

MOUNT KLAPPAN COAL PROJECT
SUMMIT - NASS AREA
GEOLOGICAL REPORT
1985

APPENDIX I

COAL TRENCH DATA
AND
COAL QUALITY DATA
MEASURED SECTIONS



GULF CANADA LIMITED
COAL DIVISION

706

APPENDIX I
COAL TRENCH DATA AND COAL QUALITY DATA
MEASURED SECTION DATA

Coal Trench Data and Coal Quality Data

Summit Area

1985 - Project Data Source Summary
Project Simple Sample Summary

Data Source Summary
Coal Seam Detail
Descriptive Log
Head Analyses
Reflectance Data *CONFIDENTIAL*

Nass Area

1985 - Project Data Source Summary
Project Simple Sample Summary

Data Source Summary
Coal Seam Detail
Descriptive Log
Head Analyses
Reflectance Data *CONFIDENTIAL*

1:50 000 1981 - 1985 Trench Location Map

APPENDIX I
COAL TRENCH DATA AND COAL QUALITY DATA
MEASURED SECTION DATA
cont'd

Measured Section Data

Summit-Nass Area

1985 - Project Data Source Summary

Data Source Summary

Stratigraphic Log

Descriptive Log

1:50 000 1981 - 1985 Measured Section Location Map

GULF CANADA RESOURCES INC. - COAL DIVISION
 07/FEB/86 PROJECT DATA SOURCE SUMMARY PAGE 1

DATA SOURCE	LOCATION		ELEVATION	LENGTH	ANGLE	AZIMUTH	LOG TYPE
	NORTHING	EASTING					
KPNSSTRC85001	6349675.0	502355.0	1690.0	5.5	22.0	162.0	
KPNSNTRC85002	6350760.0	500235.0	1737.0	5.6	10.5	6.0	
KPNSNTRC85003	6349975.0	498315.0	1996.0	5.0		72.0	
KPNLRTRC85004	6344010.0	507352.0	1645.0	3.5	15.0	115.0	
KPNSNTRC85005	6347745.0	498745.0	2012.0	2.9	41.0	32.0	
KPNLRTRC85006	6343785.0	507352.0	1645.0	5.0	60.0	10.0	
KPNLRTRC85007	6344028.0	507352.0	1645.0	2.7	15.0		
KPNLRTRC85008	6343338.0	506395.0	1679.0	4.3	10.0	6.0	
KPNSNTRC85009	6351965.0	498460.0	1760.0	2.8	37.0	44.0	
KPNNRTRC85010	6345000.0	490750.0	1966.0	7.0	2.0	130.0	
KPNSSTRC85011	6350135.0	501925.0	1665.0	4.4	0.0	20.0	
KPNSSTRC85012	6349840.0	501875.0	1735.0	3.7	15.0	210.0	
KPNKHTRC85013	6342815.0	511240.0	1733.0	2.9	34.0	60.0	
KPNKHTRC85014	6343415.0	510865.0	1673.0	2.5		20.0	
KPNKHTRC85015	6343655.0	510975.0	1645.0	1.5	28.0	245.0	
KPNKHTRC85016	6343700.0	511000.0	1643.0	1.4	35.0	285.0	

GULF CANADA RESOURCES INC. - COAL DIVISION
 07/FEB/86 PROJECT DATA SOURCE SUMMARY PAGE 2

DATA SOURCE	LOCATION		ELEVATION	LENGTH	ANGLE	AZIMUTH	LOG TYPE
	NORTHING	EASTING					
KPNKHTRC85017	6344085.0	511150.0	1585.0	2.9	55.0	348.0	
KPNNRTRC85018	6340843.0	503370.0	1510.0	1.8	38.0	120.0	
KPNSNTRC85019	6350175.0	499275.0	1969.0	5.1	7.0	320.0	
KPNSNTRC85020	6351890.0	498110.0	1996.0	1.7	25.0	108.0	
KPNSNTRC85021	6352000.0	498475.0	1768.0	2.0	12.0	210.0	
KPNLRTRC85030	6344297.2	506047.8	1809.2	6.3	0.0	95.0	
KPNLRTRC85031	6344290.4	506046.5	1807.4				
KPNLRTRC85032	6344255.7	506033.4	1798.7	4.9			
KPNLRTRC85033	6344263.0	506015.5	1798.5	4.9			
KPNLRTRC85034	6344267.5	505988.5	1796.1	4.9			
KPNLRTRC85035	6344321.0	505987.0	1807.6	4.9			
KPNLRTRC85036	6344312.1	505947.5	1802.1				
KPNLRTRC85037	6344296.0	505892.1	1797.7	5.5			
KPNLRTRC85038	6344282.0	505892.3	1793.7	5.3			
KPNLRTRC85039	6344273.8	505932.2	1792.7	5.1			
KPNLRTRC85040	6344317.9	505899.0	1802.3	4.8			

GULF CANADA RESOURCES INC. - COAL DIVISION
 07/FEB/86 PROJECT DATA SOURCE SUMMARY PAGE 3

DATA SOURCE	LOCATION		ELEVATION	LENGTH	ANGLE	AZIMUTH	LOG TYPE
	NORTHING	EASTING					
KPNLRTRC85041	6344289.0	505843.6	1797.2				
KPNLRTRC85042	6344261.5	506019.0	1799.1				
KPNLRTRC85043	6344317.7	505799.0	1805.8	4.8			
KPNLRTRC85044	6344315.5	505819.8	1804.1	4.8			
KPNLRTRC85045	6344307.8	505853.6	1799.5	5.0			
KPNLRTRC85046	6344302.8	505875.4	1798.2	4.9			
KPNLRTRC85047	6344319.9	505778.5	1808.6	4.2			
KPNLRTRC85048	6344306.0	505862.1	1798.5	4.3			
KPNLRTRC85049	6344294.7	505807.8	1799.7	4.9			
KPNLRTRC85050	6344295.8	505751.6	1808.7	5.1			
KPNLRTRC85051	6344318.3	505791.5	1805.8	3.4			
KPNLRTRC85052	6344312.0	505834.4	1801.0				
KPNLRTRC85053	6344311.5	505704.0	1818.7				

SIMPLE SAMPLE
SUMMARY

GULF CANADA RESOURCES INC. - COAL DIVISION
 22/JAN/86 SIMPLE SAMPLE SUMMARY PAGE 2
 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
TRC85015		1	0.35	2.27	100.00	0.630	1.290			0.630- 1.290
TRC85016		1	0.61	0.92	100.00	0.310				0.310- 0.000
TRC85017		1	0.30	1.22	100.00	0.870	0.050			0.870- 0.050
TRC85018		5951	1.00	2.93	100.00	1.930				1.930- 0.000
TRC85019		8052	0.30	0.98	100.00	0.680				0.680- 0.000
TRC85020		5963	0.45	1.84	100.00	1.190	0.200			1.190- 0.200
TRC85021		5960	0.10	1.16	100.00	1.030	0.030			1.030- 0.030
TRC85030		1	0.10	1.88	100.00	1.390	0.390			1.390- 0.390
TRC85032	I	7601	0.00	5.76	100.00	5.192	0.399			5.192- 0.399
TRC85033	I	7603	0.00	4.81	100.00	4.700	0.110			4.700- 0.110
TRC85034	I	7604	0.00	4.90	100.00	4.750	0.150			4.750- 0.150
TRC85035	I	7605	0.00	5.10	100.00	5.000	0.100			5.000- 0.100
TRC85037	I	7606	0.00	5.17	80.66	3.830	0.340	1.000		4.830- 0.340
TRC85038	I	7608	0.00	5.53	100.00	5.260	0.270			5.260- 0.270
TRC85038	I	7609	0.15	5.40	100.00	4.940	0.310			4.940- 0.310

22/JAN/86

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

PAGE 3

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL - ROCK
TRC85039	I	7610	0.00	5.10	100.00	4.880	0.220			4.880- 0.220
TRC85040	I	7611	0.00	4.75	100.00	4.470	0.280			4.470- 0.280
TRC85041	I	7612	1.45	6.94	100.00	4.850	0.640			4.850- 0.640
TRC85042	I	7613	0.25	5.73	100.00	4.890	0.590			4.890- 0.590
TRC85043	I	7614	0.00	4.53	100.00	4.270	0.260			4.270- 0.260
TRC85044	I	7615	0.00	4.78	100.00	4.480	0.300			4.480- 0.300
TRC85045	I	7616	0.00	4.63	100.00	4.320	0.310			4.320- 0.310
TRC85046	I	7617	0.00	4.60	100.00	4.290	0.310			4.290- 0.310
TRC85047	I	7618	0.00	4.23	100.00	4.060	0.170			4.060- 0.170
TRC85048	I	7632	0.00	1.39	100.00	1.250	0.140			1.250- 0.140
	I	7633	1.39	2.39	100.00	0.970	0.030			0.970- 0.030
	I	7634	2.39	4.25	100.00	1.800	0.060			1.800- 0.060
TRC85049	I	7635	0.00	1.91	100.00	1.740	0.170			1.740- 0.170
	I	7636	1.91	3.04	100.00	1.080	0.050			1.080- 0.050
	I	7637	3.04	4.85	100.00	1.810				1.810- 0.000
TRC85050	I	7638	0.25	2.44	100.00	1.950	0.240			1.950- 0.240
	I	7639	2.44	2.71	100.00	0.190	0.080			0.190- 0.080

22/JAN/86

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

PAGE 4

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL - ROCK
	I	7640	2.71	5.21	100.00	2.500				2.500- 0.000
TRC85051	I	7641	0.00	1.28	100.00	1.130	0.150			1.130- 0.150
	I	7642	1.28	3.38	100.00	2.100				2.100- 0.000
TRC85052	I	7643	0.00	1.51	100.00	1.270	0.240			1.270- 0.240
	I	7644	1.51	2.73	100.00	1.160	0.060			1.160- 0.060
	I	7645	2.73	4.80	100.00	2.070				2.070- 0.000

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNSSTRC85001

DATE - 10/31/85

- HISTORY -

START DATE - 08/14/85
 END DATE - 08/14/85

CONTRACTOR -
 GEOLOGIST - GROVES

OPERATOR - GULF CANADA
 SURVEYOR -

REMARKS - ROOF NOT REACHED DUE TO NEAR SURFACE COAL DIPPING
 SUBPARALLEL TO TOPOGRAPHY; ERODED; TRENCH ALONG ST
 RIKE OF TRC83052 BUT LOWER TOPOGRAPHICALLY

- LOCATION -

PROVINCE - BC
 ELEVATION - 1690.00

ZONE - 9
 NORTHING - 6349675.00
 EASTING - 502355.00

LICENCE/LEASE NUMBER - 7426

LATITUDE - 571731
 LONGITUDE - 1285739

- ORIENTATION -

LENGTH - 5.50

INCLINATION - 22.0
 AZIMUTH - 162.0

SIZE WIDTH - 0.5
 SIZE HEIGHT - 1.5

ROOF STRIKE - 0
 ROOF DIP - 0
 ROOF DIR -

FLOOR STRIKE - 270
 FLOOR DIP - 25
 FLOOR DIR - N

*** NOTE *** 0 INDICATES NO VALUE

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PROJECT: KPN BLOCK: SS DATA SOURCE: TRCB5001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	0.00	0.36	0.36	00001		COAL	BLK WEATHERED; C-3 FRAGMENTS IN IT.
* 90	0.36	0.45	0.09	00001		COAL	C-3.BLK WELL CLEATED ; IRON STAINED ; WEATHERED
* 90	0.45	0.50	0.05	00001		COAL	C-3.BLK WEATHERED
* 90	0.50	0.52	0.02	00001		MUDSTONE	CARB.BLK WEATHERED.
* 90	0.52	0.82	0.30	00001		COAL	C-3.BLK WELL CLEATED ; IRON STAINED ; WELL CONSOL
* 90	0.82	0.95	0.13	00001		MUDSTONE	CARB.BLK UNCONSOL
* 90	0.95	1.04	0.09	00001		MUDSTONE	DK.GY LESS IRON STAIN THAN BELOW ; MODERATE W ELL CONSOL
* 90	1.04	1.14	0.10	00001		MUDSTONE	BLK UNCONSOL ; YELLOW IRON STAIN
* 90	1.14	1.17	0.03	00001		MUDSTONE	CARB.BLK THIN COAL LAMINATED ; WELL CONSOL

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: SS DATA SOURCE: TRCB5001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	1.17	1.29	0.12	00001		COAL	C-3.BLK IRON STAINED; WEATHERED; WELL CLEATED
* 90	1.29	1.36	0.07	00001		MUDSTONE	BLK THIN COAL LAMINAE ; MINOR YELLOW IRON'S TAIN MODERATE WEATHERED
* 90	1.36	1.55	0.19	00001		MUDSTONE	DK.BN ABUNDANT YELLOW IRON STAIN ; SOFT
* 90	1.55	1.57	0.02	00001		MUDSTONE	CARB.BLK THIN COAL BANDS UP TO .5CM. ; POORLY CONSOL.
* 90	1.57	1.59	0.02	00001		COAL	C-3.BLK IRON STAINED ; WELL CONSOL.
* 90	1.59	1.62	0.03	00001		MUDSTONE	CARB.BLK THIN COAL BANDS ; POORLY CONSOL.
* 90	1.62	1.63	0.01	00001		MUDSTONE	CARB.BLK SOFT ; POORLY CONSOL.
* 90	1.63	1.64	0.01	00001		COAL	C-4.BLK MINOR IRON STAIN
* 90	1.64	1.74	0.10	00001		COAL	C-3.BLK WELL CLEATED; MINOR IRON STAIN.

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: SS DATA SOURCE: TRC85001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
* 90	1.74	1.79	0.05	00001		COAL	C-3.BLK WELL CLEATED ; ABUNDANT IRON STAIN
* 90	1.79	1.89	0.10	00001		MUDSTONE	CARB.BLK THIN COAL LAMINATED; UNCONSOL
* 90	1.89	1.95	0.06	00001		MUDSTONE	M.BN POORLY CONSOL
* 90	1.95	2.15	0.20	00001		MUDSTONE	CARB.BLK THIN COAL LAMINATED; UNCONSOL.
* 90	2.15	2.23	0.08	00001		COAL	C-3.BLK IRON STAINED; WELL CLEATED; CONTAINS CARBONACEOUS MUDSTONE BANDS UP TO 1 CM WITH THIN COAL LAMINAE; POORLY CONSOL.
* 90	2.23	2.27	0.04	00001		COAL	C-4.BLK MODERATE, WELL CONSOL CLEATED
* 90	2.27	2.40	0.13			MUDSTONE	DK.BN COAL STRINGERS UP TO 1 CM. ; IRON STAIN
* 90	2.40	2.48	0.08			MUDSTONE	M.BN UNCONSOLIDATED
* 90	2.48	2.49	0.01			MUDSTONE	DK.BN SOFT ; HIGHLY WEATHERED

* DENOTES MEASURED BCA
NEWPAGE

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNSNTRC85002

DATE - 10/31/85

- HISTORY -

START DATE - 08/17/85

END DATE - 08/17/85

CONTRACTOR -

GEOLOGIST - ANGELO LEDDA

OPERATOR - GULF CANADA

SURVEYOR -

REMARKS - COAL IS STRUCTURALLY THICKENED BECAUSE IT FORMS PART OF A SYNCLINE SO ONLY ITS NORTHERN LIMB WAS LOGGED

- LOCATION -

PROVINCE - BC

ELEVATION - 1737.00

LICENCE/LEASE NUMBER - 7756

ZONE - 9

NORTHING - 6350760.00

EASTING - 500235.00

LATITUDE - 571806

LONGITUDE - 1285946

- ORIENTATION -

LENGTH - 5.60

INCLINATION - 10.5

AZIMUTH - 6.0

SIZE WIDTH - 0.7

SIZE HEIGHT - 1.0

ROOF STRIKE - 0

ROOF DIP - 0

ROOF DIR -

FLOOR STRIKE - 281

FLOOR DIP - 65

FLOOR DIR - N

*** NOTE *** 0 INDICATES NO VALUE

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86/01/22

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: SN DATA SOURCE: TRC85002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	0.00	0.02	0.02			SILTSTONE	M.BM HIGHLY IRON STAINED. PROBABLY ROOF (AT SYNCLINE HINGE)
* 90	0.02	0.15	0.13			MUDSTONE	DK. GR CARBONACEOUS.
* 90	0.15	0.32	0.17	08001		COAL	C-3.BLK WEATHERED.
* 90	0.32	0.40	0.08	08001		COAL	C-2.BLK WELL CLEATED.
* 90	0.40	0.56	0.16	08001		COAL	C-3.BLK PARTIALLY WEATHERED.
* 90	0.56	0.97	0.41	08001		COAL	C-2.BLK CLEATED
* 90	0.97	1.12	0.15	08001		COAL	C-3.BLK
* 90	1.12	2.52	1.40	08001		COAL	C-3.BLK WELL CLEATED; SLIGHTLY WEATHERED.
* 90	2.52	2.68	0.16	08001		COAL	C-3.BLK WEATHERED.

* DENOTES MEASURED BCA

86/01/22

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: SN DATA SOURCE: TRC85002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	2.68	2.96	0.28	08001		COAL	C-2.BLK WELL CLEATED AND WEATHERED.
* 90	2.96	3.36	0.40	08001		COAL	C-3.BLK IRON-STAINED; WEATHERED
* 90	3.36	3.66	0.30	08001		COAL	C-2.BLK WELL CONSOL AND WELL CLEATED.
* 90	3.66	3.72	0.06	08001		COAL	C-3.BLK
* 90	3.72	3.94	0.22	08001		COAL	C-2.BLK WELL CONSOL. AND CLEATED.
* 90	3.94	4.01	0.07	08001		COAL	C-4.BLK WEATHERED.
* 90	4.01	4.02	0.01	08001		COAL	C-4.BLK HIGHLY IRON-STAINED.
* 90	4.02	4.42	0.40	08001		COAL	C-3.BLK WELL CLEATED.
* 90	4.42	4.52	0.10	08001		COAL	C-3.BLK SLIGHTLY UNCONSOL.

* DENOTES MEASURED BCA

1000-4002

PROJECT: KPN BLOCK: SN DATA SOURCE: TRC85002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	4.52	4.67	0.15			MUDSTONE	M.GY SLIGHTLY UNCONSOL. WITH SOME IRON-STAINING; FLOOR ROCK.

* DENOTES MEASURED BCA
NEWPAGE

RI COAL DIVISION	HEAD	PROJ	KPN	BLK	SN	DS	TRC85002
=====							
SAMPLE ID	8001	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SPLIT SAMPLE ID	HD1	DATE ANALYSED 15/10/85					
ANALYSIS BASIS TYPE (AD,DB,AR,EM)						AD	
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)						ASTM	
TOP SIZE (MM)		----					
SURFACE MOISTURE %		----		TOTAL SULPHUR %			0.41
TOTAL MOISTURE %		19.97		PHOSPHOROUS %		----	
EQUILIBRIUM MOISTURE %		----		CHLORINE (PPM)		----	
RESIDUAL MOISTURE %				8.53	SPECIFIC GRAVITY		
ASH %				9.47	FSI		
VOLATILE MATTER %				19.08	HGI		
FIXED CARBON %				62.92	CO2 %		
GROSS CALORIFIC VALUE (MJ/KG)				24.81			
NET CALORIFIC VALUE (MJ/KG)				----			

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNSNTRC85003

DATE - 10/31/85

- HISTORY -

START DATE - 08/23/85
 END DATE - 08/23/85

CONTRACTOR -
 GEOLOGIST - MACLEOD

OPERATOR - GULF CANADA
 SURVEYOR -

REMARKS - RELOGGED VERSION OF TRC83048; ORIGINAL TRENCH LOG
 NOT DETAILED DUE TO FROZEN GROUND; COAL EXPOSED AT
 SURFACE AND PARTIALLY ERODED UP DIP; SAME SEAM AS
 TRC83056- RELATED BY FOLDING

- LOCATION -

PROVINCE - BC
 ELEVATION - 1996.00

ZONE - 9
 NORTHING - 6349975.00
 EASTING - 498315.00

LICENCE/LEASE NUMBER - 8048

LATITUDE - 571741
 LONGITUDE - 1290141

- ORIENTATION -

LENGTH - 5.00

INCLINATION - 0.0
 AZIMUTH - 72.0

SIZE WIDTH - 1.5
 SIZE HEIGHT - 1.5

ROOF STRIKE - 238
 ROOF DIP - 25
 ROOF DIR - S

FLOOR STRIKE - 233
 FLOOR DIP - 22
 FLOOR DIR - S

*** NOTE *** 0 INDICATES NO VALUE

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PROJECT: KPN BLOCK: SM DATA SOURCE: TRC85003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	0.00	0.30	0.30			SILTSTONE	DK.GY OVERBURDEN; HIGHLY FRACTURED
* 90	0.30	0.64	0.34			MUDSTONE	M.BN UNCONSOLIDATED; ABUNDANT DK BROWN SILTS TONE PEBBLES
* 90	0.64	0.67	0.03			MUDSTONE	YEL SOFT; MALLEABLE; UNCONSOLIDATED.
* 90	0.67	0.72	0.05			SANDSTONE	M.BN UNCONSOLIDATED; SOFT
* 90	0.72	0.82	0.10	00001		COAL	C-2.BLK C-2 TO C-3; WELL CLEATED; HIGHLY FE STA INED
* 90	0.82	0.91	0.09	00001		COAL	C-2.BLK C-2 TO C-3; WELL CLEATED; WELL CONSOLID ATED; MINOR FE STAIN
* 90	0.91	0.95	0.04	00001		COAL	C-2.BLK C-2 TO C-3; WELL CONSOLIDATED; HIGHLY F E STAINED
* 90	0.95	1.25	0.30	00001		COAL	C-2.BLK C-2 TO C-3; WELL CONSOLIDATED; WELL CLE ATED; MINOR FE STAIN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: SM DATA SOURCE: TRC85003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	1.25	1.44	0.19	00001		COAL	C-5.BLK HARD; WELL CONSOLIDATED; MINOR THIN CAR B LAMINAE
* 90	1.44	1.81	0.37			MUDSTONE	DK.GY WELL CONSOLIDATED
* 90	1.81	2.04	0.23			MUDSTONE	CARB.BLK FE STAINED; THIN COAL LAMINAE

* DENOTES MEASURED BCA
NEWPAGE

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNSNTRC85005

DATE - 10/31/85

- HISTORY -

START DATE - 08/12/85
END DATE - 08/12/85

CONTRACTOR -
GEOLOGIST - JENNER

OPERATOR - GULF CANADA
SURVEYOR -

REMARKS -

- LOCATION -

PROVINCE - BC
ELEVATION - 2012.00
LICENCE/LEASE NUMBER - 7726

ZONE - 9
NORTHING - 6347745.00
EASTING - 498745.00
LATITUDE - 571629
LONGITUDE - 1290115

- ORIENTATION -

LENGTH - 2.87
SIZE WIDTH - 0.8
SIZE HEIGHT - 0.3

INCLINATION - 41.0
AZIMUTH - 32.0

ROOF STRIKE - 260
ROOF DIP - 18
ROOF DIR - S

FLOOR STRIKE - 258
FLOOR DIP - 16
FLOOR DIR - S

*** NOTE *** 0 INDICATES NO VALUE

=====

PROJECT: KPN BLOCK: SN DATA SOURCE: TRC85005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	0.00	0.48	0.48			MUDSTONE	DK.GY THNB COARSENS UPWARDS TO SILTSTONE
* 90	0.48	0.72	0.24	00001		COAL	C-2,BLK WELL CONSOL WELL CCEATED
* 90	0.72	0.84	0.12	00001		MUDSTONE	DK.GY
* 90	0.84	1.37	0.53	00001		COAL	C-2,BLK WELL CONSOL
* 90	1.37	1.42	0.05	00001		MUDSTONE	DK.GY
* 90	1.42	1.45	0.03	00001		COAL	C-6,BLK WELL CONSOL.
* 90	1.45	1.56	0.11	00001		COAL	C-4,BLK
* 90	1.56	1.71	0.15	00001		COAL	C-2,BLK

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: SN DATA SOURCE: TRC85005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	1.71	1.93	0.22			MUDSTONE	DK.GY WEATHERS RED BROWN; CONTAINS THIN COAL LAMINAE APPROXIMATELY 1MM.; FLOOR CONTA INS ABUNDANT PLANT FOSSILS (NILSSONIA I ERUICCAULIS, PODOZAMITES CF. LANCEOLATUS ; CZEKANOWSKIA CF. RIGIDA, NILSSONIA SC HAINBERGENSIS, PITYOPHYLLUM NORDENSKI DIT.

* DENOTES MEASURED BCA
NEWPAGE

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNSNTRC85009

DATE - 10/31/85

- HISTORY -

START DATE - 08/09/85

END DATE - 08/09/85

CONTRACTOR -

GEOLOGIST - MACLEOD

OPERATOR - GULF CANADA

SURVEYOR -

REMARKS - ROOF ERODED EXPOSING COAL AT SURFACE; SAME SEAM AS
IN TRC85021 BUT TOPOGRAPHICALLY DOWNSLOPE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1760.00

LICENCE/LEASE NUMBER - 7726

ZONE - 9

NORTHING - 6351965.00

EASTING - 498460.00

LATITUDE - 571845

LONGITUDE - 1290132

- ORIENTATION -

LENGTH - 2.77

INCLINATION - 37.0

AZIMUTH - 44.0

SIZE WIDTH - 0.5

SIZE HEIGHT - 0.3

ROOF STRIKE - 0

ROOF DIP - 0

ROOF DIR -

FLOOR STRIKE - 295

FLOOR DIP - 20

FLOOR DIR - S

*** NOTE *** 0 INDICATES NO VALUE

=====

86/01/22

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: SN DATA SOURCE: TRC85009

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	0.00	0.10	0.10			OVERBURDEN	UNCONSOL
* 90	0.10	0.17	0.07	05962		COAL	C-3. BLK WEATHERED; MODERATE CONSOL
* 90	0.17	0.18	0.01	05962		SILTSTONE	M. BN UNCONSOL
* 90	0.18	0.47	0.29	05962		COAL	C-3. BLK MODERATELY WEATHERED; MINOR FE STAINING
* 90	0.47	0.74	0.27	05962		COAL	C-2. BLK MODERATELY WEATHERED; WELL CLEATED.
* 90	0.74	1.44	0.70	05962		COAL	C-3. BLK MINOR IRON STAIN; MODERATELY WELL CLEATED; MINOR WEATHERING.
* 90	1.44	1.84	0.40			MUDSTONE	CARB. DK. GY POORLY CONSOL
* 90	1.84	2.34	0.50			SILTSTONE	M. BN MINOR COALIFIED MATERIAL; MODERATELY WEATHERED.
* 90	2.34	2.46	0.12			MUDSTONE	CARB. DK. GY

* DENOTES MEASURED BCA

86/01/22

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: SN DATA SOURCE: TRC85009

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	2.46	2.57	0.11			COAL	C-3. BLK ABUNDANT IRON STAIN
* 90	2.57	2.77	0.20			MUDSTONE	LT. BN ABUNDANT IRON STAIN; POORLY CONSOL

* DENOTES MEASURED BCA
NENPAGE

CRI COAL DIVISION	HEAD	PROJ	KPN	BLK	SN	DS	TRC85009	
=====								
SAMPLE ID	5962	DATA TYPE (REAL,BORO,AVER,CALC)					REAL	
SPLIT SAMPLE ID	HD1	DATE ANALYSED 15/10/85						
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)						ASTM	AD	
=====								
TOP SIZE (MM)		----						
SURFACE MOISTURE %		----		TOTAL SULPHUR %		0.51		
TOTAL MOISTURE %		16.74		PHOSPHOROUS %		----		
EQUILIBRIUM MOISTURE %		----		CHLORINE (PPM)		----		
				SPECIFIC GRAVITY		----		
RESIDUAL MOISTURE %		7.31		FSI		----		
ASH %		24.32		HGI		----		
VOLATILE MATTER %		17.22		CO2 %		----		
FIXED CARBON %		51.15						
=====								
GROSS CALORIFIC VALUE (MJ/KG)		19.32						
NET CALORIFIC VALUE (MJ/KG)		----						

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNSSTRC85011

DATE - 10/31/85

- HISTORY -

START DATE - 08/13/85
END DATE - 08/13/85

CONTRACTOR -
GEOLOGIST - LEDDA

OPERATOR - GULF CANADA
SURVEYOR -

REMARKS - BEDDING WITHIN TRENCH IS SLIGHTLY CONTORTED HOWEVE
R TRUE THICKNESSES ARE GIVEN.

- LOCATION -

PROVINCE - BC
ELEVATION - 1665.00

ZONE - 9
NORTHING - 6350135.00
EASTING - 501925.00

LICENCE/LEASE NUMBER - 7426

LATITUDE - 571746
LONGITUDE - 1285805

- ORIENTATION -

LENGTH - 4.40
SIZE WIDTH - 1.0
SIZE HEIGHT - 1.0

INCLINATION - 0.0
AZIMUTH - 20.0

ROOF STRIKE - 260
ROOF DIP - 83
ROOF DIR - S

FLOOR STRIKE - 260
FLOOR DIP - 87
FLOOR DIR - S

*** NOTE *** 0 INDICATES NO VALUE

=====

PROJECT: KPN BLOCK: SS DATA SOURCE: TRC85011

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	0.00	0.20	0.20			MUDSTONE	CARB. M. BN WEATHERED; CARBONACEOUS LAMINAE.
* 90	0.20	0.24	0.04			SILTSTONE	DK. BN WEATHERS ORANGE-RUSTY BROWN
* 90	0.24	0.34	0.10	05965		COAL	C-2, BLK IRON STAINED; WELL CLEATED.
* 90	0.34	0.40	0.06	05965		COAL	C-2, BLK
* 90	0.40	0.44	0.04	05965		MUDSTONE	CARB. BLK UNCONSOL; THIN COALY BANDS UP TO .5CM.
* 90	0.44	0.45	0.01	05965		COAL	C-3, BLK
* 90	0.45	0.46	0.01	05965		MUDSTONE	IRON STAINED; WEATHERED.
* 90	0.46	0.47	0.01	05965		COAL	C-3, BLK
* 90	0.47	0.49	0.02	05965		MUDSTONE	IRON STAINED; WEATHERED
* 90	0.49	0.62	0.13	05965		COAL	C-3, BLK PARTIALLY WEATHERED.

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: SS DATA SOURCE: TRC85011

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	0.62	0.68	0.06	05965		MUDSTONE	BLK THIN COAL LAMINAE.
* 90	0.68	0.71	0.03	05965		MUDSTONE	BN IRON STAINED
* 90	0.71	0.76	0.05	05965		COAL	C-4, BLK
* 90	0.76	0.79	0.03	05965		COAL	C-3, BLK WELL CLEATED; IRON STAINED.
* 90	0.79	0.82	0.04	05965		MUDSTONE	DK. BN THIN COAL BANDS UP TO .3CM; IRON STAIN.
* 90	0.82	0.82	0.06	05965		COAL	C-3, BLK MINOR IRON STAIN
* 90	0.82	1.05	0.16	05965		COAL	C-4, BLK MINOR IRON STAIN.
* 90	1.05	1.11	0.06	05965		COAL	C-3, BLK WELL CLEATED
* 90	1.11	1.16	0.05	05965		COAL	C-4, BLK MODERATELY WEATHERED.
* 90	1.16	1.38	0.22	05965		COAL	C-3, BLK MODERATELY WEATHERED.

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: SS DATA SOURCE: TRC85011

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	1.38	1.51	0.13	05965		COAL	C-3.BLK MINOR IRON STAIN; WELL CONSOL AND CLEATED.
* 90	1.51	1.94	0.43	05965		COAL	C-3.BLK MODERATELY CLEATED; MINOR FE STAIN; MODERATELY WEATHERED.
* 90	1.94	1.99	0.05	05965		MUDSTONE	CARB.DK.GY UNCONSOL.
* 90	1.99	2.17	0.18	05965		MUDSTONE	GY THIN COAL BANDS UP TO 0.5CM.; IRON STAIN
* 90	2.17	2.29	0.12	05965		COAL	C-5.BLK MINOR IRON STAIN
* 90	2.29	2.89	0.60	05965		COAL	C-3.BLK WELL CLEATED; MINOR IRON STAIN
* 90	2.89	2.95	0.06	05965		MUDSTONE	DK.GY MODERATE UNCONSOL.
* 90	2.95	3.02	0.07	05965		MUDSTONE	H.BN WELL CONSOL

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: SS DATA SOURCE: TRC85011

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	3.02	3.24	0.22	05965		COAL	C-4.BLK SLIGHTLY WEATHERED; THIN MUDSTONE LAMINATIONS.
* 90	3.24	3.49	0.25			MUDSTONE	DK.GY THIN COAL LAMINAE

* DENOTES MEASURED BCA
NEWPAGE

ORICOR DIVISION HEAD PROJ KPN BLK SS DS TRC85011

SAMPLE ID 5965 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 15/10/85
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	-----		
SURFACE MOISTURE %	-----	TOTAL SULPHUR %	0.32
TOTAL MOISTURE %	28.28	PHOSPHOROUS %	-----
EQUILIBRIUM MOISTURE %	-----	CHLORINE (PPM)	-----
		SPECIFIC GRAVITY	-----
RESIDUAL MOISTURE %	8.60	FSI	-----
ASH %	21.20	HGI	-----
VOLATILE MATTER %	25.87	CO2 %	-----
FIXED CARBON %	44.33		
GROSS CALORIFIC VALUE (MJ/KG)	17.51		
NET CALORIFIC VALUE (MJ/KG)	-----		

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNSSTRC85012

DATE - 10/31/85

- HISTORY -

START DATE - 08/13/85
END DATE - 08/13/85

CONTRACTOR -
GEOLOGIST - S. MACLEOD

OPERATOR - GULF CANADA
SURVEYOR -

REMARKS - ALONG TREND OF TRC83052 AND NOT STRUCTURALLY THICK
ENED

- LOCATION -

PROVINCE - BC
ELEVATION - 1735.00

ZONE - 9
NORTHING - 6349840.00
EASTING - 501875.00

LICENCE/LEASE NUMBER - 7426

LATITUDE - 571736
LONGITUDE - 1285808

- ORIENTATION -

LENGTH - 3.70

INCLINATION - 15.0
AZIMUTH - 210.0

SIZE WIDTH - 0.5
SIZE HEIGHT - 1.1

ROOF STRIKE - 310
ROOF DIP - 40
ROOF DIR - S

FLOOR STRIKE - 312
FLOOR DIP - 34
FLOOR DIR - S

*** NOTE *** 0 INDICATES NO VALUE

=====

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN SS TRC85012 SEAM : INTERVAL(M) : 1.24 -- 2.92 ELEVATION(M) : 1735.0
 GEOLOGIST : S. MACLEOD SCALE: 1:47 DATE : NOV 07/85 DRAWING NO. :

SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		% REC.	SAMPLE ID			COAL/ROCK TOTAL		COAL QUALITY A.D.B.						
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	CAL. VAL MJ/KG		
	1.24	↑		0.18													
	2.92	↓		1.49	100.0	5984	5964	1.64 / 0.04 1.68		9.72	19.75	20.29	50.24	0.34	19.30	—	

PROJECT: KPN BLOCK: SS DATA SOURCE: TRC85012

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	0.00	0.40	0.40			MUDSTONE	DK. GY WEATHERED AND IRON-STAINED.
* 90	0.40	0.41	0.01			COAL	C-2 BLK WEATHERED.
* 90	0.41	0.45	0.04			MUDSTONE	M. BN UNCONSOLIDATED AND HIGHLY WEATHERED.
* 90	0.45	0.53	0.08			COAL	C-2 BLK WEATHERED AND IRON-STAINED.
* 90	0.53	0.56	0.03			MUDSTONE	M. BN WEATHERED AND UNCONSOLIDATED.
* 90	0.56	0.66	0.10			MUDSTONE	BLK CARBONACEOUS AND HIGHLY WEATHERED.
* 90	0.66	0.80	0.14			COAL	C-2 BLK WELL CLEATED - MODERATELY WEATHERED AND IRON-STAINED.
* 90	0.80	1.20	0.40			MUDSTONE	BLK CARBONACEOUS - SOFT HIGHLY WEATHERED WITH THIN MINOR COAL BANDS.
* 90	1.20	1.24	0.04			MUDSTONE	BN IRON-STAINED - SOFT AND UNCONSOL.

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: SS DATA SOURCE: TRC85012

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	1.24	1.39	0.15	05964		COAL	C-2 BLK WEATHERED.
* 90	1.39	1.43	0.04	05964		MUDSTONE	DK. GY CARBONACEOUS AND POORLY CONSOL.
* 90	1.43	2.92	1.49	05964		COAL	C-2 BLK WELL CLEATED AND MINOR IRON-STAINING.
* 90	2.92	3.00	0.08			MUDSTONE	DK. GY CARBONACEOUS
* 90	3.00	3.03	0.03			MUDSTONE	DK. GY IRON - STAINED AND CARBONACEOUS.
* 90	3.03	3.24	0.21			MUDSTONE	BLK HIGHLY WEATHERED WITH THIN COAL STRINGERS.
* 90	3.24	3.70	0.46			MUDSTONE	DK. GY COAL UP TO 1 CM. THICK; WELL CONSOL; THINLY BEDDED; CARBONACEOUS.

* DENOTES MEASURED BCA
NEWPAGE

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JRI COAL DIVISION  HEAD  PROJ  KPN  BLK  SS  DS  TRC85012
=====
SAMPLE ID          5964      DATA TYPE (REAL,BORO,AVER,CALC)  REAL
SPLIT SAMPLE ID   HD1       DATE ANALYSED  15/10/85
ANALYSIS BASIS TYPE (AD,DB,AR,EM)  AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)  ASTM

TOP SIZE (MM)          ----.---
SURFACE MOISTURE %     ---.---
TOTAL MOISTURE %       20.55
EQUILIBRIUM MOISTURE % ----.---

RESIDUAL MOISTURE %    9.72
ASH %                  19.75
VOLATILE MATTER %     20.29
FIXED CARBON %        50.24

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

GROSS CALORIFIC VALUE (MJ/KG)  19.30
NET CALORIFIC VALUE (MJ/KG)   ---.---

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- DATA SOURCE SUMMARY -

DATA SOURCE - KPNSNTRC85019

DATE - 10/31/85

- HISTORY -

START DATE - 08/10/85
END DATE - 08/10/85

CONTRACTOR -
GEOLOGIST - MACLEOD

OPERATOR - GULF CANADA
SURVEYOR -

REMARKS - FOLDING IN THE TRENCH DOUBLES THE COAL THICKNESS;
TRUE THICKNESS GIVEN

- LOCATION -

PROVINCE - BC
ELEVATION - 1969.00

ZONE - 9
NORTHING - 6350175.00
EASTING - 499275.00

LICENCE/LEASE NUMBER - 7726

LATITUDE - 571747
LONGITUDE - 1290043

- ORIENTATION -

LENGTH - 5.10
SIZE WIDTH - 0.6
SIZE HEIGHT - 1.5

INCLINATION - 7.0
AZIMUTH - 320.0

ROOF STRIKE - 230
ROOF DIP - 39
ROOF DIR - E

FLOOR STRIKE - 241
FLOOR DIP - 42
FLOOR DIR - E

*** NOTE *** 0 INDICATES NO VALUE

86/01/22

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: SN DATA SOURCE: TRC85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	0.00	0.34	0.34			MUDSTONE	DK.GY WEATHERED
* 90	0.34	0.45	0.11			COAL	C-4.BLK WEATHERED
* 90	0.45	0.60	0.15	05963		COAL	C-2.BLK WEATHERED
* 90	0.60	0.61	0.01	05963		COAL	C-3.BLK WEATHERED
* 90	0.61	0.70	0.09	05963		COAL	C-2.BLK
* 90	0.70	0.71	0.01	05963		COAL	C-4.BLK MINOR MUDSTONE LAMINAE
* 90	0.71	0.79	0.08	05963		COAL	C-2
* 90	0.79	0.83	0.04	05963		MUDSTONE	LT.GY FE STAINED
* 90	0.83	0.95	0.12	05963		COAL	C-2.BLK
* 90	0.95	1.00	0.05	05963		COAL	C-2.BLK

* DENOTES MEASURED BCA

86/01/22

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: SN DATA SOURCE: TRC85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	1.00	1.01	0.01	05963		MUDSTONE	
* 90	1.01	1.17	0.16	05963		COAL	C-2.BLK
* 90	1.17	1.27	0.10	05963		MUDSTONE	DK.GY MINOR COAL LAMINAE
* 90	1.27	1.34	0.07	05963		COAL	C-2.BLK
* 90	1.34	1.35	0.01	05963		MUDSTONE	DK.GY
* 90	1.35	1.66	0.31	05963		COAL	C-2.BLK WELL CONSOLIDATED; WELL CLEARED
* 90	1.66	1.69	0.03	05963		COAL	C-3
* 90	1.69	1.72	0.03	05963		COAL	C-2
* 90	1.72	1.76	0.04	05963		MUDSTONE	DK.GY UNCONSOLIDATED
* 90	1.76	1.84	0.08	05963		COAL	C-2.BLK

* DENOTES MEASURED BCA

NEWPAGE

FORM
4001

LORI COAL DIVISION HEAD PROJ KPN BLK SN DS TRC85019

=====

SAMPLE ID	5963	DATA TYPE (REAL,BORO,AVER,CALC)	REAL
SPLIT SAMPLE ID	HD1	DATE ANALYSED 15/10/85	
		ANALYSIS BASIS TYPE (AD,DB,AR,EM)	AD

NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	----*--	TOTAL SULPHUR %	0.41
SURFACE MOISTURE %	---*--	PHOSPHOROUS %	---*--
TOTAL MOISTURE %	13.08	CHLORINE (PPM)	-----
EQUILIBRIUM MOISTURE %	---*--	SPECIFIC GRAVITY	---*--
RESIDUAL MOISTURE %	5.53	FSI	---*--
ASH %	20.09	HGI	---*--
VOLATILE MATTER %	12.80	CO2 %	---*--
FIXED CARBON %	61.58		

GROSS CALORIFIC VALUE (MJ/KG) 23.50

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

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

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNSNTRC85020

DATE - 10/31/85

- HISTORY -

START DATE - 08/09/85
END DATE - 08/09/85

CONTRACTOR -
GEOLOGIST - MACLEOD

OPERATOR - GULF CANADA
SURVEYOR -

REMARKS - ROOF ERODED EXPOSING COAL AT SURFACE; SAME SEAM AS
TRC85021

- LOCATION -

PROVINCE - BC
ELEVATION - 1996.00

ZONE - 9
NORTHING - 6351890.00
EASTING - 498110.00

LICENCE/LEASE NUMBER - 7728

LATITUDE - 571843
LONGITUDE - 1290153

- ORIENTATION -

LENGTH - 1.70
SIZE WIDTH - 1.9
SIZE HEIGHT - 1.2

INCLINATION - 25.0
AZIMUTH - 108.0

ROOF STRIKE - 288
ROOF DIP - 20
ROOF DIR - S

FLOOR STRIKE - 295
FLOOR DIP - 17
FLOOR DIR - S

*** NOTE *** O INDICATES NO VALUE

=====

PROJECT: KPN BLOCK: SN DATA SOURCE: TRC85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	0.00	0.10	0.10			OVERBURDEN	UNCONSOLIDATED
* 90	0.10	0.53	0.43	05960		COAL	C-2.BLK WELL CLEATED; VERY THIN DISCONTINUOUS F E STAINED BANDS AND QUARTZ LENSES.
* 90	0.53	0.56	0.03	05960		SILTSTONE	LT.BN FE STAINED
* 90	0.56	1.16	0.60	05960		COAL	C-3.BLK MODERATELY WELL CONSOLIDATED IN PART; V ERY MINOR FE STAINING; MODERATELY WELL CLEATED.
* 90	1.16	1.26	0.10			SILTSTONE	LT.BN.LAM FE STAINED; THIN COAL LAMINAE AND CARBO NACEOUS MUDSTONE LAMINAE

* DENOTES MEASURED BCA
NEWPAGE

JCRI COAL DIVISION HEAD PROJ KPN BLK SN DS TRC85020

=====

SAMPLE ID	5960	DATA TYPE (REAL,BORO,AVER,CALC)	REAL
SPLIT SAMPLE ID	HD1	DATE ANALYSED 15/10/85	
		ANALYSIS BASIS TYPE (AD,DB,AR,EM)	AD

NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	-----		
SURFACE MOISTURE %	-----	TOTAL SULPHUR %	0.33
TOTAL MOISTURE %	21.66	PHOSPHOROUS %	-----
EQUILIBRIUM MOISTURE %	-----	CHLORINE (PPM)	-----
		SPECIFIC GRAVITY	-----
RESIDUAL MOISTURE %	8.10	FSI	-----
ASH %	23.56	HGI	-----
VOLATILE MATTER %	18.85	CO2 %	-----
FIXED CARBON %	49.49		
GROSS CALORIFIC VALUE (MJ/KG)	19.35		
NET CALORIFIC VALUE (MJ/KG)	-----		

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNSNTRC85021

DATE - 10/31/85

- HISTORY -

START DATE - 08/09/85
END DATE - 08/09/85

CONTRACTOR -
GEOLOGIST - MACLEOD

OPERATOR - GULF CANADA
SURVEYOR -

REMARKS - ROOF ERODED EXPOSING COAL AT SURFACE; SAME SEAM AS
KPNSNTRC85009

- LOCATION -

PROVINCE - BC
ELEVATION - 1768.00

ZONE - 9
NORTHING - 6352000.00
EASTING - 498475.00

LICENCE/LEASE NUMBER - 7728

LATITUDE - 571846
LONGITUDE - 1290131

- ORIENTATION -

LENGTH - 2.00
SIZE WIDTH - 0.8
SIZE HEIGHT - 1.5

INCLINATION - 12.0
AZIMUTH - 210.0

ROOF STRIKE - 0
ROOF DIP - 0
ROOF DIR -

FLOOR STRIKE - 285
FLOOR DIP - 35
FLOOR DIR - S

*** NOTE *** 0 INDICATES NO VALUE

=====

PROJECT: KPN BLOCK: SW DATA SOURCE: TRC85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	0.00	0.10	0.10			OVERBURDEN	UNCONSOLIDATED
* 90	0.10	0.46	0.36	00001		COAL	C-3.BLK HIGHLY WEATHERED; MINOR FE STAINED
* 90	0.46	0.48	0.02	00001		SILTSTONE	LT.BN UNCONSOLIDATED
* 90	0.48	0.49	0.01	00001		MUDSTONE	CARB.BLK
* 90	0.49	0.57	0.08	00001		COAL	C-3.BLK WEATHERED.
* 90	0.57	0.58	0.01	00001		SILTSTONE	DK.BN SOFT; MINOR FE STAINED QTZ
* 90	0.58	0.66	0.08	00001		COAL	C-3.BLK HIGHLY WEATHERED.
* 90	0.66	0.67	0.01	00001		SILTSTONE	LT.BN UNCONSOLIDATED
* 90	0.67	0.91	0.24	00001		COAL	C-3.BLK MINOR THIN BANDS OF LT BROWN SILTSTONE; MINOR FE STAINED
* 90	0.91	0.96	0.05	00001		COAL	C-5.BLK THIN LAMINAE OF CARBONACEOUS MUDSTONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: SW DATA SOURCE: TRC85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	0.96	1.16	0.20	00001		COAL	C-3.BLK ABUNDANT FE STAIN; MODERATE CLEATING;
* 90	1.16	1.27	0.11	00001		COAL	C-2.BLK WELL CLEATED
* 90	1.27	1.47	0.20	00001		COAL	C-5.BLK VERY THIN LAMINAE OF CARBONACEOUS MUDST ONE; WEATHERED.
* 90	1.47	1.62	0.15	00001		MUDSTONE	CARB.BLK THIN WELL CONSOLIDATED; VERY THIN LAMINAE OF LT BROWN SILTSTONE
* 90	1.62	1.64	0.02	00001		COAL	C-3.BLK WELL CLEATED; MINOR FE STAINED
* 90	1.64	1.68	0.04	00001		MUDSTONE	CARB.BLK WELL CONSOLIDATED; MINOR FE STAINED
* 90	1.68	1.73	0.05	00001		COAL	C-2.BLK
* 90	1.73	1.78	0.05	00001		SILTSTONE	M.BN WELL CONSOLIDATED; MINOR COALIFIED MATE RIAL

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: SN DATA SOURCE: TRC85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	1.78	1.88	0.10	00001		MUDSTONE	CARB. BLK THINLY INTERLAMINATED WITH VITRAIN BANDS UP TO 1CM BUT MOSTLY LESS THAN .25CM

-854- NOW IN CONTACT WITH SYSTEM 2000 -
 -855- NO LONGER IN CONTACT WITH SYSTEM 2000 -

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

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNNRTRC85010

DATE - 01/30/86

- HISTORY -

START DATE - 08/03/85

END DATE - 08/03/85

CONTRACTOR -

GEOLOGIST - JENNER

OPERATOR - GULF CANADA

SURVEYOR -

REMARKS -

- LOCATION -

PROVINCE - BC

ELEVATION - 1966.00

LICENCE/LEASE NUMBER - 8043

ZONE - 9

NORTHING - 6345000.00

EASTING - 490750.00

LATITUDE - 571500

LONGITUDE - 1290912

- ORIENTATION -

LENGTH - 7.00

SIZE WIDTH - 0.6

SIZE HEIGHT - 0.3

INCLINATION - 2.0

AZIMUTH - 130.0

ROOF STRIKE - 1

ROOF DIP - 41

ROOF DIR - E

FLOOR STRIKE - 42

FLOOR DIP - 55

FLOOR DIR - E

*** NOTE *** 0 INDICATES NO VALUE

=====

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN NR TRC85010 SEAM : INTERVAL(M) : 0.22 - 4.72 ELEVATION(M) : 1986.0
 GEOLOGIST : JENNER SCALE: 1:47 DATE : NOV 07/85 DRAWING NO. :

SEAM COMP.	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		% REC.	SAMPLE ID		COAL/ROCK TOTAL		COAL QUALITY A.D.B.							
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	CAL. VAL MJ/KG		
	0.22	↑															
	1.30				100.0	5957											
	2.28				100.0	5958											
	4.72	↓			100.0	5959			3.16 / 1.34 4.50	8.50	44.91	18.55	28.04	0.27	11.18		

PROJECT: KPN BLOCK: KH DATA SOURCE: TRC85010

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	0.00	0.17	0.17			SILTSTONE	DK. GY ROOF ROCK
* 90	0.17	0.22	0.05			MUDSTONE	LT. BN. THNB
* 90	0.22	0.26	0.04	05957		COAL	C-3. BLK
* 90	0.26	0.29	0.03	05957		MUDSTONE	LT. GY UNCONSOLIDATED
* 90	0.29	0.35	0.06	05957		COAL	C-4. BLK WEATHERED; MINOR MUDSTONE LAMINAE
* 90	0.35	0.38	0.03	05957		MUDSTONE	LT. GY UNCONSOLIDATED
* 90	0.38	0.44	0.06	05957		MUDSTONE	LT. BN. FE STAIN
* 90	0.44	0.49	0.05	05957		COAL	C-5. BLK
* 90	0.49	0.53	0.04	05957		COAL	C-4. BLK MODERATELY WEATHERED.
* 90	0.53	0.93	0.40	05957		COAL	C-3. BLK WEATHERED; SOME FE STAIN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: KH DATA SOURCE: TRC85010

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	0.93	0.95	0.02	05957		MUDSTONE	DK. GY
* 90	0.95	1.13	0.18	05957		COAL	C-3. BLK WEATHERED.
* 90	1.13	1.18	0.05	05957		MUDSTONE	DK. GY WITH SOME SULPHUR
* 90	1.18	1.30	0.12	05957		COAL	C-3. BLK
* 90	1.30	1.81	0.51	05958		MUDSTONE	DK. GY UNCONSOLIDATED AND PLYABLE
* 90	1.81	1.94	0.13	05958		COAL	C-6. BLK
* 90	1.94	2.16	0.22	05958		MUDSTONE	DK. GY FAIRLY UNCONSOLIDATED
* 90	2.16	2.19	0.03	05958		COAL	C-5. BLK
* 90	2.19	2.28	0.09	05958		MUDSTONE	DK. GY UNCONSOLIDATED
* 90	2.28	2.31	0.03	05959		COAL	C-5. BLK

* DENOTES MEASURED BCA

86/01/22

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: KH DATA SOURCE: TRCB5010

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	2.31	2.78	0.47	05959		COAL	C-3.BLK HIGHLY WEATHERED
* 90	2.78	2.81	0.03	05959		MUDSTONE	DK.GY UNCONSOLIDATED
* 90	2.81	3.22	0.41	05959		COAL	C-2.BLK
* 90	3.22	3.29	0.07	05959		COAL	C-4.BLK
* 90	3.29	3.46	0.17	05959		COAL	C-5.BLK UNCONSOLIDATED
* 90	3.46	3.78	0.32	05959		COAL	C-3.BLK SOME SULPHUR
* 90	3.78	3.87	0.09	05959		COAL	C-2.BLK
* 90	3.87	3.93	0.06	05959		COAL	C-3.BLK WEATHERED.
* 90	3.93	4.01	0.08	05959		COAL	C-2.BLK WEATHERED.
* 90	4.01	4.04	0.03	05959		COAL	C-4.BLK WEATHERED.

* DENOTES MEASURED BCA

86/01/22

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 4

PROJECT: KPN BLOCK: KH DATA SOURCE: TRCB5010

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	4.04	4.12	0.08	05959		MUDSTONE	DK.GY UNCONSOLIDATED
* 90	4.12	4.17	0.05	05959		COAL	C-3.BLK WEATHERED.
* 90	4.17	4.19	0.02	05959		SILTSTONE	M.BN UNCONSOLIDATED
* 90	4.19	4.20	0.01	05959		MUDSTONE	GY
* 90	4.20	4.21	0.01	05959		SILTSTONE	M.BN UNCONSOLIDATED
* 90	4.21	4.24	0.03	05959		COAL	C-3.BLK WEATHERED.
* 90	4.24	4.27	0.03	05959		MUDSTONE	DK.GY
* 90	4.27	4.32	0.05	05959		MUDSTONE	M.GY UNCONSOLIDATED; LAMINATED.
* 90	4.32	4.36	0.04	05959		COAL	C-3.BLK
* 90	4.36	4.43	0.07	05959		MUDSTONE	DK.GY UNCONSOLIDATED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: KH DATA SOURCE: TRC85010

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	4.43	4.47	0.04	05959		COAL	C-3.BLK FE STAIN AND SULPHUR
* 90	4.47	4.56	0.09	05959		COAL	C-5.BLK WEATHERED.
* 90	4.56	4.64	0.08	05959		COAL	C-3.BLK CONSOLIDATED WITH SOME FE STAIN
* 90	4.64	4.65	0.01	05959		QUARTZITE	MH FE STAIN
* 90	4.65	4.69	0.04	05959		COAL	C-3.BLK CONSOLIDATED
* 90	4.69	4.72	0.03	05959		SILTSTONE	M.BN FE STAINED
* 90	4.72	5.02	0.30			SANDSTONE	LT-M.GY SALT AND PEPPER TEXTURE.

* DENOTES MEASURED BCA
NEWPAGE

CRI COAL DIVISION	HEAD	PROJ	KPN	BLK	KH	DS	TRC85010
=====							
SAMPLE ID	5957	DATA TYPE (REAL,BORO,AVER,CALC)				REAL	
SPLIT SAMPLE ID	HD1	DATE ANALYSED 15/10/85					
		ANALYSIS BASIS TYPE (AD,DB,AR,EM)				AD	
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)		ASTM					
TOP SIZE (MM)		----					
SURFACE MOISTURE %		---		TOTAL SULPHUR %		0.27	
TOTAL MOISTURE %		22.36		PHOSPHOROUS %		----	
EQUILIBRIUM MOISTURE %		----		CHLORINE (PPM)		-----	
				SPECIFIC GRAVITY		----	
RESIDUAL MOISTURE %		8.50		FSI		----	
ASH %		44.91		HGI		-----	
VOLATILE MATTER %		18.55		CO2 %		----	
FIXED CARBON %		28.04					
GROSS CALORIFIC VALUE (MJ/KG)		11.18					
NET CALORIFIC VALUE (MJ/KG)		----					

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

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNNRTRC85018

DATE - 10/31/85

- HISTORY -

START DATE - 07/17/85
END DATE - 07/17/85

CONTRACTOR -
GEOLOGIST - MACLEOD

OPERATOR - GULF CANADA
SURVEYOR -

REMARKS - TRENCH LOCATED ON BANK OF RIVER

- LOCATION -

PROVINCE - BC
ELEVATION - 1510.00

ZONE - 9
NORTHING - 6340843.00
EASTING - 503370.00

LICENCE/LEASE NUMBER - 7534

LATITUDE - 571245
LONGITUDE - 1285639

- ORIENTATION -

LENGTH - 1.78

INCLINATION - 38.0
AZIMUTH - 120.0

SIZE WIDTH - 0.6
SIZE HEIGHT - 0.7

ROOF STRIKE - 220
ROOF DIP - 30
ROOF DIR - E

FLOOR STRIKE - 0
FLOOR DIP - 0
FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

=====

PROJECT: KPN BLOCK: WR DATA SOURCE: TRC85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
00	0.00	0.30	0.30			MUDSTONE	CARB. BLK. THNB ABUNDANT PLANT FOSSILS - CARBONACEOUS N ILSSONIA TENUICAULIS
00	0.30	0.43	0.13	08052		COAL	C-3. BLK. LAM ABOVE MUDSTONE GRADES INTO COAL.
00	0.43	0.68	0.25	08052		COAL	C-2. BLK. LAM VERY MINOR FE STAINING
00	0.68	0.98	0.30	08052		COAL	BLK. LAM NO C VALUE RECORDED; HIGHLY WEATHERED; FROZEN FOR THE MOST PART
00	0.98	1.18	0.20			MUDSTONE	CARB. BLK. LAM HIGHLY WEATHERED WITH MINOR COAL STRINGERS.
00	1.18	1.23	0.05			COAL	BLK. LAM HIGHLY FE STAINED; WEATHERED; MINOR MUD STONE LAMINATIONS.
00	1.23	1.78	0.55			MUDSTONE	CARB. BLK. LAM MINOR COAL STRINGERS; MORE DETAIL NOT A VAILABLE DUE TO POORLY CONSOLIDATED ROC K.

* DENOTES MEASURED BCA
NEWPAGE

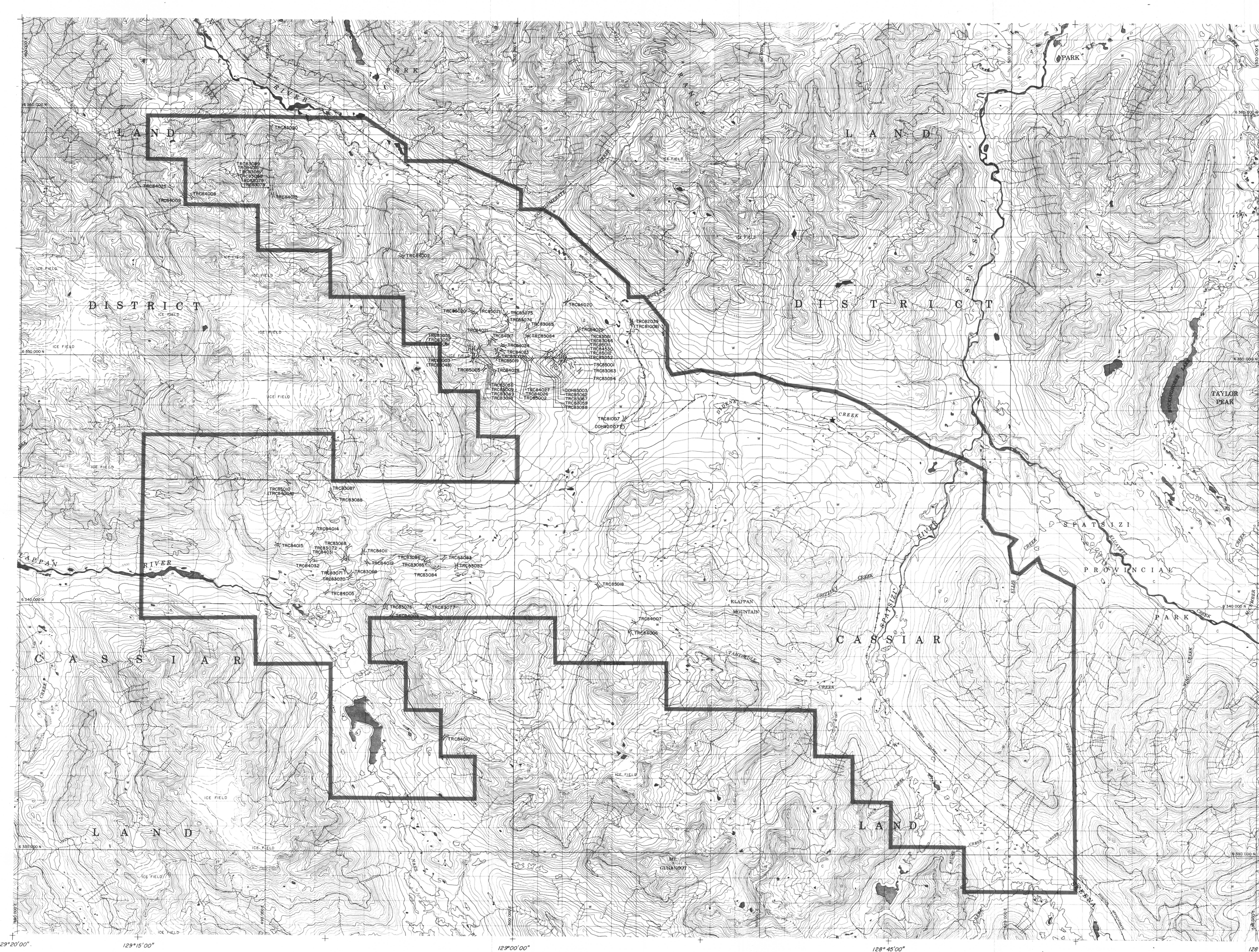
GCRI COAL DIVISION HEAD PROJ KPN BLK NR DS TRC85018

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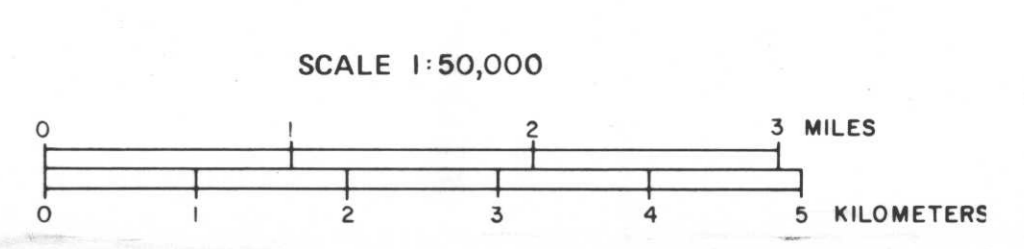
SAMPLE ID	8052	DATA TYPE (REAL,BORO,AVER,CALC)	REAL
SPLIT SAMPLE ID	HD1	DATE ANALYSED 15/10/85	
		ANALYSIS BASIS TYPE (AD,DB,AR,EM)	AD

NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	-----		
SURFACE MOISTURE %	-----	TOTAL SULPHUR %	0.46
TOTAL MOISTURE %	4.89	PHOSPHOROUS %	-----
EQUILIBRIUM MOISTURE %	-----	CHLORINE (PPM)	-----
		SPECIFIC GRAVITY	-----
RESIDUAL MOISTURE %	2.71	FSI	-----
ASH %	7.85	HGI	-----
VOLATILE MATTER %	5.41	CO2 %	-----
FIXED CARBON %	84.03		
GROSS CALORIFIC VALUE (MJ/KG)	30.76		
NET CALORIFIC VALUE (MJ/KG)	-----		



- LEGEND**
- ROADS AND RELATED FEATURES**
- HARD SURFACE ALL WEATHER
 - LOOSE SURFACE
 - CART TRACK WINTER ROAD
 - TRAIL CUTLINE PORTAGE
 - BUILT UP AREA
 - RAILWAY STATION STOP
 - SEAPLUME BASE ANCHORAGE
 - BRIDGE
- LANDMARK FEATURES**
- HOUSE BARN
 - CHURCH SCHOOL
 - POST OFFICE
 - HISTORICAL SITE
 - TOWNSHIP FIRE RADIO
 - WELL OIL GAS
 - TANK OIL GASOLINE WATER
 - TELEPHONE LINE
 - POWER TRANSMISSION LINE
 - RAIL
 - CUTTING EMBANKMENT
 - GRAVEL PIT
- BOUNDARIES AND CONTROL**
- INTERNATIONAL PROVINCIAL BOUNDARY MONUMENT
 - COUNTY DISTRICT
 - TOWNSHIP PARISH - SURVEILED - UNSURVEILED
 - TOWNSHIP OILS - SURVEILED - UNSURVEILED
 - MUNICIPALITY
 - INDIAN RESERVE PARK, ETC.
 - HORIZONTAL CONTROL POINT
 - BENCH MARK
 - SPOT ELEVATION ELEVATION APPROXIMATE
- DRAINAGE AND RELATED FEATURES**
- STREAM SHORELINE INDEFINITE
 - DIRECTION OF FLOW
 - LAKE INTERMITTENT
 - WANDERED FLOODED LAND
 - MARSH OR SWAMP WOODS
 - DRY RIVER BED WITH CHANNELS
 - SAND ABOVE IN WATER
 - STRING BOG
 - TUNDRA POND POLYTONS
 - RAPIDS
 - FORESHORE FLATS
 - ROCK
 - DAM
 - WHARF
 - DITCH
- RELIEF FEATURES**
- CONTOURS
 - APPROXIMATE CONTOUR
 - DEPRESSION
 - ESKER
 - PIGSD
 - SAND SAND DUNES
 - PALSA BOG
 - WOODS AREA
- PROPERTY BOUNDARY**
- TRENCH LOCATION
 - DRILL HOLE LOCATION
 - FIELD CAMP LOCATION



04H/11	04H/10	04H/9	57°45'
04H/6	04H/7	04H/8	
04H/2	04H/3	04H/1	
04A/7	04A/10	04A/11	57°45'
129°30'	129°30'	128°00'	128°00'

129°20'00" 129°15'00" 129°00'00" 128°45'00" 128°30'00" 128°15'00" 128°00'00"

706

GULF CANADA RESOURCES INC.		
CALGARY	Coal Division	ALBERTA
MT. KLAPPAN COAL PROPERTY		
1981 - 1985 TRENCH AND DRILL HOLE LOCATION MAP		
PREPARED BY: S. MACLEOD	DRAWING No. KPN85007	
APPROVED BY: K. JENNER	DATE: NOV 1985	