.73	7.73	1.42	1.42

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86021
 Coal zone: I
 Field sample no.: 10002 - 10003 Composite sample no.: 237
 Lab sample no.: 29639

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.44
 Contribution(%): 2.58
 Total yield(%): 2.58

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.50	
Ash (%) :	4.22	4.24
Volatile matter (%) :	5.84	5.87
Fixed carbon (%) :	89.44	89.89
Total sulphur (%) :	0.52	0.52
Combustible sulphur (%) :	0.48	
Gross calorific value (cal/g) :	7,966.00	8,006.00
Volatile matter (dmmf%) :	5.60	
Hardgrove index:	42.00	
Phosphorous in coal (%) :	0.025	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C) :	1,340.00	1,257.00
Softening temperature (°C) :	1,448.00	1,418.00
Hemispherical temperature (°C) :	1,472.00	1,472.00
Final temperature (°C) :	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO ₂ (%) :	54.25	TiO ₂ (%) :	2.83
Al ₂ O ₃ (%) :	29.30	Na ₂ O (%) :	1.97
Fe ₂ O ₃ (%) :	3.06	K ₂ O (%) :	1.05
CaO (%) :	2.73	SO ₃ (%) :	2.35
MgO (%) :	1.66	P ₂ O ₅ (%) :	1.33

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86021
 Coal zone: I
 Field sample no.: 10002 - 10003 Composite sample no.: 237
 Lab sample no.: 29639

----- PRODUCT COAL ANALYSIS (SP5) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.54
 Contribution (%): 9.52
 Total yield (%): 9.52

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.88	
Ash (%):	10.01	10.10
Volatile matter (%):	6.40	6.46
Fixed carbon (%):	82.71	83.44
Total sulphur (%):	0.49	0.49
Combustible sulphur (%):	0.39	
Gross calorific value (cal/g):	7,402.00	7,468.00
Volatile matter (dmmf %):	6.20	
Hardgrove index:	43.00	
Phosphorous in coal (%):	0.038	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,300.00	1,241.00
Softening temperature (°C):	1,394.00	1,332.00
Hemispherical temperature (°C):	1,453.00	1,418.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	57.76	TiO2 (%):	1.82
Al2O3 (%):	25.71	Na2O (%):	1.77
Fe2O3 (%):	2.75	K2O (%):	1.37
CaO (%):	2.60	SO3 (%):	2.42
MgO (%):	2.21	P2O5 (%):	0.88

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86021
 Coal zone: I
 Field sample no.: 10004 Composite sample no.: 238
 Lab sample no.: 29553

----- PRODUCT COAL ANALYSIS (SP2) -----
 Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size(mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.51
 Contribution(%): 71.17
 Total yield(%): 71.17

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture(%) :	0.82	
Ash(%) :	6.00	6.05
Volatile matter(%) :	5.85	5.90
Fixed carbon(%) :	87.33	88.05
Total sulphur(%) :	0.50	0.50
Combustible sulphur(%) :	0.44	
Gross calorific value(cal/g) :	7,818.00	7,883.00
Volatile matter(dmmf%) :	5.60	
Hardgrove index :	37.00	
Phosphorous in coal(%) :	0.191	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C) :	1,294.00	1,284.00
Softening temperature(°C) :	1,300.00	1,289.00
Hemispherical temperature(°C) :	1,305.00	1,294.00
Final temperature(°C) :	1,364.00	1,348.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2(%) :	41.51	TiO2(%) :	1.76
Al2O3(%) :	27.94	Na2O(%) :	2.31
Fe2O3(%) :	2.92	K2O(%) :	1.46
CaO(%) :	7.99	SO3(%) :	2.32
MgO(%) :	2.41	P2O5(%) :	7.29

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86021
 Coal zone: I
 Field sample no.: 10004 Composite sample no.: 238
 Lab sample no.: 29553

----- PRODUCT COAL ANALYSIS (SP5) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.54
 Contribution (%): 0.38
 Total yield (%): 0.38

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	1.03	
Ash (%) :	12.78	12.91
Volatile matter (%) :	7.09	7.16
Fixed carbon (%) :	79.10	79.93
Total sulphur (%) :	0.45	0.45
Gross calorific value (cal/g) :	7,029.00	7,102.00
Volatile matter (dmmf%) :	7.00	
Initial temperature (°C) :	0.00	0.00
Softening temperature (°C) :	0.00	0.00
Hemispherical temperature (°C) :	0.00	0.00
Final temperature (°C) :	0.00	0.00
SiO ₂ (%) :	0.00	TiO ₂ (%) :
Al ₂ O ₃ (%) :	0.00	Na ₂ O (%) :
Fe ₂ O ₃ (%) :	0.00	K ₂ O (%) :
CaO (%) :	0.00	S ₂ O ₃ (%) :
MgO (%) :	0.00	P ₂ O ₅ (%) :

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86021
 Coal zone: I
 Field sample no.: 10002 - 10004 Composite sample no.: 337
 Lab sample no.: 29639

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.58
 Contribution (%): 15.40
 Total yield (%): 15.40

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.96	
Ash (%):	6.82	6.89
Volatile matter (%):	6.85	6.92
Fixed carbon (%):	85.37	86.19
Total sulphur (%):	0.49	0.49
Combustible sulphur (%):	0.44	
Gross calorific value (cal/g):	7,626.00	7,700.00
Volatile matter (dmmf %):	6.70	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.072	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,270.00	1,219.00
Softening temperature (°C):	1,300.00	1,289.00
Hemispherical temperature (°C):	1,340.00	1,327.00
Final temperature (°C):	1,439.00	1,437.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	51.78	TiO2 (%):	1.88
Al2O3 (%):	27.08	Na2O (%):	1.66
Fe2O3 (%):	3.01	K2O (%):	1.35
CaO (%):	3.94	SO3 (%):	1.93
MgO (%):	2.36	P2O5 (%):	2.42

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86022 SEAM - L

SAMPLE ID - 67

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 65.81 ASH % - 41.90							
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.10	3.80	0.10	3.80	99.90	41.73										0.71	0.71
1.45	1.08	6.83	1.18	6.57	98.82	42.11										0.68	0.68
1.50	6.14	12.07	7.32	11.18	92.68	44.10										0.62	0.63
1.55	8.55	19.78	15.87	15.82	84.13	46.58										0.56	0.59
1.60	10.88	22.45	26.75	18.51	73.25	50.16										0.46	0.54
1.70	16.40	30.18	43.15	22.95	56.85	55.92										0.74	0.62
1.80	8.65	36.71	51.80	25.25	48.20	59.37										0.79	0.64
2.00	13.30	45.02	65.10	29.29	34.90	64.84										0.81	0.68
2.60	34.90	64.84	100.00	41.69												0.66	0.67

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

FRACTION SIZE(MM)		6.00 X 0.50		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 26.43 ASH % - 29.50							
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	7.35	1.86	7.35	1.86	92.65	30.86										0.52	0.52
1.45	17.39	5.33	24.74	4.30	75.26	36.76										0.44	0.46
1.50	14.64	10.59	39.38	6.64	60.62	43.08										0.61	0.52
1.55	8.57	14.90	47.95	8.11	52.05	47.72										0.54	0.52
1.60	5.39	18.32	53.34	9.15	46.66	51.11										0.61	0.53
1.70	8.81	23.82	62.15	11.23	37.85	57.46										0.92	0.59
1.80	6.72	31.20	68.87	13.17	31.13	63.13										1.19	0.65
2.00	9.67	42.57	78.54	16.79	21.46	72.40										2.38	0.86
2.60	21.46	72.40	100.00	28.73												1.59	1.02

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDQH86022 SEAM - L

SAMPLE ID - 67

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT										RELATIVE WEIGHT % - 5.11 ASH % - 26.73				
FRACTION SIZE(MM)	0.50 X		0.15		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. S		CUM. MOIST	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	12.02	2.37	12.02	2.37	87.98	29.50								0.77
1.45	16.36	2.49	28.38	2.44	71.62	35.67								0.80
1.50	13.05	5.56	41.43	3.42	58.57	42.38								0.96
1.55	11.51	8.98	52.94	4.63	47.06	50.55								1.28
1.60	4.26	12.62	57.20	5.23	42.80	54.32								1.35
1.70	6.76	17.69	63.96	6.54	36.04	61.19								1.47
1.80	5.37	25.20	69.33	7.99	30.67	67.49								1.42
2.00	6.88	38.11	76.21	10.71	23.79	75.99								1.54
2.60	23.79	75.99	100.00	26.24										1.01

ANALYSIS TYPE - FROTH										RELATIVE WEIGHT % - 2.65 ASH % - 37.84				
FRACTION SIZE(MM)	0.15 X		0.00		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. S		CUM. MOIST	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
240.00	*****	37.84	100.00	37.84				20.35	20.35	0.40	0.40	8.68	8.68	0.56

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86022
 Coal zone: L
 Field sample no.: 05355 - 05356 Composite sample no.: 239
 Lab sample no.: 29639

----- PRODUCT COAL ANALYSIS (SP4) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.51
 Contribution(%): 7.85
 Total yield(%): 7.85

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.88	
Ash (%):	10.20	10.29
Volatile matter (%):	7.31	7.38
Fixed carbon (%):	81.61	82.33
Total sulphur (%):	0.57	0.58
Combustible sulphur (%):	0.49	
Gross calorific value (cal/g):	7,318.00	7,383.00
Volatile matter (dmmf %):	7.20	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.205	

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,246.00	1,187.00
Softening temperature (°C):	1,257.00	1,198.00
Hemispherical temperature (°C):	1,273.00	1,214.00
Final temperature (°C):	1,340.00	1,276.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	48.38	TiO2 (%):	2.35
Al2O3 (%):	21.93	Na2O (%):	2.18
Fe2O3 (%):	6.94	K2O (%):	0.82
CaO (%):	7.03	SO3 (%):	2.04
MgO (%):	1.92	P2O5 (%):	4.61

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86022
 Coal zone: L
 Field sample no.: 05355 - 05356 Composite sample no.: 339
 Lab sample no.: 29639

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.52
 Contribution (%): 11.54
 Total yield (%): 11.54

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%)	0.83	
Ash (%)	7.19	7.25
Volatile matter (%)	6.98	7.04
Fixed carbon (%)	85.00	85.71
Total sulphur (%)	0.61	0.62
Combustible sulphur (%)	0.56	
Gross calorific value (cal/g)	7,626.00	7,691.00
Volatile matter (dmmf %)	6.80	
Hardgrove index:	41.00	
Phosphorous in coal (%)	0.089	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,230.00	1,176.00
Softening temperature (°C):	1,260.00	1,203.00
Hemispherical temperature (°C):	1,300.00	1,230.00
Final temperature (°C):	1,356.00	1,350.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%)	53.60	TiO2 (%)	3.76
Al2O3 (%)	23.06	Na2O (%)	1.80
Fe2O3 (%)	4.66	K2O (%)	0.98
CaO (%)	5.04	SO3 (%)	1.86
MgO (%)	1.54	P2O5 (%)	2.85

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDHB6025 SEAM - 1

SAMPLE ID - 68

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)	0.50 X		0.15		CUM. SINKS		RELATIVE WEIGHT % -			7.69 ASH % - 15.08					
	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	CUM. C.V.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.		
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	14.59	2.73	14.59	2.73	85.41	16.90								1.33	1.33
1.45	20.11	3.05	34.70	2.92	65.30	21.17								1.43	1.39
1.50	15.77	4.69	50.47	3.47	49.53	26.42								1.42	1.40
1.55	10.38	7.53	60.85	4.16	39.15	31.43								1.60	1.43
1.60	7.43	9.51	68.28	4.74	31.72	36.56								1.95	1.49
1.70	11.20	13.63	79.48	6.00	20.52	49.07								1.91	1.55
1.80	4.85	19.23	84.33	6.76	15.67	58.31								1.49	1.54
2.00	5.06	31.35	89.39	8.15	10.61	71.17								1.68	1.55
2.60	10.61	71.17	100.00	14.84										0.82	1.47

----- ANALYSIS TYPE - FRDTH -----

FRACTION SIZE(MM)	0.15 X		0.00		CUM. SINKS		RELATIVE WEIGHT % -			5.12 ASH % - 18.04					
	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	CUM. C.V.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.		
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	18.04	100.00	18.04										0.97	0.97

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86025
 Coal zone: 1
 Field sample no.: 10109 - 10110 Composite sample no.: 240
 Lab sample no.: 29639

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %
 Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.50
 Contribution (%): 32.63
 Total yield (%): 32.63

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.76	
Ash (%) :	5.73	5.77
Volatile matter (%) :	6.96	7.01
Fixed carbon (%) :	86.55	87.22
Total sulphur (%) :	0.52	0.52
Combustible sulphur (%) :	0.47	
Gross calorific value (cal/g) :	7,820.00	7,880.00
Volatile matter (dmmf%) :	6.80	
Hardgrove index :	38.00	
Phosphorous in coal (%) :	0.209	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C) :	1,273.00	1,233.00
Softening temperature (°C) :	1,286.00	1,251.00
Hemispherical temperature (°C) :	1,297.00	1,276.00
Final temperature (°C) :	1,418.00	1,409.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	40.05	TiO2 (%) :	1.57
Al2O3 (%) :	29.87	Na2O (%) :	1.68
Fe2O3 (%) :	2.48	K2O (%) :	1.46
CaO (%) :	7.98	SO3 (%) :	2.35
MgO (%) :	1.96	P2O5 (%) :	8.34

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86025
 Coal zone: I
 Field sample no.: 10109 - 10110 Composite sample no.: 340
 Lab sample no.: 29639

----- PRODUCT COAL ANALYSIS (SP3) -----
 Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.65
 Contribution (%): 20.59
 Total yield (%): 20.59

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.04	
Ash (%):	6.38	6.45
Volatile matter (%):	8.55	8.64
Fixed carbon (%):	84.03	84.91
Total sulphur (%):	0.45	0.45
Combustible sulphur (%):	0.40	
Gross calorific value (cal/g):	7,636.00	7,716.00
Volatile matter (dmmf %):	8.60	
Hardgrove index:	42.00	
Phosphorous in coal (%):	0.123	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,233.00	1,171.00
Softening temperature (°C):	1,278.00	1,214.00
Hemispherical temperature (°C):	1,308.00	1,294.00
Final temperature (°C):	1,450.00	1,445.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	49.13	TiO2 (%):	1.55
Al2O3 (%):	26.99	Na2O (%):	1.58
Fe2O3 (%):	3.52	K2O (%):	1.30
CaO (%):	4.70	SO3 (%):	2.05
MgO (%):	2.48	P2O5 (%):	4.41

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DATA SOURCE - KPNLRDDH86025 SEAM - J REP

SAMPLE ID - 69

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)	35.00 X 6.00		ELEMENTAL		CUM. FLOATS	CUM. SINKS	RELATIVE WEIGHT % - 67.21 ASH % - 25.24				CUM. MOIST	CUM. MOIST	
	WT%	ASH%	WT%	ASH%			CUM. FSI	C.V. (MJ/KG)	CUM. S	CUM. S			VOL. VOL.
1.40	4.36	2.78	4.36	2.78	95.64	25.31						0.57	0.57
1.45	20.65	5.62	25.01	5.12	74.99	30.73						0.30	0.35
1.50	27.03	9.66	52.04	7.48	47.96	42.61						0.31	0.33
1.55	6.34	13.79	58.38	8.17	41.62	47.00						0.32	0.33
1.60	4.22	20.44	62.60	8.99	37.40	50.00						0.54	0.34
1.70	9.40	24.95	72.00	11.08	28.00	58.41						0.44	0.35
1.80	3.76	35.18	75.76	12.27	24.24	62.01						0.61	0.37
2.00	8.77	52.95	84.53	16.49	15.47	67.15						0.52	0.38
2.60	15.47	67.15	100.00	24.33								0.51	0.40

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

FRACTION SIZE(MM)	6.00 X 0.50		ELEMENTAL		CUM. FLOATS	CUM. SINKS	RELATIVE WEIGHT % - 24.79 ASH % - 22.29				CUM. MOIST	CUM. MOIST	
	WT%	ASH%	WT%	ASH%			CUM. FSI	C.V. (MJ/KG)	CUM. S	CUM. S			VOL. VOL.
1.40	5.96	1.25	5.96	1.25	94.04	23.12						0.57	0.57
1.45	30.00	3.47	35.96	3.10	64.04	32.33						0.39	0.42
1.50	15.76	7.82	51.72	4.54	48.28	40.33						0.50	0.44
1.55	6.10	13.04	57.82	5.44	42.18	44.27						0.54	0.45
1.60	6.76	15.84	64.58	6.53	35.42	49.70						0.73	0.48
1.70	8.69	20.65	73.27	8.20	26.73	59.15						0.86	0.53
1.80	4.00	28.34	77.27	9.24	22.73	64.57						1.01	0.55
2.00	5.43	41.78	82.70	11.38	17.30	71.72						1.44	0.61
2.60	17.30	71.72	100.00	21.82								1.28	0.73

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DATA SOURCE - KPMLRDDH86025 SEAM - I REP

SAMPLE ID - 69

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)	0.50 X		0.15		CUM. SINKS		RELATIVE WEIGHT % -			5.17 ASH % - 28.95					
	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.		
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	2.17	9.03	2.17	9.03	97.83	28.38								0.91	0.91
1.45	9.97	2.45	12.14	3.63	87.86	31.32								0.69	0.73
1.50	18.74	4.60	30.88	4.22	69.12	38.57								0.76	0.75
1.55	6.61	8.75	37.49	5.02	62.51	41.72								1.18	0.82
1.60	9.43	10.89	46.92	6.20	53.08	47.20								1.51	0.96
1.70	9.96	16.62	56.88	8.02	43.12	54.26								1.98	1.14
1.80	8.68	21.43	65.56	9.80	34.44	62.54								1.94	1.25
2.00	7.37	35.64	72.93	12.41	27.07	69.86								1.72	1.29
2.60	27.07	69.86	100.00	27.96										1.99	1.48

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)	0.15 X		0.00		CUM. SINKS		RELATIVE WEIGHT % -			2.83 ASH % - 30.67					
	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.		
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	30.67	100.00	30.67										1.06	1.06

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SAMPLE ID - 70

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT																	
FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % - 4.32 ASH % - 2.39											
SG-TME	ELEMENTAL	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	WT%	ASH%	CUM. C.V.	CUM. C.V.	CUM. S	ASH %	CUM. VOL.	CUM. VOL.	MOIST	MOIST
1.40	0.74	3.87		0.74	3.87		99.26	25.53								0.81	0.81
1.45	17.62	2.41		18.36	2.47		81.64	30.51								0.88	0.88
1.50	20.38	5.03		38.74	3.82		61.26	38.99								0.99	0.94
1.55	10.62	8.83		49.36	4.89		50.64	45.32								1.31	1.02
1.60	5.94	12.03		55.30	5.66		44.70	49.74								1.63	1.08
1.70	9.55	15.21		64.85	7.07		35.15	59.12								1.72	1.18
1.80	5.41	22.01		70.26	8.22		29.74	65.88								1.89	1.23
2.00	7.32	31.68		77.58	10.43		22.42	77.04								1.96	1.30
2.60	22.42	77.04		100.00	25.37											1.39	1.32

ANALYSIS TYPE - FROTH																	
FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % - 2.39 ASH % - 35.43											
SG-TME	ELEMENTAL	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	WT%	ASH%	CUM. C.V.	CUM. C.V.	CUM. S	ASH %	CUM. VOL.	CUM. VOL.	MOIST	MOIST
240.00	*****	35.43		100.00	35.43					21.12	21.12	0.33	0.33	8.64	8.64	0.73	0.73

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86025 SEAM - I REP

SAMPLE ID - 71

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 49.07				ASH % - 10.93						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	MOIST	MOIST	
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
1.40	8.22	1.67	8.22	1.67	91.78	11.12							0.55	0.55
1.45	71.94	4.86	80.16	4.53	19.84	33.81							0.73	0.71
1.50	9.67	10.11	89.83	5.13	10.17	56.35							0.68	0.71
1.55	1.06	14.29	90.89	5.24	9.11	61.24							0.84	0.71
1.60	0.19	16.89	91.08	5.26	8.92	62.19							0.88	0.71
1.70	0.49	25.70	91.57	5.37	8.43	64.31							1.01	0.71
1.80	0.58	33.21	92.15	5.55	7.85	66.61							1.13	0.71
2.00	1.08	39.95	93.23	5.95	6.77	70.86							1.01	0.72
2.60	6.77	70.86	100.00	10.34									0.68	0.72

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 40.87				ASH % - 8.41						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	MOIST	MOIST	
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
1.40	16.33	1.57	16.33	1.57	83.67	9.53							0.70	0.70
1.45	47.60	4.15	63.93	3.49	36.07	16.62							0.65	0.66
1.50	18.72	7.79	82.65	4.46	17.35	26.15							0.67	0.66
1.55	6.74	11.53	89.39	5.00	10.61	35.43							0.83	0.68
1.60	2.30	13.97	91.69	5.22	8.31	41.37							0.98	0.68
1.70	2.58	18.25	94.27	5.58	5.73	51.78							1.27	0.70
1.80	1.04	24.91	95.31	5.79	4.69	57.74							1.10	0.70
2.00	0.98	35.26	96.29	6.09	3.71	63.68							1.73	0.72
2.60	3.71	63.68	100.00	8.23									1.04	0.73

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DATA SOURCE - KPNLRDDH86025 SEAM - 1 REP

SAMPLE ID - 71

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAD										RELATIVE WEIGHT % - 6.14 ASH % - 15.48						
FRACTION	SIZE(MM)	0.50 X		0.15		CUM. SINKS		CUM.	C.V.	CUM.	6.14	ASH %	CUM.	CUM.		
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	7.52	2.95		7.52	2.95	92.48	15.45								0.92	0.92
1.45	23.12	2.79		30.64	2.83	69.36	19.67								0.74	0.78
1.50	27.74	5.20		58.38	3.96	41.62	29.31								0.90	0.84
1.55	11.38	9.40		69.76	4.84	30.24	36.80								1.30	0.91
1.60	5.95	11.77		75.71	5.39	24.29	42.93								1.60	0.97
1.70	6.20	15.72		81.91	6.17	18.09	52.25								1.73	1.03
1.80	4.12	20.72		86.03	6.87	13.97	61.55								1.95	1.07
2.00	2.64	32.73		88.67	7.64	11.33	68.27								1.96	1.10
2.60	11.33	68.27		100.00	14.51										0.95	1.08

ANALYSIS TYPE - FROTH										RELATIVE WEIGHT % - 3.92 ASH % - 23.43						
FRACTION	SIZE(MM)	0.15 X		0.00		CUM. SINKS		CUM.	C.V.	CUM.	3.92	ASH %	CUM.	CUM.		
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	23.43		100.00	23.43				25.83	25.83	0.39	0.39	7.91	7.91	0.64	0.64

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86025
 Coal zone: I
 Field sample no.: 10116 - 10117 Composite sample no.: 241
 Lab sample no.: 29639

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.47
 Contribution (%): 24.41
 Total yield (%): 24.41

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.66	
Ash (%):	5.53	5.57
Volatile matter (%):	7.43	7.48
Fixed carbon (%):	86.38	86.95
Total sulphur (%):	0.50	0.50
Combustible sulphur (%):	0.46	
Gross calorific value (cal/g):	7,784.00	7,836.00
Volatile matter (dmmf %):	7.30	
Hardgrove index:	38.00	
Phosphorous in coal (%):	0.035	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,286.00	1,192.00
Softening temperature (°C):	1,354.00	1,284.00
Hemispherical temperature (°C):	1,391.00	1,354.00
Final temperature (°C):	1,469.00	1,448.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	57.54	TiO2 (%):	1.22
Al2O3 (%):	24.19	Na2O (%):	1.82
Fe2O3 (%):	3.55	K2O (%):	1.02
CaO (%):	2.77	SO3 (%):	1.90
MgO (%):	2.24	P2O5 (%):	1.43

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRODH86025
 Coal zone: I
 Field sample no.: 10116 - 10117 Composite sample no.: 241
 Lab sample no.: 29639

----- PRODUCT COAL ANALYSIS (SP5) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.54
 Contribution(%): 8.83
 Total yield(%): 8.83

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.82	
Ash (%) :	14.37	14.49
Volatile matter (%) :	8.46	8.53
Fixed carbon (%) :	76.35	76.98
Total sulphur (%) :	0.39	0.39
Combustible sulphur (%) :	0.29	
Gross calorific value (cal/g) :	6,843.00	6,899.00
Volatile matter (dmmf%) :	8.60	
Hardgrove index:	49.00	
Phosphorous in coal (%) :	0.046	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C) :	1,302.00	1,230.00
Softening temperature(°C) :	1,367.00	1,300.00
Hemispherical temperature(°C) :	1,388.00	1,327.00
Final temperature(°C) :	1,453.00	1,450.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	62.22	TiO2 (%) :	0.80
Al2O3 (%) :	19.28	Na2O (%) :	1.37
Fe2O3 (%) :	5.06	K2O (%) :	0.93
CaO (%) :	2.91	SO3 (%) :	1.82
MgO (%) :	2.93	P2O5 (%) :	0.74

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86025
 Coal zone: I
 Field sample no.: 10118 Composite sample no.: 242
 Lab sample no.: 29639

----- PRODUCT COAL ANALYSIS (SP2) -----
 Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.81
 Contribution (%): 45.26
 Total yield (%): 45.26

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.83	
Ash (%):	5.50	5.55
Volatile matter (%):	6.29	6.34
Fixed carbon (%):	87.38	88.11
Total sulphur (%):	0.52	0.52
Combustible sulphur (%):	0.47	
Gross calorific value (cal/g):	7,842.00	7,907.00
Volatile matter (dmmf %):	6.10	
Hardgrove index:	38.00	
Phosphorous in coal (%):	0.149	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,290.00	1,262.00
Softening temperature (°C):	1,302.00	1,278.00
Hemispherical temperature (°C):	1,313.00	1,294.00
Final temperature (°C):	1,439.00	1,437.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	40.58	TiO2 (%):	1.53
Al2O3 (%):	29.49	Na2O (%):	1.86
Fe2O3 (%):	3.13	K2O (%):	1.34
CaO (%):	7.70	SO3 (%):	2.43
MgO (%):	2.74	P2O5 (%):	6.22

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86025
 Coal zone: 1
 Field sample no.: 10116 - 10118 Composite sample no.: 341
 Lab sample no.: 29639

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.64
 Contribution (%): 27.24
 Total yield (%): 27.24

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.86	
Ash (%):	6.37	6.43
Volatile matter (%):	6.67	6.73
Fixed carbon (%):	86.10	86.84
Total sulphur (%):	0.50	0.50
Combustible sulphur (%):	0.46	
Gross calorific value (cal/g):	7,715.00	7,782.00
Volatile matter (dmmf %):	6.50	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.082	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,286.00	1,214.00
Softening temperature (°C):	1,345.00	1,284.00
Hemispherical temperature (°C):	1,391.00	1,354.00
Final temperature (°C):	1,448.00	1,446.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	51.44	TiO2 (%):	1.82
Al2O3 (%):	26.96	Na2O (%):	1.78
Fe2O3 (%):	3.12	K2O (%):	1.60
CaO (%):	3.92	SO3 (%):	1.64
MgO (%):	2.46	P2O5 (%):	2.96

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DATA SOURCE - KPNLRDOH86027 SEAM - K/L

SAMPLE ID - 72

WASHABILITY ID - WA1

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

FRACTION	SIZE(MM)		35.00 X		6.00		RELATIVE WEIGHT % - 77.24				ASH % - 35.63						
	SG-TME	ELEMENTAL	WT%	ASH%	CUM. WT%	FLOATS ASH%	CUM. WT%	SINKS ASH%	FSI	C.V.	CUM. C.V.	S	CUM. S	VOL.	CUM. VOL.	MOIST	CUM. MOIST
1.40	2.43	2.43	2.43	2.43	97.57	37.43										0.45	0.45
1.45	2.42	7.80	4.85	5.11	95.15	38.18										0.49	0.47
1.50	9.41	13.28	14.26	10.50	85.74	40.92										0.61	0.56
1.55	11.64	18.10	25.90	13.92	74.10	44.50										0.79	0.66
1.60	6.49	24.12	32.39	15.96	67.61	46.46										0.59	0.65
1.70	21.67	31.60	54.06	22.23	45.94	53.46										0.91	0.75
1.80	15.54	38.80	69.60	25.93	30.40	60.96										0.76	0.76
2.00	16.02	49.58	85.62	30.35	14.38	73.64										0.95	0.79
2.60	14.38	73.64	100.00	36.58												0.98	0.82

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

FRACTION	SIZE(MM)		6.00 X		0.50		RELATIVE WEIGHT % - 19.00				ASH % - 28.96						
	SG-TME	ELEMENTAL	WT%	ASH%	CUM. WT%	FLOATS ASH%	CUM. WT%	SINKS ASH%	FSI	C.V.	CUM. C.V.	S	CUM. S	VOL.	CUM. VOL.	MOIST	CUM. MOIST
1.40	15.11	2.56	15.11	2.56	84.89	34.30										0.58	0.58
1.45	14.74	6.31	29.85	4.41	70.15	40.18										0.56	0.57
1.50	11.74	12.08	41.59	6.58	58.41	45.83										0.67	0.60
1.55	7.49	17.11	49.08	8.18	50.92	50.06										0.68	0.61
1.60	4.43	21.46	53.51	9.28	46.49	52.78										0.74	0.62
1.70	7.48	27.33	60.99	11.50	39.01	57.66										0.70	0.63
1.80	6.60	34.42	67.59	13.73	32.41	62.39										1.01	0.67
2.00	11.03	45.77	78.62	18.23	21.38	70.97										1.75	0.82
2.60	21.38	70.97	100.00	29.51												1.96	1.06

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDB6027 SEAM - K/L

SAMPLE ID - 72

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT														
FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % -				2.39		ASH % - 36.35				
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	MOIST	MOIST	
WT%	WT%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
1.40	11.87	2.68	11.87	2.68	88.13	39.70							0.76	0.76
1.45	12.81	4.34	24.68	3.54	75.32	45.72							0.83	0.80
1.50	11.40	7.29	36.08	4.73	63.92	52.57							0.84	0.81
1.55	5.05	12.96	41.13	5.74	58.87	55.97							1.12	0.85
1.60	1.35	14.65	42.48	6.02	57.52	56.94							1.84	0.88
1.70	2.64	15.16	45.12	6.55	54.88	58.95							1.81	0.93
1.80	6.93	20.50	52.05	8.41	47.95	64.50							1.97	1.07
2.00	12.57	35.35	64.62	13.65	35.38	74.86							1.92	1.24
2.60	35.38	74.86	100.00	35.31									1.24	1.24

ANALYSIS TYPE - FROTH														
FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % -				1.37		ASH % - 44.54				
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	MOIST	MOIST	
WT%	WT%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
240.00	*****	44.54	100.00	44.54			17.66	17.66	0.46	0.46	8.14	8.14	0.73	0.73

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDHB6027 SEAM - K/L

SAMPLE ID - 73

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00				RELATIVE WEIGHT % - 85.01		ASH % - 34.71						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	3.04	2.07	3.04	2.07	96.96	34.98							0.96	0.96
1.45	8.14	7.47	11.18	6.00	88.82	37.50							0.88	0.90
1.50	16.56	12.71	27.74	10.01	72.26	43.18							0.78	0.83
1.55	14.60	17.57	42.34	12.61	57.66	49.66							0.80	0.82
1.60	10.24	21.53	52.58	14.35	47.42	55.74							0.78	0.81
1.70	11.06	28.43	63.64	16.80	36.36	64.05							0.86	0.82
1.80	4.32	35.20	67.96	17.97	32.04	67.93							0.96	0.83
2.00	12.85	44.48	80.81	22.18	19.19	83.64							0.98	0.85
2.60	19.19	83.64	100.00	33.98									0.76	0.84

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

FRACTION SIZE(MM)		6.00 X 0.50				RELATIVE WEIGHT % - 13.29		ASH % - 27.88						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	16.27	2.64	16.27	2.64	83.73	33.48							0.63	0.63
1.45	21.51	8.20	37.78	5.81	62.22	42.22							0.81	0.73
1.50	15.01	14.77	52.79	8.35	47.21	50.94							0.92	0.79
1.55	8.86	19.52	61.65	9.96	38.35	58.20							0.99	0.82
1.60	5.71	23.30	67.36	11.09	32.64	64.31							1.03	0.83
1.70	6.57	30.07	73.93	12.78	26.07	72.93							0.91	0.84
1.80	3.20	41.96	77.13	13.99	22.87	77.27							1.15	0.85
2.00	2.73	47.59	79.86	15.14	20.14	81.29							1.28	0.87
2.60	20.14	81.29	100.00	28.46									1.77	1.05

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WASHABILITY REPORT 2

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DATA SOURCE - KPnlRDDH86027 SEAM - K/L

SAMPLE ID - 73

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % -				1.19		ASH % - 43.15				
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.		
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	6.30	3.37	6.30	3.37	93.70	45.57							1.09	1.09
1.45	13.87	4.46	20.17	4.12	79.83	52.71							0.78	0.88
1.50	5.04	8.19	25.21	4.93	74.79	55.71							0.88	0.88
1.55	5.46	12.87	30.67	6.35	69.33	59.09							1.00	0.90
1.60	3.36	15.60	34.03	7.26	65.97	61.30							1.92	1.00
1.70	4.20	20.72	38.23	8.74	61.77	64.06							1.61	1.07
1.80	4.62	26.00	42.85	10.60	57.15	67.14							1.36	1.10
2.00	10.08	27.71	52.93	13.86	47.07	75.58							1.18	1.11
2.60	47.07	75.58	100.00	42.91									1.09	1.10

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % -				0.51		ASH % - 49.34				
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.		
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	49.34	100.00	49.34									14.78	14.78
									0.34	0.34	9.40	9.40	0.98	0.98

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86027 SEAM - K/L

SAMPLE ID - 74

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT										RELATIVE WEIGHT % - 85.59				ASH % - 39.24			
FRACTION SIZE(MM)		35.00 X		6.00		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. S		CUM. VOL.		CUM. MOIST	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	3.76	2.27	3.76	2.27	96.24	40.01										0.58	0.58
1.45	7.61	7.48	11.37	5.76	88.63	42.80										0.53	0.55
1.50	8.81	12.80	20.18	8.83	79.82	46.11										0.57	0.56
1.55	11.28	18.16	31.46	12.18	68.54	50.71										0.46	0.52
1.60	6.06	23.99	37.52	14.08	62.48	53.30										0.73	0.56
1.70	10.75	31.13	48.27	17.88	51.73	57.91										0.68	0.58
1.80	14.37	39.66	62.64	22.88	37.36	64.93										0.74	0.62
2.00	13.13	48.56	75.77	27.33	24.23	73.80										0.72	0.64
2.60	24.23	73.80	100.00	38.59												0.78	0.67

ANALYSIS TYPE - FLOAT										RELATIVE WEIGHT % - 12.69				ASH % - 29.76			
FRACTION SIZE(MM)		6.00 X		0.50		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. S		CUM. VOL.		CUM. MOIST	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	21.69	1.98	21.69	1.98	78.31	37.94										0.54	0.54
1.45	15.95	7.10	37.64	4.15	62.36	45.83										0.59	0.56
1.50	8.42	12.41	46.06	5.66	53.94	51.04										0.78	0.60
1.55	5.40	16.09	51.46	6.75	48.54	54.93										0.93	0.64
1.60	4.41	22.64	55.87	8.01	44.13	58.16										1.09	0.67
1.70	6.96	28.48	62.83	10.28	37.17	63.72										1.59	0.77
1.80	5.73	36.31	68.56	12.45	31.44	68.71										1.35	0.82
2.00	7.25	46.09	75.81	15.67	24.19	75.49										1.42	0.88
2.60	24.19	75.49	100.00	30.14												1.94	1.14

GULF CANADA CORPORATION - COAL DIVISION

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DATA SOURCE - KPNLRDDH86027 SEAM - K/L

SAMPLE ID - 74

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -				0.88 ASH % - 31.01						
SG-TME	ELEMENTAL	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	WT%	ASH%	CUM. FSI	C.V. FSI (MJ/KG)	CUM. S	CUM. S	VOL. VOL.	MOIST MOIST	
1.40	13.54	2.21		13.54	2.21		86.46	34.46							1.32	1.32
1.45	15.63	3.85		29.17	3.09		70.83	41.22							0.78	1.03
1.50	13.50	7.72		42.67	4.55		57.33	49.10							1.72	1.25
1.55	2.12	15.05		44.79	5.05		55.21	50.41							1.61	1.27
1.60	7.29	19.75		52.08	7.11		47.92	55.07							1.04	1.23
1.70	6.25	21.54		58.33	8.65		41.67	60.10							1.75	1.29
1.80	5.21	26.76		63.54	10.14		36.46	64.87							1.93	1.34
2.00	9.38	38.51		72.92	13.79		27.08	74.00							1.88	1.41
2.60	27.08	74.00		100.00	30.09										1.90	1.54

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -				0.84 ASH % - 45.10							
SG-TME	ELEMENTAL	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	WT%	ASH%	CUM. FSI	C.V. FSI (MJ/KG)	CUM. S	CUM. S	VOL. VOL.	MOIST MOIST		
240.00	*****	45.10		100.00	45.10					17.63	17.63	0.36	0.36	8.76	8.76	0.78	0.78

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86027
 Coal zone: K/L
 Field sample no.: 10067 - 10069 Composite sample no.: 243
 Lab sample no.: 29639

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.46
 Contribution(%): 12.06
 Total yield(%): 12.06

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.70	
Ash (%) :	5.86	5.90
Volatile matter (%) :	6.47	6.52
Fixed carbon (%) :	86.97	87.58
Total sulphur (%) :	0.63	0.63
Combustible sulphur (%) :	0.60	
Gross calorific value (cal/g) :	7,870.00	7,925.00
Volatile matter (dmmf%) :	6.30	
Hardgrove index :	36.00	
Phosphorous in coal (%) :	0.065	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C) :	1,227.00	1,203.00
Softening temperature (°C) :	1,290.00	1,246.00
Hemispherical temperature (°C) :	1,321.00	1,286.00
Final temperature (°C) :	1,442.00	1,440.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	57.95	TiO2 (%) :	2.17
Al2O3 (%) :	23.82	Na2O (%) :	1.91
Fe2O3 (%) :	2.83	K2O (%) :	1.20
CaO (%) :	4.03	SO3 (%) :	1.39
MgO (%) :	1.54	P2O5 (%) :	2.56

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86027
 Coal zone: K/L
 Field sample no.: 10067 - 10069 Composite sample no.: 243
 Lab sample no.: 29639

----- PRODUCT COAL ANALYSIS (SP5) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.48
 Contribution (%): 0.78
 Total yield (%): 0.78

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.63	
Ash (%):	11.98	12.06
Volatile matter (%):	7.50	7.55
Fixed carbon (%):	79.89	80.39
Total sulphur (%):	0.58	0.58
Combustible sulphur (%):	0.49	
Gross calorific value (cal/g):	7,203.00	7,249.00
Volatile matter (dmmf %):	7.40	
Hardgrove index:	35.00	
Phosphorous in coal (%):	0.148	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,230.00	1,208.00
Softening temperature (°C):	1,300.00	1,262.00
Hemispherical temperature (°C):	1,343.00	1,316.00
Final temperature (°C):	1,461.00	1,460.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	58.28	TiO2 (%):	2.45
Al2O3 (%):	23.82	Na2O (%):	2.26
Fe2O3 (%):	1.76	K2O (%):	1.28
CaO (%):	4.03	SO3 (%):	1.78
MgO (%):	1.25	P2O5 (%):	2.83

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86027
 Coal zone: K/L
 Field sample no.: 10067 - 10069 Composite sample no.: 343
 Lab sample no.: 29639

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.53
 Contribution (%): 7.68
 Total yield (%): 7.68

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.75	
Ash (%):	7.42	7.48
Volatile matter (%):	6.52	6.57
Fixed carbon (%):	85.31	85.95
Total sulphur (%):	0.63	0.63
Combustible sulphur (%):	0.58	
Gross calorific value (cal/g):	7,722.00	7,781.00
Volatile matter (dmmf %):	6.30	
Hardgrove index:	38.00	
Phosphorous in coal (%):	0.047	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,262.00	1,225.00
Softening temperature (°C):	1,313.00	1,278.00
Hemispherical temperature (°C):	1,359.00	1,332.00
Final temperature (°C):	1,453.00	1,450.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	57.86	TiO2 (%):	1.82
Al2O3 (%):	23.06	Na2O (%):	1.84
Fe2O3 (%):	3.44	K2O (%):	2.09
CaO (%):	2.94	SO3 (%):	1.76
MgO (%):	1.71	P2O5 (%):	1.46

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86027 SEAM - K

SAMPLE ID - 76

WASHABILITY ID - WA1

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

FRACTION	SIZE(MM)		35.00 X		6.00		RELATIVE WEIGHT % - 77.74				ASH % - 35.11				
	SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
1.40	2.66	3.11	2.66	3.11	97.34	35.91								0.53	0.53
1.45	3.12	7.19	5.78	5.31	94.22	36.86								0.50	0.51
1.50	16.54	12.58	22.32	10.70	77.68	42.03								0.59	0.57
1.55	15.72	19.25	38.04	14.23	61.96	47.81								0.65	0.60
1.60	8.43	24.24	46.47	16.05	53.53	51.52								0.66	0.61
1.70	24.08	31.44	70.55	21.30	29.45	67.94								0.74	0.66
1.80	5.52	37.67	76.07	22.49	23.93	74.92								0.73	0.66
2.00	4.69	51.24	80.76	24.16	19.24	80.69								0.86	0.67
2.60	19.24	80.69	100.00	35.04										1.11	0.76

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

FRACTION	SIZE(MM)		6.00 X		0.50		RELATIVE WEIGHT % - 19.10				ASH % - 24.90				
	SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.	
	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
1.40	17.32	2.18	17.32	2.18	82.68	28.97								0.31	0.31
1.45	10.44	5.93	27.76	3.59	72.24	32.30								0.52	0.39
1.50	22.49	11.18	50.25	6.99	49.75	41.85								0.54	0.46
1.55	10.58	17.24	60.83	8.77	39.17	48.50								0.61	0.48
1.60	2.95	21.49	63.78	9.36	36.22	50.70								0.66	0.49
1.70	9.53	25.24	73.31	11.42	26.69	59.78								0.83	0.54
1.80	5.55	32.87	78.86	12.93	21.14	66.85								1.14	0.58
2.00	4.93	43.44	83.79	14.73	16.21	73.97								1.79	0.65
2.60	16.21	73.97	100.00	24.33										1.79	0.83

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86027 SEAM - K

SAMPLE ID - 75

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	0.50 X 0.15		RELATIVE WEIGHT % -				1.35 ASH % - 27.80								
	ELEMENTAL	CUM. FLOATS	CUM.	SINKS	CUM. C.V.	CUM.	CUM.	CUM.	CUM.	CUM.					
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	17.16	1.98	17.16	1.98	82.84	32.51								0.78	0.78
1.45	8.15	2.77	25.31	2.23	74.69	35.75								0.63	0.73
1.50	19.88	6.71	45.19	4.20	54.81	46.29								1.03	0.86
1.55	6.67	11.51	51.86	5.14	48.14	51.11								1.50	0.94
1.60	3.46	14.27	55.32	5.71	44.68	53.96								1.86	1.00
1.70	9.26	18.87	64.58	7.60	35.42	63.13								1.79	1.12
1.80	6.17	25.36	70.75	9.15	29.25	71.10								1.90	1.18
2.00	5.43	38.70	76.18	11.26	23.82	78.49								1.94	1.24
2.60	23.82	78.49	100.00	27.27										1.46	1.29

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)	0.15 X 0.00		RELATIVE WEIGHT % -				1.81 ASH % - 35.49								
	ELEMENTAL	CUM. FLOATS	CUM.	SINKS	CUM. C.V.	CUM.	CUM.	CUM.	CUM.	CUM.					
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	35.49	100.00	35.49			20.97	20.97	0.80	0.80	0.80	7.52	7.52	0.88	0.88

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86027
 Coal zone: K
 Field sample no.: 10072 Composite sample no.: 244
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.51
 Contribution(%): 23.24
 Total yield(%): 23.24

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture(%) :	0.97	
Ash(%) :	13.06	13.19
Volatile matter(%) :	6.63	6.69
Fixed carbon(%) :	79.34	80.12
Total sulphur(%) :	1.13	1.14
Combustible sulphur(%) :	1.10	
Gross calorific value(cal/g) :	7,395.00	7,467.00
Volatile matter(dmmf%) :	6.10	
Hardgrove index:	38.00	
Phosphorous in coal(%) :	0.202	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C) :	1,238.00	1,171.00
Softening temperature(°C) :	1,262.00	1,190.00
Hemispherical temperature(°C) :	1,289.00	1,251.00
Final temperature(°C) :	1,348.00	1,332.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	49.52	TiO2 (%) :	1.53
Al2O3 (%) :	24.54	Na2O (%) :	1.79
Fe2O3 (%) :	7.86	K2O (%) :	1.12
CaO (%) :	5.22	SO3 (%) :	0.64
MgO (%) :	1.91	P2O5 (%) :	3.55

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86027
 Coal zone: K
 Field sample no.: 10072 Composite sample no.: 344
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.51
 Contribution (%): 9.83
 Total yield (%): 9.83

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.97	
Ash (%):	6.69	6.76
Volatile matter (%):	6.47	6.53
Fixed carbon (%):	85.87	86.71
Total sulphur (%):	0.77	0.78
Combustible sulphur (%):	0.76	
Gross calorific value (cal/g):	7,768.00	7,844.00
Volatile matter (dmmf %):	6.20	
Hardgrove index:	38.00	
Phosphorous in coal (%):	0.050	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,230.00	1,174.00
Softening temperature (°C):	1,321.00	1,241.00
Hemispherical temperature (°C):	1,378.00	1,337.00
Final temperature (°C):	1,461.00	1,429.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	54.66	TiO2 (%):	2.57
Al2O3 (%):	24.57	Na2O (%):	1.78
Fe2O3 (%):	5.75	K2O (%):	1.34
CaO (%):	2.77	SO3 (%):	0.54
MgO (%):	1.86	P2O5 (%):	1.72

GULF CANADA CORPORATION - COAL DIVISION

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DATA SOURCE - KPNLRDDH86029 SEAM - I

SAMPLE ID - 76

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 60.44				ASH % - 19.40						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	20.65	3.77	20.65	3.77	79.35	24.80							0.53	0.53
1.45	27.63	7.26	48.28	5.77	51.72	34.16							0.65	0.60
1.50	15.29	12.39	63.57	7.36	36.43	43.30							0.69	0.62
1.55	6.69	17.47	70.26	8.32	29.74	49.11							0.70	0.63
1.60	2.88	20.94	73.14	8.82	26.86	52.14							0.80	0.63
1.70	2.60	26.00	75.74	9.41	24.26	54.94							0.81	0.64
1.80	7.09	37.62	82.83	11.82	17.17	62.09							0.83	0.66
2.00	5.51	46.59	88.34	13.99	11.66	69.41							1.04	0.68
2.60	11.66	69.41	100.00	20.45									1.61	0.79

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 30.27				ASH % - 19.04						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	21.03	3.00	21.03	3.00	78.97	22.77							0.57	0.57
1.45	30.31	6.39	51.34	5.00	48.66	32.97							0.54	0.55
1.50	14.96	10.80	66.30	6.31	33.70	42.81							0.55	0.55
1.55	5.27	14.29	71.57	6.90	28.43	48.10							0.68	0.56
1.60	3.93	17.04	75.50	7.43	24.50	53.09							0.84	0.58
1.70	5.11	21.88	80.61	8.34	19.39	61.31							1.25	0.62
1.80	2.84	29.06	83.45	9.05	16.55	66.84							1.38	0.64
2.00	3.67	41.41	87.12	10.41	12.88	74.09							1.44	0.68
2.60	12.88	74.09	100.00	18.61									1.55	0.79

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SAMPLE ID - 76

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

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % - 5.42				ASH % - 28.09				
SG-TME	ELEMENTAL	CUM. FLOATS	CUM. SINKS	CUM. FSI	CUM. FSI (MJ/KG)	C.V.	C.V.	CUM. S	CUM. S	VOL. VOL.	CUM. MOIST	CUM. MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%							
1.40	8.18	3.15	8.18	3.15	91.82	29.18					0.54	0.54
1.45	19.04	4.77	27.22	4.28	72.78	35.57					0.78	0.71
1.50	15.74	7.25	42.96	5.37	57.04	43.39					0.77	0.73
1.55	10.98	11.03	53.94	6.52	46.06	51.10					1.44	0.88
1.60	6.57	14.31	60.51	7.37	39.49	57.22					1.42	0.93
1.70	6.60	19.04	67.11	8.52	32.89	64.88					1.84	1.02
1.80	4.56	25.09	71.67	9.57	28.33	71.29					1.74	1.07
2.00	4.61	36.74	76.28	11.21	23.72	78.00					1.64	1.10
2.60	23.72	78.00	100.00	27.05							1.12	1.11

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % - 3.87				ASH % - 31.35				
SG-TME	ELEMENTAL	CUM. FLOATS	CUM. SINKS	CUM. FSI	CUM. FSI (MJ/KG)	C.V.	C.V.	CUM. S	CUM. S	VOL. VOL.	CUM. MOIST	CUM. MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%							
240.00	****	31.35	100.00	31.35							22.48	22.48
								0.36	0.36	7.41	7.41	0.76

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86029
 Coal zone: I
 Field sample no.: 10087 - 10088 Composite sample no.: 245
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size(mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.46
 Contribution(%): 34.06
 Total yield(%): 34.06

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture(%) :	0.89	
Ash(%) :	5.78	5.83
Volatile matter(%) :	6.01	6.06
Fixed carbon(%) :	87.32	88.11
Gross calorific value(cal/g) :	7,899.00	7,970.00
Volatile matter(dmmf%) :	6.00	
Hardgrove index :	37.00	
Phosphorous in coal(%) :	0.168	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C) :	1,224.00	1,182.00
Softening temperature(°C) :	1,284.00	1,235.00
Hemispherical temperature(°C) :	1,307.00	1,276.00
Final temperature(°C) :	1,401.00	1,387.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2(%) :	44.28	TiO2(%) :	1.88
Al2O3(%) :	29.42	Na2O(%) :	1.64
Fe2O3(%) :	3.77	K2O(%) :	1.07
CaO(%) :	6.31	SO3(%) :	0.57
MgO(%) :	2.15	P2O5(%) :	6.67

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86029
 Coal zone: I
 Field sample no.: 10087 - 10088 Composite sample no.: 245
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP5) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.47
 Contribution (%): 0.14
 Total yield (%): 0.14

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.11	
Ash (%):	10.40	10.52
Volatile matter (%):	7.12	7.20
Fixed carbon (%):	81.37	82.28
Total sulphur (%):	0.40	0.40
Gross calorific value (cal/g):	7,356.00	7,439.00
Volatile matter (dmmf %):	7.10	

----- ASH FUSION ANALYSIS (AF1) -----
OXIDIZING ATM REDUCING ATM

----- ASH MINERAL ANALYSIS (AM1) -----

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86029
 Coal zone: I
 Field sample no.: 10087 - 10088 Composite sample no.: 345
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.61
 Contribution(%): 22.90
 Total yield(%): 22.90

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.92	
Ash (%):	7.28	7.35
Volatile matter (%):	6.58	6.64
Fixed carbon (%):	85.22	86.01
Total sulphur (%):	0.46	0.46
Combustible sulphur (%):	0.45	
Gross calorific value (cal/g):	7,768.00	7,840.00
Volatile matter (dmmf%):	6.40	
Hardgrove index:	39.00	
Phosphorous in coal (%):	0.124	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,294.00	1,241.00
Softening temperature (°C):	1,327.00	1,325.00
Hemispherical temperature (°C):	1,359.00	1,348.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	52.96	TiO2 (%):	1.91
Al2O3 (%):	26.46	Na2O (%):	1.78
Fe2O3 (%):	2.77	K2O (%):	1.11
CaO (%):	6.19	SO3 (%):	0.38
MgO (%):	1.93	P2O5 (%):	3.89

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WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT										RELATIVE WEIGHT % - 58.13					ASH % - 21.62		
FRACTION	SIZE(MM)	ELEMENTAL		CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
1.40	12.82	4.29	12.82	4.29	87.18	25.07										0.77	0.77
1.45	30.22	7.55	43.04	6.58	56.96	34.37										0.78	0.78
1.50	10.56	14.75	53.60	8.19	46.40	38.83										0.71	0.76
1.55	9.72	18.52	63.32	9.77	36.68	44.21										0.61	0.74
1.60	3.17	24.18	66.49	10.46	33.51	46.11										0.74	0.74
1.70	6.38	25.41	72.87	11.77	27.13	50.97										0.78	0.74
1.80	5.07	40.63	77.94	13.65	22.06	53.35										0.89	0.75
2.00	9.59	43.16	87.53	16.88	12.47	61.19										0.65	0.74
2.60	12.47	61.19	100.00	22.41												0.78	0.75

ANALYSIS TYPE - FLOAT										RELATIVE WEIGHT % - 30.14					ASH % - 16.13		
FRACTION	SIZE(MM)	ELEMENTAL		CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	
1.40	37.99	2.08	37.99	2.08	62.01	24.34										0.71	0.71
1.45	18.74	6.91	56.73	3.68	43.27	31.89										0.76	0.73
1.50	13.01	11.84	69.74	5.20	30.26	40.51										0.76	0.73
1.55	5.66	16.23	75.40	6.03	24.60	46.09										0.90	0.75
1.60	2.98	20.92	78.38	6.59	21.62	49.56										0.97	0.75
1.70	4.73	25.05	83.11	7.64	16.89	56.43										1.08	0.77
1.80	3.20	31.78	86.31	8.54	13.69	62.19										1.30	0.79
2.00	2.46	42.80	88.77	9.49	11.23	66.44										1.94	0.82
2.60	11.23	66.44	100.00	15.88												1.31	0.88

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

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -					5.88 ASH % - 15.68			
SG-TME	ELEMENTAL	CUM. FLDATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	S	CUM.	CUM.	MOIST	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.			VOL.	VOL.	MOIST	MOIST
1.40	33.83	1.72	33.83	1.72	66.17	21.67							0.99	0.99
1.45	18.64	3.54	52.47	2.37	47.53	28.79							1.24	1.08
1.50	13.97	6.72	66.44	3.28	33.56	37.97							1.05	1.07
1.55	5.36	10.79	71.80	3.84	28.20	43.14							1.53	1.11
1.60	5.56	16.75	77.36	4.77	22.64	49.62							1.56	1.14
1.70	5.42	20.62	82.78	5.81	17.22	58.74							1.74	1.18
1.80	3.39	27.14	86.17	6.65	13.83	66.49							1.82	1.20
2.00	2.37	40.58	88.54	7.56	11.46	71.85							1.73	1.22
2.60	11.46	71.85	100.00	14.92									1.33	1.23

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -					5.85 ASH % - 27.82			
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	S	S	CUM.	CUM.	MOIST	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.			VOL.	VOL.	MOIST	MOIST
240.00	*****	27.82	100.00	27.82			24.12	24.12	0.38	0.38	7.33	7.33	0.59	0.59

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 71.09				ASH % - 23.01						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	6.47	2.59	6.47	2.59	93.53	23.56							0.45	0.45
1.45	24.86	9.48	31.33	8.06	68.67	28.65							0.44	0.44
1.50	16.09	13.68	47.42	9.97	52.58	33.23							0.51	0.47
1.55	14.58	18.42	62.00	11.95	38.00	38.92							0.53	0.48
1.60	10.61	24.80	72.61	13.83	27.39	44.38							0.51	0.48
1.70	10.62	29.22	83.23	15.79	16.77	53.99							0.51	0.49
1.80	5.85	37.19	89.08	17.20	10.92	62.99							0.64	0.50
2.00	3.66	49.29	92.74	18.47	7.26	69.89							0.70	0.51
2.60	7.26	69.89	100.00	22.20									0.67	0.52

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 23.67				ASH % - 17.53						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	27.31	1.84	27.31	1.84	72.69	24.19							0.49	0.49
1.45	19.10	7.80	46.41	4.29	53.59	30.04							0.43	0.47
1.50	12.39	12.45	58.80	6.01	41.20	35.33							0.43	0.46
1.55	11.25	16.27	70.05	7.66	29.95	42.48							0.62	0.48
1.60	4.95	20.00	75.00	8.47	25.00	46.93							0.76	0.50
1.70	8.87	24.88	83.87	10.21	16.13	59.06							0.84	0.54
1.80	3.46	35.41	87.33	11.21	12.67	65.52							1.04	0.56
2.00	3.17	44.55	90.50	12.38	9.50	72.52							1.78	0.60
2.60	9.50	72.52	100.00	18.09									1.32	0.67

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ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -				2.98 ASH % -		18.19		
SG-TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM.		CUM.	CUM.	CUM.		
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	27.99	1.57	27.99	1.57	72.01	23.34							0.44	0.44
1.45	17.73	3.64	45.72	2.37	54.28	29.78							0.59	0.50
1.50	12.91	6.91	58.63	3.37	41.37	36.92							0.81	0.57
1.55	8.93	11.11	67.56	4.39	32.44	44.02							1.11	0.64
1.60	1.33	16.54	68.89	4.63	31.11	45.20							1.26	0.65
1.70	8.93	19.74	77.82	6.36	22.18	55.45							1.58	0.76
1.80	5.67	26.81	83.49	7.75	16.51	65.28							1.92	0.84
2.00	4.22	38.66	87.71	9.24	12.29	74.42							1.97	0.89
2.60	12.29	74.42	100.00	17.25									1.24	0.93

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -				2.26 ASH % -		25.93		
SG-TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM.		CUM.	CUM.	CUM.		
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	25.93	100.00	25.93									24.90	0.70

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DATA SOURCE - KPNLRDDH86030 SEAM - I

SAMPLE ID - 79

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X		6.00		CUM. SINKS		RELATIVE WEIGHT % - 56.15				ASH % - 10.85			
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.	MOIST	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST	
1.40	32.05	4.14	32.05	4.14	67.95	13.11							0.63	0.63	
1.45	45.08	7.46	77.13	6.08	22.87	24.25							0.66	0.65	
1.50	8.95	12.30	86.08	6.73	13.92	31.93							0.70	0.65	
1.55	4.79	17.48	90.87	7.29	9.13	39.52							0.79	0.66	
1.60	2.63	20.59	93.50	7.67	6.50	47.18							0.80	0.66	
1.70	1.24	24.13	94.74	7.88	5.26	52.61							0.90	0.67	
1.80	0.82	30.06	95.56	8.07	4.44	56.77							0.93	0.67	
2.00	0.71	43.19	96.27	8.33	3.73	59.36							0.74	0.67	
2.60	3.73	59.36	100.00	10.24									0.57	0.67	

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

FRACTION SIZE(MM)		6.00 X		0.50		CUM. SINKS		RELATIVE WEIGHT % - 34.23				ASH % - 7.97			
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.	MOIST	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST	
1.40	47.27	2.76	47.27	2.76	52.73	12.24							0.63	0.63	
1.45	30.21	6.54	77.48	4.23	22.52	19.89							0.58	0.61	
1.50	10.51	10.93	87.99	5.03	12.01	27.72							0.55	0.60	
1.55	4.57	15.22	92.56	5.54	7.44	35.40							0.59	0.60	
1.60	1.46	18.99	94.02	5.75	5.98	39.41							0.74	0.60	
1.70	2.08	22.95	96.10	6.12	3.90	48.18							0.87	0.61	
1.80	0.75	30.23	96.85	6.30	3.15	52.46							0.66	0.61	
2.00	0.80	38.48	97.65	6.57	2.35	57.22							1.28	0.62	
2.60	2.35	57.22	100.00	7.76									0.62	0.62	

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DATA SOURCE - KPNLRDDH86030 SEAM - I

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WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT															
FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % -				6.04 ASH % - 9.14							
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V. CUM.		CUM.		CUM.		CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	44.18	2.25	44.18	2.25	55.82	13.08								0.85	0.85
1.45	23.48	4.37	67.66	2.99	32.34	19.40								0.79	0.83
1.50	14.63	6.86	82.29	3.67	17.71	29.76								1.06	0.87
1.55	5.58	10.63	87.87	4.12	12.13	38.56								1.22	0.89
1.60	2.40	14.25	90.27	4.39	9.73	44.56								1.37	0.91
1.70	2.96	18.33	93.23	4.83	6.77	56.03								1.28	0.92
1.80	1.54	25.69	94.77	5.17	5.23	64.96								1.56	0.93
2.00	0.89	33.09	95.66	5.43	4.34	71.50								1.19	0.93
2.60	4.34	71.50	100.00	8.29										0.95	0.93

ANALYSIS TYPE - FROTH															
FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % -				3.58 ASH % - 9.08							
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V. CUM.		CUM.		CUM.		CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	9.08	100.00	9.08			30.26	30.26				7.00	7.00	0.60	0.60

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86030
 Coal zone: I
 Field sample no.: 10091 - 10092 Composite sample no.: 246
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.43
 Contribution (%): 17.27
 Total yield (%): 17.27

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.80	
Ash (%):	5.64	5.69
Volatile matter (%):	5.94	5.99
Fixed carbon (%):	87.62	88.32
Total sulphur (%):	0.47	0.47
Combustible sulphur (%):	0.46	
Gross calorific value (cal/g):	7,863.00	7,927.00
Volatile matter (dmmf %):	5.80	
Hardgrove index:	37.00	
Phosphorous in coal (%):	0.037	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,355.00	1,305.00
Softening temperature (°C):	1,389.00	1,359.00
Hemispherical temperature (°C):	1,421.00	1,402.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	61.80	TiO2 (%):	1.34
Al2O3 (%):	24.57	Na2O (%):	1.67
Fe2O3 (%):	2.05	K2O (%):	0.97
CaO (%):	3.89	SO3 (%):	0.39
MgO (%):	1.25	P2O5 (%):	1.50

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86030
 Coal zone: I
 Field sample no.: 10091 - 10092 Composite sample no.: 246
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP5) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.49
 Contribution (%): 12.24
 Total yield (%): 12.24

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.84	
Ash (%) :	11.65	11.75
Volatile matter (%) :	6.56	6.62
Fixed carbon (%) :	80.95	81.63
Total sulphur (%) :	0.41	0.41
Combustible sulphur (%) :	0.38	
Gross calorific value (cal/g) :	7,325.00	7,388.00
Volatile matter (dmmf%) :	6.40	
Hardgrove index:	39.00	
Phosphorous in coal (%) :	0.041	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C) :	1,254.00	1,251.00
Softening temperature (°C) :	1,346.00	1,331.00
Hemispherical temperature (°C) :	1,413.00	1,391.00
Final temperature (°C) :	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	62.34	TiO2 (%) :	0.93
Al2O3 (%) :	23.44	Na2O (%) :	1.58
Fe2O3 (%) :	3.09	K2O (%) :	0.98
CaO (%) :	2.32	SO3 (%) :	0.61
MgO (%) :	1.82	P2O5 (%) :	0.80

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86030
 Coal zone: 1
 Field sample no.: 10093 Composite sample no.: 247
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.46
 Contribution (%): 45.86
 Total yield (%): 45.86

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.82	
Ash (%):	6.22	6.27
Volatile matter (%):	5.85	5.90
Fixed carbon (%):	87.11	87.83
Total sulphur (%):	0.45	0.45
Combustible sulphur (%):	0.44	
Gross calorific value (cal/g):	7,889.00	7,955.00
Volatile matter (dmmf %):	5.70	
Hardgrove index:	37.00	
Phosphorous in coal (%):	0.207	

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,241.00	1,225.00
Softening temperature (°C):	1,284.00	1,262.00
Hemispherical temperature (°C):	1,300.00	1,276.00
Final temperature (°C):	1,407.00	1,391.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	43.37	TiO2 (%):	1.90
Al2O3 (%):	30.68	Na2O (%):	2.32
Fe2O3 (%):	2.60	K2O (%):	1.12
CaO (%):	6.87	SO3 (%):	0.32
MgO (%):	1.09	P2O5 (%):	7.61

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86030
 Coal zone: 1
 Field sample no.: 10091 - 10093 Composite sample no.: 346
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.65
 Contribution (%): 25.51
 Total yield (%): 25.51

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.92	
Ash (%):	7.39	7.46
Volatile matter (%):	6.05	6.11
Fixed carbon (%):	85.64	86.43
Total sulphur (%):	0.44	0.44
Combustible sulphur (%):	0.42	
Gross calorific value (cal/g):	7,693.00	7,765.00
Volatile matter (dmmf %):	5.90	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.087	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,300.00	1,257.00
Softening temperature (°C):	1,364.00	1,356.00
Hemispherical temperature (°C):	1,407.00	1,402.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	55.88	TiO2 (%):	2.14
Al2O3 (%):	27.08	Na2O (%):	1.76
Fe2O3 (%):	2.24	K2O (%):	1.08
CaO (%):	3.08	SO3 (%):	0.56
MgO (%):	1.38	P2O5 (%):	2.69

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DATA SOURCE - KPNLRDDH86030 SEAM - H

SAMPLE ID - 80

WASHABILITY ID - WA1

----- ANALYSIS TYPE - FLDAT -----

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 54.09				ASH % - 34.44						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	2.24	3.71	2.24	3.71	97.76	34.18							0.50	0.50
1.45	13.85	7.93	16.09	7.34	83.91	38.51							0.56	0.55
1.50	19.57	12.22	35.66	10.02	64.34	46.51							0.56	0.56
1.55	10.68	17.46	46.34	11.73	53.66	52.29							0.86	0.63
1.60	3.33	22.22	49.67	12.44	50.33	54.28							1.03	0.65
1.70	11.06	28.53	60.73	15.37	39.27	61.53							1.02	0.72
1.80	4.64	33.66	65.37	16.67	34.63	65.27							1.17	0.75
2.00	6.56	41.39	71.93	18.92	28.07	70.85							1.10	0.78
2.60	28.07	70.85	100.00	33.50									1.15	0.89

----- ANALYSIS TYPE - FLDAT -----

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 31.72				ASH % - 20.08						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	19.47	2.55	19.47	2.55	80.53	22.77							0.60	0.60
1.45	22.44	6.74	41.91	4.79	58.09	28.96							0.77	0.69
1.50	17.05	11.17	58.96	6.64	41.04	36.36							0.60	0.66
1.55	9.34	15.18	68.30	7.81	31.70	42.60							0.93	0.70
1.60	5.06	18.56	73.36	8.55	26.64	47.16							1.11	0.73
1.70	7.89	21.89	81.25	9.84	18.75	57.80							1.66	0.82
1.80	4.60	28.94	85.85	10.87	14.15	67.18							1.63	0.86
2.00	3.38	39.64	89.23	11.96	10.77	75.82							1.91	0.90
2.60	10.77	75.82	100.00	18.83									1.73	0.99

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DATA SOURCE - KPNLRDDH86030 SEAM - H

SAMPLE ID - 80

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)	ELEMENTAL		CUM. FLOATS		CUM. WT%	SINKS ASH%	RELATIVE WEIGHT % -			8.56 ASH % - 12.96		CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST
	WT%	ASH%	WT%	ASH%			CUM. FSI	C.V. (MJ/KG)	CUM. S	CUM. S	VOL.				
1.40	25.98	2.00	25.98	2.00	74.02	15.97								0.96	0.96
1.45	24.77	3.89	50.75	2.92	49.25	22.04								1.02	0.99
1.50	18.79	7.56	69.54	4.18	30.46	30.97								1.81	1.21
1.55	5.47	11.01	75.01	4.67	24.99	35.34								1.92	1.26
1.60	3.66	12.50	78.67	5.04	21.33	39.26								1.60	1.28
1.70	7.98	15.99	86.65	6.05	13.35	53.17								1.87	1.33
1.80	4.08	22.55	90.73	6.79	9.27	66.65								1.96	1.36
2.00	2.36	35.04	93.09	7.51	6.91	77.45								1.56	1.37
2.60	6.91	77.45	100.00	12.34										1.12	1.35

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)	ELEMENTAL		CUM. FLOATS		CUM. WT%	SINKS ASH%	RELATIVE WEIGHT % -			5.63 ASH % - 16.28		CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST
	WT%	ASH%	WT%	ASH%			CUM. FSI	C.V. (MJ/KG)	CUM. S	CUM. S	VOL.				
240.00	*****	16.28	100.00	16.28			28.71	28.71	0.51	0.51	6.73	6.73	0.60	0.60	

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86030
 Coal zone: H
 Field sample no.: 10096 Composite sample no.: 248
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP4) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.57
 Contribution (%): 25.86
 Total yield (%): 25.86

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.01	
Ash (%):	11.92	12.04
Volatile matter (%):	6.39	6.46
Fixed carbon (%):	80.68	81.50
Total sulphur (%):	0.46	0.46
Combustible sulphur (%):	0.40	
Gross calorific value (cal/g):	7,309.00	7,383.00
Volatile matter (dmmf %):	6.20	
Hardgrove index:	44.00	
Phosphorous in coal (%):	0.171	

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,273.00	1,241.00
Softening temperature (°C):	1,289.00	1,257.00
Hemispherical temperature (°C):	1,305.00	1,278.00
Final temperature (°C):	1,375.00	1,365.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	54.86	TiO2 (%):	1.51
Al2O3 (%):	23.82	Na2O (%):	2.29
Fe2O3 (%):	3.33	K2O (%):	0.74
CaO (%):	5.71	SO3 (%):	1.23
MgO (%):	1.71	P2O5 (%):	3.29

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86030
 Coal zone: H
 Field sample no.: 10096 Composite sample no.: 348
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP3) -----
 Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.53
 Contribution (%): 19.97
 Total yield (%): 19.97

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.00	
Ash (%):	7.04	7.11
Volatile matter (%):	6.61	6.68
Fixed carbon (%):	85.35	86.21
Total sulphur (%):	0.51	0.52
Combustible sulphur (%):	0.50	
Gross calorific value (cal/g):	7,748.00	7,827.00
Volatile matter (dmmf %):	6.50	
Hardgrove index:	43.00	
Phosphorous in coal (%):	0.068	

----- ASH FUSION ANALYSIS (AF1) -----
OXIDIZING ATM REDUCING ATM

Initial temperature (°C):	1,262.00	1,260.00
Softening temperature (°C):	1,348.00	1,332.00
Hemispherical temperature (°C):	1,375.00	1,364.00
Final temperature (°C):	1,464.00	1,461.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	55.84	TiO2 (%):	2.14
Al2O3 (%):	27.22	Na2O (%):	2.45
Fe2O3 (%):	2.96	K2O (%):	0.83
CaO (%):	3.50	SO3 (%):	0.52
MgO (%):	1.32	P2O5 (%):	2.20

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DATA SOURCE - KPNLRDDH86031 SEAM - H

SAMPLE ID - 81

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 67.08				ASH % - 50.31						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	WT%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.52	2.77	0.52	2.77	99.48	50.54							0.42	0.42
1.45	5.67	8.00	6.19	7.56	93.81	53.11							0.44	0.44
1.50	6.78	12.96	12.97	10.38	87.03	56.24							0.35	0.39
1.55	3.84	16.59	16.81	11.80	83.19	58.07							0.54	0.43
1.60	3.08	21.30	19.89	13.27	80.11	59.49							0.41	0.42
1.70	16.07	30.34	35.96	20.90	64.04	66.80							0.35	0.39
1.80	7.13	37.32	43.09	23.62	56.91	70.50							0.56	0.42
2.00	13.12	45.08	56.21	28.63	43.79	78.11							0.43	0.42
2.60	43.79	78.11	100.00	50.30									0.58	0.49

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 25.80				ASH % - 32.60						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	WT%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	8.24	1.95	8.24	1.95	91.76	35.27							0.27	0.27
1.45	17.04	5.98	25.28	4.67	74.72	41.94							0.46	0.40
1.50	10.10	11.81	35.38	6.71	64.62	46.65							0.42	0.40
1.55	8.97	16.04	44.35	8.59	55.65	51.59							0.50	0.42
1.60	5.84	20.26	50.19	9.95	49.81	55.26							0.44	0.43
1.70	10.80	25.52	60.99	12.71	39.01	63.50							0.43	0.43
1.80	7.73	32.41	68.72	14.92	31.28	71.18							0.82	0.47
2.00	6.56	42.23	75.28	17.30	24.72	78.86							1.87	0.59
2.60	24.72	78.86	100.00	32.52									1.49	0.81

GULF CANADA CORPORATION - COAL DIVISION

MAR 30/87

WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86031 SEAM - H

SAMPLE ID - 81

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % - 4.41 ASH % - 29.43											
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V. CUM.		CUM. CUM.		CUM. CUM.					
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	6.08	2.60	6.08	2.60	93.92	30.13								0.42	0.42
1.45	22.20	3.26	28.28	3.12	71.72	38.45								0.39	0.40
1.50	15.81	6.98	44.09	4.50	55.91	47.35								0.79	0.54
1.55	8.51	10.88	52.60	5.53	47.40	53.90								1.05	0.62
1.60	2.32	14.44	54.92	5.91	45.08	55.93								1.06	0.64
1.70	6.48	17.49	61.40	7.13	38.60	62.39								1.71	0.75
1.80	5.64	24.44	67.04	8.59	32.96	68.88								1.87	0.85
2.00	6.87	35.87	73.91	11.12	26.09	77.57								1.77	0.93
2.60	26.09	77.57	100.00	28.46										1.07	0.97

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % - 2.71 ASH % - 36.75											
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V. CUM.		CUM. CUM.		CUM. CUM.					
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	36.75	100.00	36.75			20.62	20.62	0.34	0.34	7.42	7.42	0.53	0.53	

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86031
 Coal zone: H
 Field sample no.: 10155 - 10156 Composite sample no.: 249
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP4) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.56
 Contribution(%): 12.05
 Total yield(%): 12.05

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.83	
Ash (%) :	11.93	12.03
Volatile matter (%) :	5.89	5.94
Fixed carbon (%) :	81.35	82.03
Total sulphur (%) :	0.45	0.45
Combustible sulphur (%) :	0.43	
Gross calorific value (cal/g) :	7,275.00	7,336.00
Volatile matter (dmmf%) :	5.60	
Hardgrove index :	40.00	
Phosphorous in coal (%) :	0.059	

----- ASH FUSION ANALYSIS (AF1) -----
OXIDIZING ATM REDUCING ATM

Initial temperature (°C) :	1,281.00	1,267.00
Softening temperature (°C) :	1,399.00	1,382.00
Hemispherical temperature (°C) :	1,461.00	1,456.00
Final temperature (°C) :	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	65.66	TiO2 (%) :	1.71
Al2O3 (%) :	24.19	Na2O (%) :	2.16
Fe2O3 (%) :	1.07	K2O (%) :	0.93
CaO (%) :	1.74	SO3 (%) :	0.32
MgO (%) :	1.06	P2O5 (%) :	1.14

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86031
 Coal zone: H
 Field sample no.: 10155 - 10156 Composite sample no.: 349
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.52
 Contribution (%): 9.71
 Total yield (%): 9.71

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.86	
Ash (%):	7.07	7.13
Volatile matter (%):	5.96	6.01
Fixed carbon (%):	86.11	86.86
Total sulphur (%):	0.48	0.48
Combustible sulphur (%):	0.46	
Gross calorific value (cal/g):	7,734.00	7,801.00
Volatile matter (dmmf %):	5.80	
Hardgrove index:	38.00	
Phosphorous in coal (%):	0.022	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,225.00	1,212.00
Softening temperature (°C):	1,370.00	1,362.00
Hemispherical temperature (°C):	1,440.00	1,418.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	66.46	TiO2 (%):	2.28
Al2O3 (%):	22.30	Na2O (%):	1.67
Fe2O3 (%):	1.37	K2O (%):	0.92
CaO (%):	1.82	SO3 (%):	0.54
MgO (%):	1.36	P2O5 (%):	0.70

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86031 SEAM - PH

SAMPLE ID - 82

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X 0.15		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 7.20			ASH % - 28.87					
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. (MJ/KG)	CUM. C.V.	S	CUM. S	VOL.	CUM. VOL.	MOIST	CUM. MOIST
1.40	3.73	6.16		3.73	6.16	96.27	28.47								0.56	0.56
1.45	15.37	3.24		19.10	3.81	80.90	33.26								0.57	0.57
1.50	14.08	5.82		33.18	4.66	66.82	39.04								0.72	0.63
1.55	9.23	10.31		42.41	5.89	57.59	43.65								0.95	0.70
1.60	5.79	12.03		48.20	6.63	51.80	47.18								1.23	0.77
1.70	12.23	16.85		60.43	8.70	39.57	56.56								2.00	1.02
1.80	8.79	24.00		69.22	10.64	30.78	65.85								1.87	1.12
2.00	7.82	37.65		77.04	13.38	22.96	75.46								1.74	1.19
2.60	22.96	75.46		100.00	27.64										0.91	1.12

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 3.91			ASH % - 32.82					
SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. (MJ/KG)	CUM. C.V.	S	CUM. S	VOL.	CUM. VOL.	MOIST	CUM. MOIST
240.00	*****	32.82		100.00	32.82				22.26	22.26	0.42	0.42	6.75	6.75	0.45	0.45

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86031
 Coal zone: PH
 Field sample no.: 10159 Composite sample no.: 250
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.53
 Contribution (%): 7.70
 Total yield (%): 7.70

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.91	
Ash (%):	9.78	9.87
Volatile matter (%):	6.26	6.32
Fixed carbon (%):	83.05	83.81
Total sulphur (%):	0.47	0.47
Combustible sulphur (%):	0.44	
Gross calorific value (cal/g):	7,421.00	7,489.00
Volatile matter (dmmf %):	6.00	
Hardgrove index:	44.00	
Phosphorous in coal (%):	0.225	

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,264.00	1,214.00
Softening temperature (°C):	1,302.00	1,286.00
Hemispherical temperature (°C):	1,321.00	1,300.00
Final temperature (°C):	1,438.00	1,423.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	46.46	TiO2 (%):	1.90
Al2O3 (%):	28.35	Na2O (%):	2.08
Fe2O3 (%):	2.77	K2O (%):	1.53
CaO (%):	6.72	SO3 (%):	0.80
MgO (%):	1.81	P2O5 (%):	5.28

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86031
 Coal zone: PH
 Field sample no.: 10159 Composite sample no.: 350
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.53
 Contribution (%): 11.28
 Total yield (%): 11.28

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.96	
Ash (%):	6.75	6.82
Volatile matter (%):	6.35	6.41
Fixed carbon (%):	85.94	86.77
Total sulphur (%):	0.55	0.56
Combustible sulphur (%):	0.54	
Gross calorific value (cal/g):	7,672.00	7,746.00
Volatile matter (dmmf %):	6.20	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.101	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,286.00	1,252.00
Softening temperature (°C):	1,303.00	1,276.00
Hemispherical temperature (°C):	1,348.00	1,322.00
Final temperature (°C):	1,456.00	1,445.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	51.76	TiO2 (%):	1.95
Al2O3 (%):	28.73	Na2O (%):	1.74
Fe2O3 (%):	2.82	K2O (%):	1.70
CaO (%):	4.73	SO3 (%):	0.44
MgO (%):	1.96	P2O5 (%):	3.44

GULF CANADA CORPORATION - COAL DIVISION

MAR 30/87

WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86031 SEAM - K/L

SAMPLE ID - 83

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	35.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS	RELATIVE WEIGHT % - 57.47				ASH % - 38.10		CUM.			
	SG-TME	WT%	ASH%	WT%	ASH%	WT%		ASH%	FSI	FSI	C.V.	C.V.	S	S	VOL.	VOL.	MOIST
1.40	0.17	13.37	0.17	13.37	99.83	37.31										0.57	0.57
1.45	1.64	6.19	1.81	6.86	98.19	37.83										0.55	0.55
1.50	4.36	11.23	6.17	9.95	93.83	39.07										0.54	0.54
1.55	10.32	14.99	16.49	13.10	83.51	42.04										0.85	0.74
1.60	9.70	19.25	26.19	15.38	73.81	45.04										0.85	0.78
1.70	22.45	26.39	48.64	20.46	51.36	53.19										1.00	0.88
1.80	12.25	35.78	60.89	23.54	39.11	58.65										0.84	0.87
2.00	14.44	44.22	75.33	27.51	24.67	67.09										0.63	0.83
2.60	24.67	67.09	100.00	37.27												0.56	0.76

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)	6.00 X 0.50		ELEMENTAL		CUM. FLOATS		CUM. SINKS	RELATIVE WEIGHT % - 29.87				ASH % - 28.21		CUM.			
	SG-TME	WT%	ASH%	WT%	ASH%	WT%		ASH%	FSI	FSI	C.V.	C.V.	S	S	VOL.	VOL.	MOIST
1.40	1.91	1.81	1.91	1.81	98.09	27.87										0.55	0.55
1.45	9.96	4.09	11.87	3.72	88.13	30.56										0.32	0.36
1.50	9.44	8.61	21.31	5.89	78.69	33.19										0.50	0.42
1.55	10.89	12.63	32.20	8.17	67.80	36.49										0.51	0.45
1.60	8.95	15.80	41.15	9.83	58.85	39.64										0.68	0.50
1.70	17.39	19.08	58.54	12.58	41.46	48.26										1.55	0.81
1.80	12.05	25.01	70.59	14.70	29.41	57.78										1.82	0.98
2.00	10.92	36.88	81.51	17.67	18.49	70.13										1.63	1.07
2.60	18.49	70.13	100.00	27.37												1.91	1.23

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPnlRODH86031 SEAM - K/L

SAMPLE ID - B3

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -				7.71 ASH % -		19.73	
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	3.23	3.11	3.23	3.11	96.77	18.56							0.69
1.45	19.16	3.73	22.39	3.64	77.61	22.22							0.66
1.50	14.04	4.35	36.43	3.91	63.57	26.16							0.90
1.55	12.71	2.89	49.14	3.65	50.86	31.98							1.80
1.60	6.34	9.90	55.48	4.36	44.52	35.12							1.80
1.70	13.98	14.00	68.86	6.24	31.14	44.20							1.68
1.80	10.28	20.45	79.14	8.08	20.86	55.90							1.73
2.00	7.95	32.35	87.09	10.30	12.91	70.40							1.50
2.60	12.91	70.40	100.00	18.06									1.18

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -				4.95 ASH % -		21.75	
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
240.00	*****	21.75	100.00	21.75			16.51	16.51	0.31	0.31	6.58	6.58	0.62

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86031 SEAM - K/L

SAMPLE ID - 84

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 68.10 ASH % - 64.93										
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.03	4.74	0.03	4.74	99.97	65.82							0.75	0.75
1.45	0.76	6.42	0.79	6.36	99.21	66.28							0.64	0.64
1.50	1.79	9.43	2.58	8.49	97.42	67.32							0.53	0.56
1.55	1.81	12.39	4.39	10.10	95.61	68.36							0.58	0.57
1.60	1.62	20.28	6.01	12.84	93.99	69.19							0.67	0.60
1.70	3.63	24.60	9.64	17.27	90.36	70.98							0.65	0.62
1.80	8.09	35.10	17.73	25.41	82.27	74.51							0.80	0.70
2.00	9.67	47.65	27.40	33.26	72.60	78.09							1.10	0.84
2.60	72.60	78.09	100.00	65.81									0.94	0.91

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 25.13 ASH % - 54.32										
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	1.77	4.28	1.77	4.28	98.23	54.40							0.64	0.64
1.45	5.58	3.98	7.35	4.05	92.65	57.44							0.59	0.60
1.50	4.76	8.71	12.11	5.88	87.89	60.07							0.67	0.63
1.55	3.14	13.07	15.25	7.36	84.75	61.82							0.85	0.67
1.60	1.76	17.50	17.01	8.41	82.99	62.76							0.87	0.69
1.70	6.29	22.07	23.30	12.10	76.70	66.09							1.37	0.88
1.80	7.26	27.82	30.56	15.83	69.44	70.09							1.68	1.07
2.00	12.81	39.08	43.37	22.70	56.63	77.11							1.29	1.13
2.60	56.63	77.11	100.00	53.51									1.94	1.59

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86031 SEAM - K/L

SAMPLE ID - 84

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % -				4.25		ASH % - 44.56			
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	2.69	4.27	2.69	4.27	97.31	46.47							0.62
1.45	10.06	2.32	12.75	2.73	87.25	51.56							0.69
1.50	10.12	4.72	22.87	3.61	77.13	57.71							0.98
1.55	5.22	8.11	28.09	4.45	71.91	61.31							1.33
1.60	1.69	12.11	29.78	4.88	70.22	62.50							1.43
1.70	5.12	16.57	34.90	6.60	65.10	66.11							1.93
1.80	6.90	22.72	41.80	9.26	59.20	71.25							1.95
2.00	10.20	35.35	52.00	14.38	48.00	78.88							1.56
2.60	48.00	78.88	100.00	45.34									1.35

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % -				2.52		ASH % - 43.21			
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
240.00	*****	43.21	100.00	43.21			18.23	18.23	0.46	0.46	7.39	7.39	0.64

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----

April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86031
 Coal zone: K/L
 Field sample no.: 10162 - 10165 Composite sample no.: 251
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.54
 Contribution (%): 4.06
 Total yield (%): 4.06

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.88	
Ash (%):	9.80	9.89
Volatile matter (%):	7.11	7.17
Fixed carbon (%):	82.21	82.94
Total sulphur (%):	0.52	0.52
Combustible sulphur (%):	0.49	
Gross calorific value (cal/g):	7,414.00	7,480.00
Volatile matter (dmmf %):	7.00	
Hardgrove index:	47.00	
Phosphorous in coal (%):	0.143	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,262.00	1,203.00
Softening temperature (°C):	1,278.00	1,230.00
Hemispherical temperature (°C):	1,297.00	1,270.00
Final temperature (°C):	1,397.00	1,389.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	50.88	TiO2 (%):	1.91
Al2O3 (%):	25.51	Na2O (%):	1.67
Fe2O3 (%):	4.34	K2O (%):	1.46
CaO (%):	5.18	SO3 (%):	0.89
MgO (%):	2.28	P2O5 (%):	3.35

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPCLRDDH86031
 Coal zone: K/L
 Field sample no.: 10162 - 10165 Composite sample no.: 351
 Lab sample no.: 29661

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size(mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.54
 Contribution(%): 5.90
 Total yield(%): 5.90

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture(%):	1.13	
Ash(%):	6.87	6.95
Volatile matter(%):	7.03	7.11
Fixed carbon(%):	84.97	85.94
Total sulphur(%):	0.54	0.55
Combustible sulphur(%):	0.51	
Gross calorific value(cal/g):	7,650.00	7,738.00
Volatile matter(dmmf%):	6.90	
Hardgrove index:	43.00	
Phosphorous in coal(%):	0.058	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C):	1,273.00	1,187.00
Softening temperature(°C):	1,311.00	1,268.00
Hemispherical temperature(°C):	1,332.00	1,305.00
Final temperature(°C):	1,429.00	1,426.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2(%):	54.88	TiO2(%):	2.25
Al2O3(%):	25.71	Na2O(%):	1.62
Fe2O3(%):	4.76	K2O(%):	1.35
CaO(%):	3.86	SO3(%):	1.08
MgO(%):	2.50	P2O5(%):	1.95

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86032 SEAM - 1

SAMPLE ID - 85

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 74.31 ASH % - 14.81							
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. FSI (MJ/KG)	CUM. C.V.	S	S	CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST
1.40	11.76	3.86	11.76	3.86	88.24	15.71										0.39	0.39
1.45	50.85	7.24	62.61	6.61	37.39	27.23										0.54	0.51
1.50	13.06	12.79	75.67	7.67	24.33	34.98										0.66	0.54
1.55	9.56	18.66	85.23	8.91	14.77	45.55										0.61	0.55
1.60	1.27	20.38	86.50	9.07	13.50	47.92										0.68	0.55
1.70	2.90	26.98	89.40	9.65	10.60	53.65										0.65	0.55
1.80	0.35	27.30	89.75	9.72	10.25	54.54										0.69	0.55
2.00	1.87	42.11	91.62	10.38	8.38	57.32										0.56	0.55
2.60	8.38	57.32	100.00	14.32												0.52	0.55

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

FRACTION SIZE(MM)		6.00 X 0.50		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 21.36 ASH % - 13.45							
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM. FSI	C.V. FSI (MJ/KG)	CUM. C.V.	S	S	CUM. VOL.	CUM. VOL.	CUM. MOIST	CUM. MOIST
1.40	31.00	2.54	31.00	2.54	69.00	18.20										0.31	0.31
1.45	32.56	6.63	63.56	4.64	36.44	28.53										0.42	0.37
1.50	11.45	12.17	75.01	5.79	24.99	36.03										0.33	0.36
1.55	6.36	16.26	81.37	6.60	18.63	42.78										0.62	0.38
1.60	2.97	20.47	84.34	7.09	15.66	47.01										0.68	0.39
1.70	3.60	25.23	87.94	7.83	12.06	53.52										1.04	0.42
1.80	2.75	31.18	90.69	8.54	9.31	60.12										1.18	0.44
2.00	2.81	41.44	93.50	9.53	6.50	68.19										1.23	0.46
2.60	6.50	68.19	100.00	13.34												1.22	0.51

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPnlRDDH86032 SEAM - I

SAMPLE ID - 85

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -				2.91 ASH % - 19.59					
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM.		CUM.		CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	22.64	1.65	22.64	1.65	77.36	23.26								0.45	0.45
1.45	24.50	4.25	47.14	3.00	52.86	32.07								0.66	0.56
1.50	13.37	8.50	60.51	4.22	39.49	40.06								0.71	0.59
1.55	4.82	12.88	65.33	4.86	34.67	43.83								0.94	0.62
1.60	4.52	15.80	69.85	5.56	30.15	48.04								1.15	0.65
1.70	6.14	19.82	75.99	6.72	24.01	55.25								1.31	0.71
1.80	3.73	26.76	79.72	7.65	20.28	60.49								1.62	0.75
2.00	5.90	35.83	85.62	9.60	14.38	70.61								1.97	0.83
2.60	14.38	70.61	100.00	18.37										1.52	0.93

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -				1.42 ASH % - 23.78					
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM.		CUM.		CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	23.78	100.00	23.78			25.92	25.92	0.39	0.39	0.39	7.54	7.54	0.79	0.79

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLR0DH86032
 Coal zone: I
 Field sample no.: 10120 - 10121 Composite sample no.: 252
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP2) -----
 Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.44
 Contribution (%): 40.07
 Total yield (%): 40.07

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.62	
Ash (%):	5.21	5.24
Volatile matter (%):	5.72	5.76
Fixed carbon (%):	88.45	89.00
Total sulphur (%):	0.48	0.48
Combustible sulphur (%):	0.47	
Gross calorific value (cal/g):	7,999.00	8,049.00
Volatile matter (dmmf%):	5.50	
Hardgrove index:	36.00	
Phosphorous in coal (%):	0.176	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,262.00	1,176.00
Softening temperature (°C):	1,294.00	1,257.00
Hemispherical temperature (°C):	1,305.00	1,268.00
Final temperature (°C):	1,466.00	1,463.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	43.73	TiO2 (%):	2.27
Al2O3 (%):	29.87	Na2O (%):	2.21
Fe2O3 (%):	2.72	K2O (%):	1.04
CaO (%):	6.36	SO3 (%):	0.45
MgO (%):	1.29	P2O5 (%):	7.72

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86032
 Coal zone: 1
 Field sample no.: 10120 - 10121 Composite sample no.: 252
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP5) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.50
 Contribution (%): 16.16
 Total yield (%): 16.16

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.74	
Ash (%):	12.24	12.33
Volatile matter (%):	6.25	6.30
Fixed carbon (%):	80.77	81.37
Total sulphur (%):	0.43	0.43
Combustible sulphur (%):	0.41	
Gross calorific value (cal/g):	7,344.00	7,400.00
Volatile matter (dmmf %):	6.00	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.191	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,268.00	1,195.00
Softening temperature (°C):	1,321.00	1,278.00
Hemispherical temperature (°C):	1,364.00	1,337.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	51.90	TiO2 (%):	1.76
Al2O3 (%):	26.84	Na2O (%):	2.13
Fe2O3 (%):	3.78	K2O (%):	1.19
CaO (%):	4.25	SO3 (%):	0.40
MgO (%):	2.04	P2O5 (%):	3.58

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86032
 Coal zone: 1
 Field sample no.: 10120 - 10121 Composite sample no.: 352
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.65
 Contribution (%): 18.55
 Total yield (%): 18.55

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.64	
Ash (%):	7.18	7.23
Volatile matter (%):	5.93	5.97
Fixed carbon (%):	86.25	86.80
Total sulphur (%):	0.48	0.48
Combustible sulphur (%):	0.47	
Gross calorific value (cal/g):	7,770.00	7,820.00
Volatile matter (dmmf %):	5.70	
Hardgrove index:	39.00	
Phosphorous in coal (%):	0.129	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,273.00	1,233.00
Softening temperature (°C):	1,327.00	1,317.00
Hemispherical temperature (°C):	1,396.00	1,394.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	50.64	TiO2 (%):	2.29
Al2O3 (%):	28.47	Na2O (%):	2.10
Fe2O3 (%):	2.83	K2O (%):	1.15
CaO (%):	3.98	SO3 (%):	0.51
MgO (%):	1.62	P2O5 (%):	4.11

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86032 SEAM - H

SAMPLE ID - 86

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT										RELATIVE WEIGHT % - 58.25 ASH % - 51.94					
FRACTION SIZE(MM)		35.00 X 6.00		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. S		CUM. VOL.		CUM. MOIST	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	1.42	3.57	1.42	3.57	98.58	52.03								0.46	0.46
1.45	9.89	9.05	11.31	8.36	88.69	56.82								0.44	0.44
1.50	3.18	12.32	14.49	9.23	85.51	58.47								0.53	0.46
1.55	4.69	17.38	19.18	11.22	80.82	60.86								0.55	0.48
1.60	2.39	20.66	21.57	12.27	78.43	62.08								0.64	0.50
1.70	8.02	28.07	29.59	16.55	70.41	65.96								0.77	0.57
1.80	6.25	35.06	35.84	19.78	64.16	68.97								0.93	0.64
2.00	10.21	42.49	46.05	24.81	53.95	73.98								0.78	0.67
2.60	53.95	73.98	100.00	51.34										0.70	0.69

ANALYSIS TYPE - FLOAT										RELATIVE WEIGHT % - 30.12 ASH % - 31.00					
FRACTION SIZE(MM)		6.00 X 0.50		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. S		CUM. VOL.		CUM. MOIST	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	11.86	2.58	11.86	2.58	88.14	34.33								0.37	0.37
1.45	15.15	6.85	27.01	4.98	72.99	40.03								0.40	0.39
1.50	7.49	10.94	34.50	6.27	65.50	43.36								0.43	0.40
1.55	8.56	14.16	43.06	7.84	56.94	47.75								0.57	0.43
1.60	5.15	16.91	48.21	8.81	51.79	50.81								0.75	0.46
1.70	12.09	20.68	60.30	11.19	39.70	59.99								1.74	0.72
1.80	7.21	28.38	67.51	13.02	32.49	67.00								1.71	0.83
2.00	6.09	39.28	73.60	15.20	26.40	73.40								1.79	0.91
2.60	26.40	73.40	100.00	30.56										1.55	1.08

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86032 SEAM - H

SAMPLE ID - 86

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % - 6.96				ASH % - 22.71							
ELEMENTAL		CUM. FLDATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.				
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	22.48	2.61	22.48	2.61	77.52	26.78								0.95	0.95
1.45	22.92	4.89	45.40	3.76	54.60	35.97								0.92	0.93
1.50	9.34	7.16	54.74	4.34	45.26	41.92								0.88	0.93
1.55	8.12	10.92	62.86	5.19	37.14	48.70								1.16	0.96
1.60	4.24	14.05	67.10	5.75	32.90	53.16								1.12	0.97
1.70	1.45	14.15	68.55	5.93	31.45	54.96								1.50	0.98
1.80	7.82	20.80	76.37	7.45	23.63	66.27								1.68	1.05
2.00	5.10	35.31	81.47	9.20	18.53	74.79								1.58	1.08
2.60	18.53	74.79	100.00	21.35										0.75	1.02

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % - 4.67				ASH % - 26.80							
ELEMENTAL		CUM. FLDATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.				
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	26.80	100.00	26.80			24.93	24.93	0.56	0.56	6.91	6.91	0.50	0.50	

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDOH86032
 Coal zone: H
 Field sample no.: 10124 - 10125 Composite sample no.: 253
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.59
 Contribution(%): 11.78
 Total yield(%): 11.78

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.90	
Ash (%) :	11.21	11.31
Volatile matter (%) :	6.39	6.45
Fixed carbon (%) :	81.50	82.24
Total sulphur (%) :	0.53	0.53
Combustible sulphur (%) :	0.49	
Gross calorific value (cal/g) :	7,356.00	7,423.00
Volatile matter (dmmf%) :	6.10	
Hardgrove index:	41.00	
Phosphorous in coal (%) :	0.210	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C) :	1,276.00	1,238.00
Softening temperature(°C) :	1,294.00	1,257.00
Hemispherical temperature(°C) :	1,305.00	1,268.00
Final temperature(°C) :	1,367.00	1,332.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	50.94	TiO2 (%) :	1.83
Al2O3 (%) :	24.95	Na2O (%) :	2.70
Fe2O3 (%) :	3.48	K2O (%) :	0.82
CaO (%) :	6.02	SO3 (%) :	0.81
MgO (%) :	1.70	P2O5 (%) :	4.29

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86032
 Coal zone: H
 Field sample no.: 10124 - 10125 Composite sample no.: 353
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.54
 Contribution (%): 12.22
 Total yield (%): 12.22

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.79	
Ash (%):	6.87	6.92
Volatile matter (%):	7.25	7.31
Fixed carbon (%):	85.09	85.77
Total sulphur (%):	0.60	0.60
Combustible sulphur (%):	0.58	
Gross calorific value (cal/g):	7,662.00	7,724.00
Volatile matter (dmmf %):	7.10	
Hardgrove index:	40.00	
Phosphorous in coal (%):	0.090	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,270.00	1,230.00
Softening temperature (°C):	1,292.00	1,262.00
Hemispherical temperature (°C):	1,327.00	1,294.00
Final temperature (°C):	1,456.00	1,451.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	53.96	TiO2 (%):	2.52
Al2O3 (%):	25.33	Na2O (%):	2.51
Fe2O3 (%):	3.14	K2O (%):	0.82
CaO (%):	4.62	SO3 (%):	0.56
MgO (%):	1.37	P2O5 (%):	2.99

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86033 SEAM - L

SAMPLE ID - 87

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SG-TME	SIZE(MM)		0.50 X 0.15		CUM. WT%	SINKS ASH%	RELATIVE WEIGHT % -				5.11 ASH % - 19.58		CUM. MOIST	
	WT%	ASH%	CUM. WT%	ASH%			CUM. FSI	C.V. FSI (MJ/KG)	CUM. C.V.	S	S	VOL.		VOL.
1.40	26.41	1.94	26.41	1.94	73.59	23.81							0.78	0.78
1.45	13.31	4.47	39.72	2.79	60.28	28.09							0.93	0.83
1.50	15.13	6.47	54.85	3.80	45.15	35.33							0.80	0.82
1.55	7.03	10.92	61.88	4.61	38.12	39.83							1.18	0.86
1.60	5.16	12.32	67.04	5.21	32.96	44.14							1.28	0.89
1.70	9.18	15.06	76.22	6.39	23.78	55.36							1.35	0.95
1.80	6.69	23.13	82.91	7.74	17.09	67.98							1.51	0.99
2.00	3.85	38.82	86.76	9.12	13.24	76.46							1.30	1.01
2.60	13.24	76.46	100.00	18.04									0.81	0.98

ANALYSIS TYPE - FROTH

FRACTION SG-TME	SIZE(MM)		0.15 X 0.00		CUM. WT%	SINKS ASH%	RELATIVE WEIGHT % -				3.58 ASH % - 21.63		CUM. MOIST	
	WT%	ASH%	CUM. WT%	ASH%			CUM. FSI	C.V. FSI (MJ/KG)	CUM. C.V.	S	S	VOL.		VOL.
240.00	*****	21.63	100.00	21.63			26.94	26.94					7.25	7.25

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86033
 Coal zone: L
 Field sample no.: 10223 Composite sample no.: 254
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.55
 Contribution (%): 19.71
 Total yield (%): 19.71

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.69	
Ash (%) :	10.79	10.86
Volatile matter (%) :	6.56	6.61
Fixed carbon (%) :	81.96	82.53
Total sulphur (%) :	0.58	0.58
Combustible sulphur (%) :	0.56	
Gross calorific value (cal/g) :	7,426.00	7,477.00
Volatile matter (dmmf%) :	6.30	
Hardgrove index :	42.00	
Phosphorous in coal (%) :	0.239	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C) :	1,246.00	1,224.00
Softening temperature (°C) :	1,268.00	1,246.00
Hemispherical temperature (°C) :	1,286.00	1,268.00
Final temperature (°C) :	1,375.00	1,364.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	53.70	TiO2 (%) :	2.20
Al2O3 (%) :	21.93	Na2O (%) :	2.35
Fe2O3 (%) :	3.14	K2O (%) :	0.84
CaO (%) :	6.94	SO3 (%) :	0.41
MgO (%) :	1.24	P2O5 (%) :	5.07

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86033
 Coal zone: L
 Field sample no.: 10223 Composite sample no.: 354
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.50
 Contribution (%): 11.61
 Total yield (%): 11.61

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.76	
Ash (%):	7.19	7.25
Volatile matter (%):	6.68	6.73
Fixed carbon (%):	85.37	86.02
Total sulphur (%):	0.61	0.61
Combustible sulphur (%):	0.60	
Gross calorific value (cal/g):	7,734.00	7,794.00
Volatile matter (dmmf%):	6.50	
Hardgrove index:	40.00	
Phosphorous in coal (%):	0.100	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,273.00	1,195.00
Softening temperature (°C):	1,286.00	1,262.00
Hemispherical temperature (°C):	1,313.00	1,300.00
Final temperature (°C):	1,450.00	1,444.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	54.54	TiO2 (%):	3.89
Al2O3 (%):	24.57	Na2O (%):	2.26
Fe2O3 (%):	2.78	K2O (%):	0.98
CaO (%):	4.56	SO3 (%):	0.35
MgO (%):	1.33	P2O5 (%):	3.17

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86033 SEAM - K/L

SAMPLE ID - 88

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT																
FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % - 6.16 ASH % - 29.09										
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM.		CUM.		CUM.				
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI	(MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	24.52	2.19	24.52	2.19	75.48	38.63									0.62	0.62
1.45	16.99	3.35	41.51	2.66	58.49	48.88									0.67	0.64
1.50	3.63	8.15	45.14	3.11	54.86	51.57									0.68	0.64
1.55	4.73	10.97	49.87	3.85	50.13	55.40									0.93	0.67
1.60	2.53	13.83	52.40	4.33	47.60	57.61									1.09	0.69
1.70	7.29	18.05	59.69	6.01	40.31	64.77									1.34	0.77
1.80	4.97	24.48	64.66	7.43	35.34	70.44									1.34	0.81
2.00	5.99	38.47	70.65	10.06	29.35	76.96									1.21	0.85
2.60	29.35	76.96	100.00	29.70											0.67	0.80

ANALYSIS TYPE - FRQTH																
FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % - 3.90 ASH % - 28.24										
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM.		CUM.		CUM.				
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI	(MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	28.24	100.00	28.24			24.30	24.30	0.54	0.54	7.45	7.45	0.37	0.37		

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86033
 Coal zone: K/L
 Field sample no.: 10226 Composite sample no.: 355
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP3) -----
 Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.56
 Contribution (%): 5.49
 Total yield (%): 5.49

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.69	
Ash (%):	7.29	7.34
Volatile matter (%):	6.84	6.89
Fixed carbon (%):	85.18	85.77
Total sulphur (%):	0.63	0.63
Combustible sulphur (%):	0.62	
Gross calorific value (cal/g):	7,655.00	7,708.00
Volatile matter (dmmf %):	6.60	
Hardgrove index:	44.00	
Phosphorous in coal (%):	0.045	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,230.00	1,171.00
Softening temperature (°C):	1,337.00	1,294.00
Hemispherical temperature (°C):	1,364.00	1,321.00
Final temperature (°C):	1,461.00	1,456.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	60.04	TiO2 (%):	4.89
Al2O3 (%):	21.55	Na2O (%):	1.81
Fe2O3 (%):	3.57	K2O (%):	1.15
CaO (%):	2.66	SO3 (%):	0.42
MgO (%):	1.38	P2O5 (%):	1.41

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86033 SEAM - K

SAMPLE ID - 89

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT															
FRACTION SIZE(MM)		35.00 X		6.00		RELATIVE WEIGHT % - 71.01 ASH % - 41.68									
ELEMENTAL		CUM. FLOATS		CUM.		SINKS		CUM. C.V.		CUM.		CUM.		CUM.	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	5.59	2.43	5.59	2.43	94.41	43.97								0.44	0.44
1.45	13.73	8.35	19.32	6.64	80.68	50.03								0.50	0.48
1.50	12.86	13.34	32.18	9.32	67.82	56.98								0.54	0.51
1.55	8.63	20.20	40.81	11.62	59.19	62.35								0.54	0.51
1.60	5.27	22.49	46.08	12.86	53.92	66.24								0.60	0.52
1.70	5.33	24.52	51.41	14.07	48.59	70.82								0.89	0.56
1.80	4.52	28.27	55.93	15.22	44.07	75.18								1.06	0.60
2.00	7.36	43.32	63.29	18.49	36.71	81.57								0.99	0.65
2.60	36.71	81.57	100.00	41.64										0.75	0.68

ANALYSIS TYPE - FLOAT															
FRACTION SIZE(MM)		6.00 X		0.50		RELATIVE WEIGHT % - 23.11 ASH % - 23.83									
ELEMENTAL		CUM. FLOATS		CUM.		SINKS		CUM. C.V.		CUM.		CUM.		CUM.	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	21.97	2.30	21.97	2.30	78.03	30.67								0.37	0.37
1.45	21.85	7.51	43.82	4.90	56.18	39.68								0.30	0.34
1.50	12.24	12.35	56.06	6.52	43.94	47.29								0.40	0.35
1.55	6.10	17.40	62.16	7.59	37.84	52.11								0.36	0.35
1.60	4.39	19.95	66.55	8.41	33.45	56.33								0.39	0.35
1.70	7.64	24.07	74.19	10.02	25.81	65.88								0.61	0.38
1.80	4.35	30.74	78.54	11.17	21.46	73.01								0.86	0.41
2.00	4.55	43.90	83.09	12.96	16.91	80.84								1.53	0.47
2.60	16.91	80.84	100.00	24.44										0.96	0.55

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86033 SEAM - K

SAMPLE ID - 89

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % - 3.57				ASH % - 20.15							
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM.		CUM.					
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	35.24	1.93	35.24	1.93	64.76	28.90								0.69	0.69
1.45	17.54	4.61	52.78	2.82	47.22	37.92								0.70	0.69
1.50	8.89	7.24	61.67	3.46	38.33	45.04								0.69	0.69
1.55	5.24	9.90	66.91	3.96	33.09	50.60								0.93	0.71
1.60	2.91	12.71	69.82	4.33	30.18	54.25								1.03	0.72
1.70	6.06	17.59	75.88	5.39	24.12	63.46								1.01	0.75
1.80	5.03	25.69	80.91	6.65	19.09	73.42								1.19	0.77
2.00	3.50	40.76	84.41	8.06	15.59	80.75								1.10	0.79
2.60	15.59	80.75	100.00	19.39										0.71	0.78

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % - 2.31				ASH % - 24.74							
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM.		CUM.					
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	24.74	100.00	24.74			25.56	25.56	0.43	0.43	7.61	7.61	0.58	0.58	

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86033
 Coal zone: K
 Field sample no.: 10229 - 10230 Composite sample no.: 256
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP2) -----
 Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.44
 Contribution (%): 11.53
 Total yield (%): 11.53

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.74	
Ash (%):	5.41	5.45
Volatile matter (%):	7.41	7.47
Fixed carbon (%):	86.44	87.08
Total sulphur (%):	0.58	0.58
Combustible sulphur (%):	0.58	
Gross calorific value (cal/g):	7,832.00	7,891.00
Volatile matter (dmmf %):	7.30	
Hardgrove index:	38.00	
Phosphorous in coal (%):	0.075	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,294.00	1,184.00
Softening temperature (°C):	1,316.00	1,278.00
Hemispherical temperature (°C):	1,343.00	1,311.00
Final temperature (°C):	1,458.00	1,454.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	52.37	TiO2 (%):	2.78
Al2O3 (%):	26.21	Na2O (%):	2.21
Fe2O3 (%):	3.67	K2O (%):	1.16
CaO (%):	4.37	SO3 (%):	0.21
MgO (%):	1.33	P2O5 (%):	3.19

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86033
 Coal zone: K
 Field sample no.: 10229 - 10230 Composite sample no.: 256
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP5) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.49
 Contribution (%): 9.08
 Total yield (%): 9.08

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.12	
Ash (%):	11.25	11.38
Volatile matter (%):	8.02	8.11
Fixed carbon (%):	79.61	80.51
Total sulphur (%):	0.52	0.53
Combustible sulphur (%):	0.52	
Gross calorific value (cal/g):	7,297.00	7,379.00
Volatile matter (dmmf %):	8.00	
Hardgrove index:	39.00	
Phosphorous in coal (%):	0.209	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,300.00	1,192.00
Softening temperature (°C):	1,321.00	1,281.00
Hemispherical temperature (°C):	1,332.00	1,311.00
Final temperature (°C):	1,450.00	1,446.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	51.53	TiO2 (%):	1.93
Al2O3 (%):	27.22	Na2O (%):	2.37
Fe2O3 (%):	2.83	K2O (%):	1.25
CaO (%):	5.32	SO3 (%):	0.10
MgO (%):	1.17	P2O5 (%):	4.25

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86033
 Coal zone: K
 Field sample no.: 10229 - 10230 Composite sample no.: 356
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.54
 Contribution (%): 14.21
 Total yield (%): 14.21

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.67	
Ash (%):	7.16	7.21
Volatile matter (%):	6.59	6.63
Fixed carbon (%):	85.58	86.16
Total sulphur (%):	0.57	0.57
Combustible sulphur (%):	0.56	
Gross calorific value (cal/g):	7,748.00	7,800.00
Volatile matter (dmmf %):	6.40	
Hardgrove index:	39.00	
Phosphorous in coal (%):	0.074	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,225.00	1,203.00
Softening temperature (°C):	1,305.00	1,268.00
Hemispherical temperature (°C):	1,354.00	1,316.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	51.64	TiO2 (%):	2.41
Al2O3 (%):	27.84	Na2O (%):	2.26
Fe2O3 (%):	4.47	K2O (%):	1.30
CaO (%):	3.47	SO3 (%):	0.29
MgO (%):	1.68	P2O5 (%):	2.36

GULF CANADA CORPORATION - COAL DIVISION

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DATA SOURCE - KPNLRDDHB6034 SEAM - K

SAMPLE ID - 90

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 67.86				ASH % - 26.76						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	3.37	3.71	3.71	96.63	26.12								0.73	0.73
1.45	25.36	10.11	28.73	9.36	71.27	31.81							0.44	0.47
1.50	23.81	14.93	52.54	11.88	47.46	40.28							0.42	0.45
1.55	12.20	20.95	64.74	13.59	35.26	46.97							0.26	0.41
1.60	4.42	22.86	69.16	14.18	30.84	50.42							0.36	0.41
1.70	6.14	28.83	75.30	15.38	24.70	55.79							0.39	0.41
1.80	4.49	33.10	79.79	16.38	20.21	60.83							0.37	0.41
2.00	5.43	44.75	85.22	18.18	14.78	66.74							0.45	0.41
2.60	14.78	66.74	100.00	25.36									0.38	0.40

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 29.32				ASH % - 17.44						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	29.59	2.30	29.59	2.30	70.41	22.63							0.34	0.34
1.45	22.29	8.60	51.88	5.01	48.12	29.13							0.31	0.33
1.50	6.44	12.61	58.32	5.85	41.68	31.68							0.29	0.32
1.55	9.85	14.96	68.17	7.16	31.83	36.86							0.33	0.32
1.60	6.00	17.57	74.17	8.01	25.83	41.34							0.42	0.33
1.70	9.42	21.32	83.59	9.51	16.41	52.83							0.58	0.36
1.80	4.44	28.27	88.03	10.45	11.97	61.94							0.54	0.37
2.00	3.45	39.88	91.48	11.56	8.52	70.88							1.94	0.43
2.60	8.52	70.88	100.00	16.62									1.41	0.51

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDHB6034 SEAM - K

SAMPLE ID - 90

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % - 5.24				ASH % - 13.21							
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. S		CUM. VOL.		CUM. MOIST			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	40.10	1.77	40.10	1.77	59.90	19.33								0.78	0.78
1.45	27.39	5.26	67.49	3.19	32.51	31.19								0.69	0.74
1.50	7.86	10.36	75.35	3.93	24.65	37.83								0.70	0.74
1.55	5.00	14.00	80.35	4.56	19.65	43.90								1.00	0.76
1.60	2.71	16.76	83.06	4.96	16.94	48.24								1.22	0.77
1.70	5.08	20.51	88.14	5.86	11.86	60.12								1.41	0.81
1.80	2.65	28.13	90.79	6.51	9.21	69.32								1.58	0.83
2.00	1.81	40.18	92.60	7.16	7.40	76.45								1.49	0.84
2.60	7.40	76.45	100.00	12.29										0.89	0.85

ANALYSIS TYPE -- FROTH

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % - 3.58				ASH % - 17.66							
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. S		CUM. VOL.		CUM. MOIST			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	17.66	100.00	17.66										0.33	0.33

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 74.54				ASH % - 67.89						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	0.72	3.40	0.72	3.40	99.28	67.35							0.41	0.41
1.45	1.03	6.88	1.75	5.45	98.25	67.99							0.51	0.47
1.50	2.00	15.45	3.75	10.78	96.25	69.08							0.58	0.53
1.55	3.38	19.55	7.13	14.94	92.87	70.88							0.63	0.58
1.60	4.70	24.35	11.83	18.68	88.17	73.36							0.68	0.62
1.70	7.51	34.64	19.34	24.88	80.66	76.97							0.63	0.62
1.80	5.47	40.20	24.81	28.25	75.19	79.64							0.94	0.69
2.00	13.53	47.99	38.34	35.22	61.66	86.59							0.86	0.75
2.60	61.66	86.59	100.00	66.89									1.06	0.94

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 20.09				ASH % - 41.74						
SG-TME	ELEMENTAL	CUM. FLOATS		CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	14.81	2.19	14.81	2.19	85.19	48.69							0.27	0.27
1.45	9.35	7.22	24.16	4.14	75.84	53.81							0.34	0.30
1.50	7.72	13.77	31.88	6.47	68.12	58.34							0.43	0.33
1.55	5.88	18.44	37.76	8.33	62.24	62.11							0.35	0.33
1.60	3.85	22.07	41.61	9.60	58.39	64.75							0.46	0.34
1.70	7.71	28.45	49.32	12.55	50.68	70.28							0.59	0.38
1.80	6.73	36.09	56.05	15.38	43.95	75.51							1.09	0.47
2.00	8.50	46.03	64.55	19.41	35.45	82.58							1.91	0.66
2.60	35.45	82.58	100.00	41.81									1.47	0.95

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

FRACTION SIZE(MM)		0.50 X 0.15		RELATIVE WEIGHT % - 3.29				ASH % - 29.34							
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V. CUM.		CUM. CUM.		CUM.					
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	29.66	1.58	29.66	1.58	70.34	40.20								0.74	0.74
1.45	15.12	4.03	44.78	2.41	55.22	50.10								0.83	0.77
1.50	8.10	5.94	52.88	2.95	47.12	57.69								0.84	0.78
1.55	3.84	14.38	56.72	3.72	43.28	61.53								0.89	0.79
1.60	2.03	18.08	58.75	4.22	41.25	63.67								1.09	0.80
1.70	4.73	23.89	63.48	5.68	36.52	68.82								1.23	0.83
1.80	4.42	30.76	67.90	7.32	32.10	74.06								1.36	0.87
2.00	4.99	43.60	72.89	9.80	27.11	79.67								1.66	0.92
2.60	27.11	79.67	100.00	28.74										1.01	0.94

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X 0.00		RELATIVE WEIGHT % - 2.08				ASH % - 40.96							
ELEMENTAL		CUM. FLOATS		CUM. SINKS		CUM. C.V. CUM.		CUM. CUM.		CUM.					
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	40.96	100.00	40.96			18.89	18.89	0.43	0.43	8.06	8.06	0.68	0.68	

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86034
 Coal zone: K
 Field sample no.: 10171 - 10173 Composite sample no.: 257
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.50
 Contribution (%): 18.43
 Total yield (%): 18.43

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.57	
Ash (%):	10.54	10.60
Volatile matter (%):	6.87	6.91
Fixed carbon (%):	82.02	82.49
Total sulphur (%):	0.56	0.56
Combustible sulphur (%):	0.55	
Gross calorific value (cal/g):	7,629.00	7,672.00
Volatile matter (dmmf %):	6.70	
Hardgrove index:	39.00	
Phosphorous in coal (%):	0.175	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,241.00	1,227.00
Softening temperature (°C):	1,294.00	1,262.00
Hemispherical temperature (°C):	1,316.00	1,289.00
Final temperature (°C):	1,445.00	1,440.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	54.37	TiO2 (%):	1.73
Al2O3 (%):	26.08	Na2O (%):	2.26
Fe2O3 (%):	2.95	K2O (%):	0.99
CaO (%):	4.78	SO3 (%):	0.29
MgO (%):	1.06	P2O5 (%):	3.81

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPMLRDDH86034
 Coal zone: K
 Field sample no.: 10171 - 10173 Composite sample no.: 357
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.55
 Contribution (%): 12.23
 Total yield (%): 12.23

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.64	
Ash (%):	7.30	7.35
Volatile matter (%):	6.83	6.87
Fixed carbon (%):	85.23	85.78
Total sulphur (%):	0.58	0.58
Combustible sulphur (%):	0.57	
Gross calorific value (cal/g):	7,753.00	7,803.00
Volatile matter (dmmf %):	6.60	
Hardgrove index:	39.00	
Phosphorous in coal (%):	0.053	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,227.00	1,225.00
Softening temperature (°C):	1,337.00	1,278.00
Hemispherical temperature (°C):	1,396.00	1,327.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	60.44	TiO2 (%):	2.12
Al2O3 (%):	24.71	Na2O (%):	2.18
Fe2O3 (%):	3.25	K2O (%):	1.21
CaO (%):	2.52	SO3 (%):	0.39
MgO (%):	1.29	P2O5 (%):	1.65

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 60.22				ASH % - 26.69						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	WT%	WT%	ASH%	WT%	ASH%	FSI	(MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	14.67	4.85	14.67	4.85	85.33	29.63							0.46	0.46
1.45	37.92	8.47	52.59	7.46	47.41	46.55							0.50	0.49
1.50	7.60	14.07	60.19	8.29	39.81	52.75							0.55	0.50
1.55	4.01	19.15	64.20	8.97	35.80	56.51							0.58	0.50
1.60	6.04	26.15	70.24	10.45	29.76	62.68							0.71	0.52
1.70	5.01	28.67	75.25	11.66	24.75	69.56							0.87	0.54
1.80	4.00	39.87	79.25	13.09	20.75	75.28							0.91	0.56
2.00	3.05	49.30	82.30	14.43	17.70	79.76							0.85	0.57
2.60	17.70	79.76	100.00	25.99									1.37	0.71

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 30.10				ASH % - 17.15						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	WT%	WT%	ASH%	WT%	ASH%	FSI	(MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	37.98	2.96	37.98	2.96	62.02	24.01							0.29	0.29
1.45	25.70	7.50	63.68	4.79	36.32	35.69							0.40	0.33
1.50	9.47	12.14	73.15	5.74	26.85	44.00							0.45	0.35
1.55	4.84	16.07	77.99	6.38	22.01	50.14							0.51	0.36
1.60	2.69	18.74	80.68	6.80	19.32	54.51							0.65	0.37
1.70	3.94	23.68	84.62	7.58	15.38	62.41							0.85	0.39
1.80	2.36	31.90	86.98	8.24	13.02	67.94							1.22	0.41
2.00	2.68	41.44	89.66	9.23	10.34	74.81							1.90	0.46
2.60	10.34	74.81	100.00	16.02									1.19	0.53

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

FRACTION SIZE (MM)	0.50 X		0.15		CUM. WT%	SINKS ASH%	RELATIVE WEIGHT % -			5.73 ASH % - 13.86		CUM. MOIST	CUM. MOIST	
	ELEMENTAL		CUM. FLOATS				CUM.	C.V.	CUM.	CUM.	CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	48.78	2.64	48.78	2.64	51.22	23.65								0.76
1.45	14.65	5.38	63.43	3.27	36.57	30.97								0.64
1.50	11.37	7.97	74.80	3.99	25.20	41.35								0.25
1.55	0.33	9.78	75.13	4.01	24.87	41.77								0.45
1.60	0.70	11.71	75.83	4.08	24.17	42.64								0.80
1.70	6.33	13.11	82.16	4.78	17.84	53.12								1.60
1.80	4.69	21.00	86.85	5.65	13.15	64.58								1.94
2.00	3.27	35.90	90.12	6.75	9.88	74.07								1.85
2.60	9.88	74.07	100.00	13.40										0.90

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE (MM)	0.15 X		0.00		CUM. WT%	SINKS ASH%	RELATIVE WEIGHT % -			3.95 ASH % - 21.60		CUM. MOIST	CUM. MOIST	
	ELEMENTAL		CUM. FLOATS				CUM.	C.V.	CUM.	CUM.	CUM.			
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
240.00	*****	21.60	100.00	21.60			26.84	26.84	0.40	0.40	0.40	7.53	7.53	0.63

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86034
 Coal zone: 1
 Field sample no.: 10179 - 10181 Composite sample no.: 258
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.43
 Contribution (%): 24.29
 Total yield (%): 24.29

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.67	
Ash (%):	5.66	5.70
Volatile matter (%):	6.78	6.83
Fixed carbon (%):	86.89	87.47
Total sulphur (%):	0.50	0.50
Combustible sulphur (%):	0.47	
Gross calorific value (cal/g):	7,904.00	7,957.00
Volatile matter (dmmf %):	6.60	
Hardgrove index:	38.00	
Phosphorous in coal (%):	0.154	

----- ASH FUSION ANALYSIS (AFI) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,251.00	1,225.00
Softening temperature (°C):	1,284.00	1,268.00
Hemispherical temperature (°C):	1,313.00	1,294.00
Final temperature (°C):	1,448.00	1,446.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	46.92	TiO2 (%):	2.24
Al2O3 (%):	27.94	Na2O (%):	2.21
Fe2O3 (%):	2.35	K2O (%):	0.96
CaO (%):	5.92	SO3 (%):	1.42
MgO (%):	1.31	P2O5 (%):	6.23

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86034
 Coal zone: I
 Field sample no.: 10179 - 10181 Composite sample no.: 258
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP5) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.55
 Contribution (%): 14.15
 Total yield (%): 14.15

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.06	
Ash (%):	13.09	13.23
Volatile matter (%):	7.41	7.49
Fixed carbon (%):	78.44	79.28
Total sulphur (%):	0.42	0.42
Combustible sulphur (%):	0.34	
Gross calorific value (cal/g):	7,172.00	7,249.00
Volatile matter (dmmf %):	7.40	
Hardgrove index:	43.00	
Phosphorous in coal (%):	0.171	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,246.00	1,219.00
Softening temperature (°C):	1,276.00	1,235.00
Hemispherical temperature (°C):	1,311.00	1,257.00
Final temperature (°C):	1,370.00	1,367.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	58.58	TiO2 (%):	0.99
Al2O3 (%):	20.28	Na2O (%):	2.10
Fe2O3 (%):	3.64	K2O (%):	0.81
CaO (%):	4.62	SO3 (%):	1.45
MgO (%):	2.03	P2O5 (%):	3.00

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86034
 Coal zone: I
 Field sample no.: 10179 - 10181 Composite sample no.: 358
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP3) -----
 Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.65
 Contribution (%): 25.13
 Total yield (%): 25.13

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.74	
Ash (%):	6.80	6.85
Volatile matter (%):	6.73	6.78
Fixed carbon (%):	85.73	86.37
Total sulphur (%):	0.49	0.49
Combustible sulphur (%):	0.45	
Gross calorific value (cal/g):	7,820.00	7,879.00
Volatile matter (dmmf %):	6.60	
Hardgrove index:	43.00	
Phosphorous in coal (%):	0.108	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,246.00	1,222.00
Softening temperature (°C):	1,297.00	1,260.00
Hemispherical temperature (°C):	1,354.00	1,327.00
Final temperature (°C):	1,466.00	1,459.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	53.54	TiO2 (%):	2.88
Al2O3 (%):	25.71	Na2O (%):	2.02
Fe2O3 (%):	2.26	K2O (%):	0.93
CaO (%):	4.20	SO3 (%):	1.33
MgO (%):	1.49	P2O5 (%):	3.63

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

FRACTION	SIZE(MM)		35.00 X 6.00		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 60.54 ASH % - 32.80				CUM.		
	SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM.	C.V.	CUM.	S	CUM.	CUM.	MOIST
1.40	1.60	5.00	1.60	5.00	98.40	32.69								0.39	0.39
1.45	17.57	10.53	19.17	10.07	80.83	37.51								0.37	0.37
1.50	14.73	14.22	33.90	11.87	66.10	42.70								0.39	0.38
1.55	8.76	20.41	42.66	13.63	57.34	46.10								0.34	0.37
1.60	5.56	25.90	48.22	15.04	51.78	48.27								0.45	0.38
1.70	9.57	27.03	57.79	17.03	42.21	53.08								0.44	0.39
1.80	8.56	36.40	66.35	19.53	33.65	57.33								0.64	0.42
2.00	12.62	44.01	78.97	23.44	21.03	65.32								0.78	0.48
2.60	21.03	65.32	100.00	32.25										0.73	0.53

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

FRACTION	SIZE(MM)		6.00 X 0.50		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 30.29 ASH % - 21.55				CUM.		
	SG-TME	ELEMENTAL	WT%	ASH%	WT%	ASH%	WT%	ASH%	CUM.	C.V.	CUM.	S	CUM.	CUM.	MOIST
1.40	18.90	2.48	18.90	2.48	81.10	25.38								0.29	0.29
1.45	19.37	7.38	38.27	4.96	61.73	31.03								0.32	0.31
1.50	15.09	11.34	53.36	6.76	46.64	37.40								0.47	0.35
1.55	10.42	15.38	63.78	8.17	36.22	43.74								0.48	0.37
1.60	5.42	18.64	69.20	8.99	30.80	48.16								0.75	0.40
1.70	7.51	22.58	76.71	10.32	23.29	56.40								1.94	0.55
1.80	4.93	31.07	81.64	11.57	18.36	63.21								1.63	0.62
2.00	5.71	42.22	87.35	13.58	12.65	72.68								1.50	0.68
2.60	12.65	72.68	100.00	21.05										1.96	0.84

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ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		0.50 X 0.15		CUM. SINKS		RELATIVE WEIGHT % -			5.64 ASH % - 16.40		CUM.		
SG-TME	ELEMENTAL	CUM. FLOATS		WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%								MOIST
1.40	34.20	1.77	34.20	1.77	65.80	23.03							0.58
1.45	19.79	3.99	53.99	2.58	46.01	31.22							0.56
1.50	11.32	7.18	65.31	3.38	34.69	39.06							0.73
1.55	6.43	10.42	71.74	4.01	28.26	45.57							1.06
1.60	2.88	14.44	74.62	4.41	25.38	49.11							1.09
1.70	4.36	17.03	78.98	5.11	21.02	55.76							1.44
1.80	4.78	22.00	83.76	6.07	16.24	65.70							1.80
2.00	4.06	38.03	87.82	7.55	12.18	74.92							1.55
2.60	12.18	74.92	100.00	15.76									0.93

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		CUM. SINKS		RELATIVE WEIGHT % -			3.53 ASH % - 39.23		CUM.		
SG-TME	ELEMENTAL	CUM. FLOATS		WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
WT%	ASH%	WT%	ASH%	WT%	ASH%								MOIST
240.00	*****	39.23	100.00	39.23			23.88	23.88	0.43	0.43	7.63	7.63	0.68

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86035 SEAM - K

SAMPLE ID - 94

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION	SIZE(MM)	0.50 X 0.15		CUM. FLOATS	CUM. SINKS	RELATIVE WEIGHT % -				2.89 ASH % - 35.19		CUM. MOIST	CUM. MOIST
		ELEMENTAL	WT%			WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S		
1.40	27.59	1.86	27.59	1.86	72.41	47.21						0.65	0.65
1.45	12.87	5.54	40.46	3.03	59.54	56.22						0.61	0.64
1.50	2.99	9.39	43.45	3.47	56.55	58.70						1.03	0.66
1.55	4.94	10.07	48.39	4.14	51.61	63.35						1.32	0.73
1.60	1.38	16.84	49.77	4.49	50.23	64.63						0.93	0.74
1.70	4.60	21.43	54.37	5.93	45.63	68.98						1.03	0.76
1.80	5.29	29.75	59.66	8.04	40.34	74.13						1.39	0.82
2.00	6.90	40.44	66.56	11.40	33.44	81.08						1.60	0.90
2.60	33.44	81.08	100.00	34.70								0.87	0.89

ANALYSIS TYPE - FROTH

FRACTION	SIZE(MM)	0.15 X 0.00		CUM. FLOATS	CUM. SINKS	RELATIVE WEIGHT % -				1.56 ASH % - 40.98		CUM. MOIST	CUM. MOIST	
		ELEMENTAL	WT%			WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S			CUM. S
240.00	*****	40.98	100.00	40.98			19.01	19.01	0.44	0.44	7.31	7.31	0.80	0.80

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86035
 Coal zone: K
 Field sample no.: 10202 - 10204 Composite sample no.: 259
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.50
 Contribution (%): 11.73
 Total yield (%): 11.73

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.73	
Ash (%):	9.94	10.01
Volatile matter (%):	7.04	7.09
Fixed carbon (%):	82.29	82.90
Total sulphur (%):	0.55	0.55
Combustible sulphur (%):	0.54	
Gross calorific value (cal/g):	7,485.00	7,541.00
Volatile matter (dmmf %):	6.90	
Hardgrove index:	40.00	
Phosphorous in coal (%):	0.210	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,268.00	1,233.00
Softening temperature (°C):	1,289.00	1,262.00
Hemispherical temperature (°C):	1,300.00	1,294.00
Final temperature (°C):	1,396.00	1,389.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	52.33	TiO2 (%):	1.25
Al2O3 (%):	26.36	Na2O (%):	2.44
Fe2O3 (%):	2.03	K2O (%):	1.04
CaO (%):	6.08	SO3 (%):	0.16
MgO (%):	1.03	P2O5 (%):	4.85

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86035
 Coal zone: K
 Field sample no.: 10202 - 10204 Composite sample no.: 359
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.52
 Contribution (%): 12.67
 Total yield (%): 12.67

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.78	
Ash (%):	7.17	7.23
Volatile matter (%):	7.07	7.13
Fixed carbon (%):	84.98	85.64
Total sulphur (%):	0.57	0.57
Combustible sulphur (%):	0.56	
Gross calorific value (cal/g):	7,779.00	7,841.00
Volatile matter (dmmf %):	6.90	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.046	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,289.00	1,260.00
Softening temperature (°C):	1,370.00	1,354.00
Hemispherical temperature (°C):	1,413.00	1,396.00
Final temperature (°C):	1,472.00	1,472.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	59.24	TiO2 (%):	2.75
Al2O3 (%):	24.95	Na2O (%):	2.21
Fe2O3 (%):	2.20	K2O (%):	0.99
CaO (%):	2.35	SO3 (%):	0.30
MgO (%):	1.23	P2O5 (%):	1.46

GULF CANADA CORPORATION - COAL DIVISION

MAR 30/87

WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86036 SEAM - I

SAMPLE ID - 95

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		35.00 X 6.00		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 48.86 ASH % - 27.02				CUM. C.V.		CUM. C.V.		CUM. C.V.	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI	(MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST	
1.40	4.33	4.86	4.33	4.86	95.67	29.07											0.69	0.69	
1.45	35.47	8.83	39.80	8.40	60.20	40.99											0.43	0.46	
1.50	12.50	14.68	52.30	9.90	47.70	47.88											0.51	0.47	
1.55	10.86	19.01	63.16	11.47	36.84	56.40											0.48	0.47	
1.60	5.70	23.58	68.86	12.47	31.14	62.40											0.55	0.48	
1.70	4.00	29.65	72.86	13.41	27.14	67.23											0.72	0.49	
1.80	3.52	34.04	76.38	14.36	23.62	72.17											0.67	0.50	
2.00	5.92	48.42	82.30	16.81	17.70	80.12											0.73	0.52	
2.60	17.70	80.12	100.00	28.02													1.02	0.61	

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM)		6.00 X 0.50		ELEMENTAL		CUM. FLOATS		CUM. SINKS		RELATIVE WEIGHT % - 36.65 ASH % - 14.62				CUM. C.V.		CUM. C.V.		CUM. C.V.	
SG-TME	WT%	ASH%	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI	(MJ KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST	
1.40	24.75	2.50	24.75	2.50	75.25	19.24											0.60	0.60	
1.45	29.15	7.75	53.90	5.34	46.10	26.50											0.64	0.62	
1.50	12.41	12.27	66.31	6.64	33.69	31.74											0.53	0.60	
1.55	9.04	15.67	75.35	7.72	24.65	37.64											0.65	0.61	
1.60	4.81	18.46	80.16	8.36	19.84	42.29											0.96	0.63	
1.70	8.32	22.37	88.48	9.68	11.52	56.68											1.32	0.70	
1.80	2.73	30.35	91.21	10.30	8.79	64.85											1.28	0.71	
2.00	1.94	42.69	93.15	10.97	6.85	71.13											1.68	0.73	
2.60	6.85	71.13	100.00	15.10													1.34	0.77	

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNI RDDH86036 SEAM - I

SAMPLE ID - 96

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		0.50 X		0.15		RELATIVE WEIGHT % -				10.45 ASH % -		19.50	
SG-TME	ELEMENTAL	CUM. FLDATS		CUM. SINKS		CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	20.22	1.53	20.22	1.53	79.78	23.14							0.74
1.45	28.72	4.07	48.94	3.02	51.06	33.86							0.89
1.50	12.34	8.69	61.28	4.16	38.72	41.88							0.88
1.55	7.05	11.18	68.33	4.89	31.67	48.71							1.52
1.60	2.68	13.29	71.01	5.20	28.99	51.99							1.71
1.70	5.67	14.82	76.68	5.91	23.32	61.03							1.47
1.80	4.14	19.36	80.82	6.60	19.18	70.02							1.45
2.00	3.84	30.07	84.66	7.67	15.34	80.02							1.74
2.60	15.34	80.02	100.00	18.77									1.29

----- ANALYSIS TYPE - FROTH -----

FRACTION SIZE(MM)		0.15 X		0.00		RELATIVE WEIGHT % -				11.56 ASH % -		13.45	
SG-TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		CUM.	C.V.	CUM.	S	CUM.	CUM.	CUM.	CUM.
WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
240.00	*****	13.45	100.00	13.45									0.76
						30.15	30.15	0.42	0.42	6.65	6.65		0.76

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDHB6036 SEAM - I

SAMPLE ID - 97

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X 6.00		RELATIVE WEIGHT % - 47.94				ASH % - 11.84						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	WT%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	43.31	4.50	43.31	4.50	56.69	18.39							0.49	0.49
1.45	28.47	8.79	71.78	6.20	28.22	28.08							0.44	0.47
1.50	7.64	13.45	79.42	6.90	20.58	33.51							0.48	0.47
1.55	6.71	18.67	86.13	7.82	13.87	40.69							0.59	0.48
1.60	0.69	21.05	86.82	7.92	13.18	41.72							0.53	0.48
1.70	5.00	27.97	91.82	9.01	8.18	50.13							0.55	0.48
1.80	0.96	32.90	92.78	9.26	7.22	52.42							0.44	0.48
2.00	3.34	45.65	96.12	10.52	3.88	58.25							0.61	0.49
2.60	3.88	58.25	100.00	12.38									0.58	0.49

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

FRACTION SIZE(MM)		6.00 X 0.50		RELATIVE WEIGHT % - 43.28				ASH % - 6.58						
SG-TME	ELEMENTAL	CUM.	FLOATS	CUM.	SINKS	CUM.	C.V.	CUM.	CUM.	CUM.	CUM.			
WT%	WT%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	74.43	3.72	74.43	3.72	25.57	14.00							0.42	0.42
1.45	14.32	7.63	88.75	4.35	11.25	22.11							0.42	0.42
1.50	4.44	11.88	93.19	4.71	6.81	28.78							0.55	0.43
1.55	2.14	15.85	95.33	4.96	4.67	34.70							0.70	0.43
1.60	0.88	19.05	96.21	5.09	3.79	38.33							0.76	0.44
1.70	1.27	23.78	97.48	5.33	2.52	45.67							0.74	0.44
1.80	0.58	31.24	98.06	5.49	1.94	49.98							0.61	0.44
2.00	0.64	37.46	98.70	5.69	1.30	56.15							1.00	0.44
2.60	1.30	56.15	100.00	6.35									0.93	0.45

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

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DATA SOURCE - KPNLRDDH86036 SEAM - I

SAMPLE ID - 97

WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT																	
FRACTION SIZE(MM)	0.50 X		0.15		RELATIVE WEIGHT % -					6.11	ASH % -		8.01				
SG-TME	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	WT%	ASH%	CUM. C.V.	CUM.	CUM.	CUM.	CUM.				
									FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
1.40	68.21	2.49	68.21	2.49	31.79	18.77										0.59	0.59
1.45	10.73	6.35	78.94	3.01	21.06	25.09										0.54	0.58
1.50	8.46	8.06	87.40	3.50	12.60	36.53										0.71	0.60
1.55	2.64	12.39	90.04	3.76	9.96	42.93										0.99	0.61
1.60	1.65	15.11	91.69	3.97	8.31	48.45										1.03	0.61
1.70	1.78	20.54	93.47	4.28	6.53	56.06										1.14	0.62
1.80	1.32	26.08	94.79	4.59	5.21	63.66										1.11	0.63
2.00	0.95	38.05	95.74	4.92	4.26	69.37										1.07	0.64
2.60	4.26	69.37	100.00	7.66												0.95	0.65

ANALYSIS TYPE - FROTH																	
FRACTION SIZE(MM)	0.15 X		0.00		RELATIVE WEIGHT % -					2.67	ASH % -		16.67				
SG-TME	WT%	ASH%	CUM. FLOATS	WT%	ASH%	CUM. SINKS	WT%	ASH%	CUM. C.V.	CUM.	CUM.	CUM.	CUM.				
									FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
240.00	*****	16.67	100.00	16.67					28.85	28.85	0.45	0.45	0.45	7.34	7.34	0.70	0.70

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86036
 Coal zone: 1
 Field sample no.: 10131 - 10132 Composite sample no.: 260
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP2) -----

Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.41
 Contribution (%): 6.61
 Total yield (%): 6.61

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.70	
Ash (%):	4.91	4.94
Volatile matter (%):	6.44	6.49
Fixed carbon (%):	87.95	88.57
Total sulphur (%):	0.52	0.52
Combustible sulphur (%):	0.52	
Gross calorific value (cal/g):	8,102.00	8,159.00
Volatile matter (dmmf %):	6.30	
Hardgrove index:	41.00	
Phosphorous in coal (%):	0.087	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,182.00	1,176.00
Softening temperature (°C):	1,294.00	1,262.00
Hemispherical temperature (°C):	1,332.00	1,300.00
Final temperature (°C):	1,413.00	1,407.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	57.36	TiO2 (%):	1.53
Al2O3 (%):	24.06	Na2O (%):	2.32
Fe2O3 (%):	1.17	K2O (%):	0.82
CaO (%):	5.12	SO3 (%):	0.14
MgO (%):	1.04	P2O5 (%):	4.07

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86036
 Coal zone: 1
 Field sample no.: 10131 - 10132 Composite sample no.: 260
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP5) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.53
 Contribution (%): 14.44
 Total yield (%): 14.44

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.72	
Ash (%):	12.60	12.69
Volatile matter (%):	7.64	7.70
Fixed carbon (%):	79.04	79.61
Total sulphur (%):	0.41	0.41
Combustible sulphur (%):	0.39	
Gross calorific value (cal/g):	7,239.00	7,292.00
Volatile matter (dmmf %):	7.60	
Hardgrove index:	49.00	
Phosphorous in coal (%):	0.102	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,284.00	1,206.00
Softening temperature (°C):	1,335.00	1,286.00
Hemispherical temperature (°C):	1,378.00	1,335.00
Final temperature (°C):	1,461.00	1,459.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	70.16	TiO2 (%):	0.66
Al2O3 (%):	18.15	Na2O (%):	1.81
Fe2O3 (%):	1.38	K2O (%):	0.73
CaO (%):	2.94	SO3 (%):	0.49
MgO (%):	1.19	P2O5 (%):	1.85

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86036
 Field sample no.: 10131 - Composite sample no.: 261
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP2) -----
 Target Ash: 6.3 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.46
 Contribution (%): 36.13
 Total yield (%): 36.13

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.64	
Ash (%):	6.18	6.22
Volatile matter (%):	6.59	6.63
Fixed carbon (%):	86.59	87.15
Total sulphur (%):	0.51	0.51
Combustible sulphur (%):	0.47	
Gross calorific value (cal/g):	7,897.00	7,947.00
Volatile matter (dmmf %):	6.40	
Hardgrove index:	40.00	
Phosphorous in coal (%):	0.209	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,257.00	1,241.00
Softening temperature (°C):	1,289.00	1,276.00
Hemispherical temperature (°C):	1,300.00	1,289.00
Final temperature (°C):	1,343.00	1,336.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	41.98	TiO2 (%):	1.88
Al2O3 (%):	27.60	Na2O (%):	2.32
Fe2O3 (%):	2.87	K2O (%):	0.93
CaO (%):	9.01	SO3 (%):	1.58
MgO (%):	1.84	P2O5 (%):	7.73

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86036
 Field sample no.: 10131 - Composite sample no.: 261
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP5) -----
 Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.46
 Contribution (%): 0.11
 Total yield (%): 0.11

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.03	
Ash (%):	12.34	12.47
Volatile matter (%):	6.80	6.87
Fixed carbon (%):	79.83	80.66
Total sulphur (%):	0.45	0.45
Gross calorific value (cal/g):	7,239.00	7,315.00
Volatile matter (dmmf%):	6.60	
Initial temperature (°C):	0.00	0.00
Softening temperature (°C):	0.00	0.00
Hemispherical temperature (°C):	0.00	0.00
Final temperature (°C):	0.00	0.00
SiO ₂ (%): 0.00	TiO ₂ (%):	0.00
Al ₂ O ₃ (%): 0.00	Na ₂ O (%):	0.00
Fe ₂ O ₃ (%): 0.00	K ₂ O (%):	0.00
CaO (%): 0.00	SO ₃ (%):	0.00
MgO (%): 0.00	P ₂ O ₅ (%):	0.00

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86036
 Coal zone: 1
 Field sample no.: 10131 - 10133 Composite sample no.: 360
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.64
 Contribution (%): 31.13
 Total yield (%): 31.13

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	0.61	
Ash (%):	7.22	7.26
Volatile matter (%):	6.88	6.92
Fixed carbon (%):	85.29	85.82
Total sulphur (%):	0.47	0.47
Combustible sulphur (%):	0.44	
Gross calorific value (cal/g):	7,756.00	7,803.00
Volatile matter (dmmf %):	6.70	
Hardgrove index:	47.00	
Phosphorous in coal (%):	0.099	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,246.00	1,233.00
Softening temperature (°C):	1,289.00	1,265.00
Hemispherical temperature (°C):	1,316.00	1,281.00
Final temperature (°C):	1,429.00	1,425.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%):	61.24	TiO2 (%):	1.76
Al2O3 (%):	22.68	Na2O (%):	1.91
Fe2O3 (%):	1.61	K2O (%):	0.80
CaO (%):	4.23	SO3 (%):	0.96
MgO (%):	1.40	P2O5 (%):	3.15

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPNLRDDH86036 SEAM - H

SAMPLE ID - 98

WASHABILITY ID - WA1

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

FRACTION SIZE(MM)		35.00 X		6.00		RELATIVE WEIGHT % - 57.65				ASH % - 60.60				
SG-TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. S		CUM. VOL.		CUM. MOIST		
	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	0.25	4.72	0.25	4.72	99.75	59.92							0.61	0.61
1.45	2.11	7.92	2.36	7.58	97.64	61.04							0.57	0.57
1.50	3.39	13.18	5.75	10.88	94.25	62.76							0.67	0.63
1.55	3.56	18.46	9.31	13.78	90.69	64.50							0.86	0.72
1.60	2.32	22.13	11.63	15.45	88.37	65.61							0.80	0.73
1.70	8.39	28.86	20.02	21.07	79.98	69.47							0.98	0.84
1.80	2.64	36.54	22.66	22.87	77.34	70.59							0.94	0.85
2.00	14.99	46.65	37.65	32.34	62.35	76.35							0.73	0.80
2.60	62.35	76.35	100.00	59.78									0.98	0.91

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

FRACTION SIZE(MM)		6.00 X		0.50		RELATIVE WEIGHT % - 26.44				ASH % - 35.05				
SG-TME	ELEMENTAL	CUM. FLOATS		CUM. SINKS		CUM. C.V.		CUM. S		CUM. VOL.		CUM. MOIST		
	WT%	ASH%	WT%	ASH%	WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST
1.40	10.13	2.99	10.13	2.99	89.87	37.39							0.46	0.46
1.45	14.92	7.12	25.05	5.45	74.95	43.42							0.43	0.44
1.50	11.31	10.60	36.36	7.05	63.64	49.25							0.49	0.46
1.55	6.83	14.12	43.19	8.17	56.81	53.48							0.82	0.51
1.60	3.81	18.20	47.00	8.98	53.00	56.01							1.01	0.55
1.70	9.49	22.60	56.49	11.27	43.51	63.30							1.65	0.74
1.80	5.62	30.84	62.11	13.04	37.89	68.12							1.98	0.85
2.00	6.65	41.75	68.76	15.82	31.24	73.73							1.32	0.90
2.60	31.24	73.73	100.00	33.91									1.68	1.14

GULF CANADA CORPORATION - COAL DIVISION

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WASHABILITY REPORT 2

PAGE -

DATA SOURCE - KPnlRDDH86036 SEAM - H

SAMPLE ID - 98

WASHABILITY ID - WA1

ANALYSIS TYPE - FLDAT

FRACTION SIZE(MM)		0.50 X 0.15		CUM. SINKS		RELATIVE WEIGHT % - 9.47				ASH % - 13.05		CUM.		
SG-TME	ELEMENTAL	CUM. FLOATS		WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
	WT%	WT%	ASH%	WT%	ASH%									
1.40	37.75	2.18		37.75	2.18	62.25							0.97	0.97
1.45	23.24	4.15		60.99	2.93	39.01							1.14	1.03
1.50	8.94	6.31		69.93	3.36	30.07							1.15	1.05
1.55	8.30	8.52		78.23	3.91	21.77							1.99	1.15
1.60	3.52	9.87		81.75	4.17	18.25							1.99	1.19
1.70	4.06	14.73		85.81	4.67	14.19							1.89	1.22
1.80	2.79	21.45		88.60	5.19	11.40							1.99	1.24
2.00	1.69	39.24		90.29	5.83	9.71							1.74	1.25
2.60	9.71	73.47		100.00	12.40								1.05	1.23

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM)		0.15 X 0.00		CUM. SINKS		RELATIVE WEIGHT % - 6.44				ASH % - 17.06		CUM.		
SG-TME	ELEMENTAL	CUM. FLOATS		WT%	ASH%	FSI	FSI (MJ/KG)	C.V.	S	S	VOL.	VOL.	MOIST	MOIST
	WT%	WT%	ASH%	WT%	ASH%									
240.00	*****	17.06		100.00	17.06								0.56	0.56

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- C L E A N S I M U L A T E D P R O D U C T R E P O R T -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86036
 Coal zone: H
 Field sample no.: 10136 - 10137 Composite sample no.: 262
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP4) -----

Target Ash: 12.0 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 35.00 X 6.00
 Cutpoint: sp.g. 1.51
 Contribution(%): 3.89
 Total yield(%): 3.89

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%) :	0.98	
Ash (%) :	10.44	10.54
Volatile matter (%) :	6.92	6.99
Fixed carbon (%) :	81.66	82.47
Total sulphur (%) :	0.58	0.59
Combustible sulphur (%) :	0.57	
Gross calorific value (cal/g) :	7,514.00	7,589.00
Volatile matter (dmmf%) :	6.70	
Hardgrove index:	48.00	
Phosphorous in coal (%) :	0.234	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature(°C) :	1,249.00	1,222.00
Softening temperature(°C) :	1,273.00	1,246.00
Hemispherical temperature(°C) :	1,311.00	1,284.00
Final temperature(°C) :	1,370.00	1,366.00

----- ASH MINERAL ANALYSIS (AM1) -----

SiO2 (%) :	51.88	TiO2 (%) :	2.18
Al2O3 (%) :	25.33	Na2O (%) :	2.43
Fe2O3 (%) :	1.45	K2O (%) :	0.80
CaO (%) :	6.94	SO3 (%) :	0.26
MgO (%) :	1.38	P2O5 (%) :	5.14

===== GULF CANADA CORPORATION - COAL DIVISION =====
 ----- CLEAN SIMULATED PRODUCT REPORT -----
 April 21, 1987.

PROJECT: KLAPPAN DATA SOURCE: KPNLRDDH86036
 Coal zone: H
 Field sample no.: 10136 - 10137 Composite sample no.: 363
 Lab sample no.: 29688

----- PRODUCT COAL ANALYSIS (SP3) -----

Target Ash: 7.5 %

Standard: ASTM
 Size analysis
 Fraction size (mm): 6.00 X 0.50
 Cutpoint: sp.g. 1.52
 Contribution (%): 10.17
 Total yield (%): 10.17

	<u>AIR DRY BASIS</u>	<u>DRY BASIS</u>
Proximate analysis		
Residual moisture (%):	1.03	
Ash (%):	7.05	7.12
Volatile matter (%):	7.19	7.26
Fixed carbon (%):	84.73	85.62
Total sulphur (%):	0.60	0.61
Combustible sulphur (%):	0.59	
Gross calorific value (cal/g):	7,787.00	7,868.00
Volatile matter (dmmf %):	7.10	
Hardgrove index:	50.00	
Phosphorous in coal (%):	0.115	

----- ASH FUSION ANALYSIS (AF1) -----

	<u>OXIDIZING ATM</u>	<u>REDUCING ATM</u>
Initial temperature (°C):	1,268.00	1,241.00
Softening temperature (°C):	1,311.00	1,284.00
Hemispherical temperature (°C):	1,332.00	1,329.00
Final temperature (°C):	1,456.00	1,437.00

----- ASH MINERAL ANALYSIS (AMI) -----

SiO2 (%):	51.34	TiO2 (%):	2.61
Al2O3 (%):	27.22	Na2O (%):	2.56
Fe2O3 (%):	2.77	K2O (%):	0.93
CaO (%):	4.42	SO3 (%):	0.36
MgO (%):	1.70	P2O5 (%):	3.75